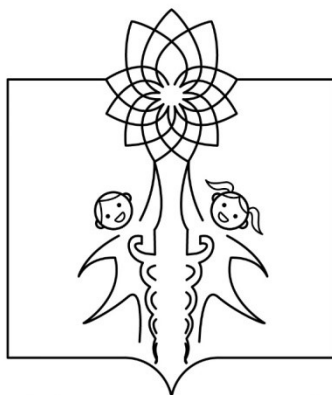


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خلاصه مقالات و برنامه روزانه نوزدهمین کنگره اورژانس‌ها و بیماری‌های شایع طب کودکان



کنگره اورژانس‌ها و بیماری‌های شایع طب کودکان

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پیام ریاست کنگره

پاسخگویی به نیازهای جامعه و تلاش جهت توسعه دانش پزشکی یکی از مهم‌ترین مسئولیت‌های اجتماعی گروه‌ها و انجمن‌های علمی وابسته به حرف پزشکی است. برگزاری نشست‌های علمی، سمینار و همایش‌های مختلف یکی از راه‌های دستیابی به این هدف است. کنگره اورژانس‌ها و بیماری‌های شایع طب کودکان دانشگاه علوم پزشکی شهید بهشتی که امسال نیز برای نوزدهمین سال متوالی برگزار خواهد شد، بی‌شک یکی از مهم‌ترین و تاثیرگذارترین برنامه‌های علمی در حیطه پزشکی کودکان است. همه ساله تلاش بر این بوده که محورهای مورد بحث در کنگره بر اساس نیازسنجی جامعه پزشکی گروه هدف و با هم‌اندیشی و دقت انتخاب شود تا نیاز همکاران در حیطه بیماری‌های شایع و اورژانس‌های طب کودکان را پوشش دهند.

همایش سال جاری، به پاسداشت سال‌ها تلاش استاد بزرگ و فرزانه طب کودکان جناب پروفیسور محمدحسین مرندیان-به نام ایشان نامگذاری گردیده است. بزرگواری که اسطوره اخلاق بودند و یاد و نام نیک ایشان برای همیشه در حافظه جامعه پزشکی باقی خواهد ماند. امید است با بهره‌گیری از منش و اخلاق ایشان، بتوانیم قدم‌های ماندگار و خالصانه‌ای برای اعتلای پزشکی طب کودکان در کشورمان برداریم.

شایسته است از زحمات و تلاش‌های کلیه اعضای هیات علمی گروه کودکان و تیم علمی و اجرایی همایش جهت برگزاری نوزدهمین کنگره اورژانس‌ها و بیماری‌های شایع طب کودکان، قدردانی و سپاسگزاری نمایم.

همچنین از زحمات دبیر محترم علمی سرکار خانم دکتر قمرتاج خان بابایی و جناب آقای دکتر امیرحسین حسینی (دبیر علمی کارگاه‌ها)، دبیر محترم اجرایی جناب آقای دکتر خسرو رحمانی، مدیر اجرایی سرکار خانم دکتر طاهره صبوری و همچنین ریاست محترم

بیمارستان کودکان مفید جناب آقای دکتر شمس ا. نوری پور که با تلاش‌های وافر آنها کنگره امسال برگزار گردید، تشکر و قدردانی نمایم.

از خداوند متعال برای همه همکاران گرامی سلامت و موفقیت آرزو می‌کنم.

دکتر محمد مهدی ناصحی

رئیس همایش

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۹:۵۰-۱۰:۰۰	شوک کاردیوژنیک	دکتر فریبا علایی	فوق تخصص قلب کودکان- دع پ شهید بهشتی
۱۰:۰۰-۱۰:۱۵	پذیرایی و استراحت		
۱۰:۱۵-۱۱:۳۰	جلسه سوم: تغذیه نوزادان نارس اعضای هیات رئیسه: دکتر سید حسین فخرایی - دکتر ابوالفضل افجهای - دکتر محمد کاظمیان - دکتر شمس ا.. نوری پور		
۱۰:۱۵-۱۰:۳۰	کلیات تغذیه در نوزادان نارس	دکتر محمد کاظمیان	فوق تخصص نوزادان د.ع پ شهید بهشتی
۱۰:۳۰-۱۰:۴۵	تغذیه وریدی (TPN)	دکتر رضا سعیدی	فوق تخصص نوزادان د.ع پ شهید بهشتی
۱۰:۴۵-۱۱:۰۰	شروع تغذیه خوراکی	دکتر نعیمه تسلیمی	فوق تخصص نوزادان د.ع پ شهید بهشتی
۱۱:۰۰-۱۱:۱۵	تغذیه نوزاد نارس پس از ترخیص	دکتر علی ناصح	فوق تخصص نوزادان د.ع پ شهید بهشتی
۱۱:۱۵-۱۱:۳۰	بانک شیر و تاثیرات در NEC	دکتر شمس ا.. نوری پور	فوق تخصص نوزادان د.ع پ شهید بهشتی
۱۱:۳۰-۱۳:۳۰	جلسه چهارم: اورژانس‌های کودکان اعضای هیات رئیسه: دکتر سمیرا سیاح - دکتر حجت درخشانفر - دکتر شهابنگ جعفرنژاد - دکتر سمانه رحیمی - دکتر حمیدرضا خوش نژاد - دکتر کورش سلطانیه زنجانی		
۱۱:۳۰-۱۱:۴۵	برخورد سیستماتیک با کودک بدحال	دکتر شهابنگ جعفرنژاد	متخصص کودکان- دع پ ایران
۱۱:۴۵-۱۲:۰۰	برخورد با کودک با دیسترس تنفسی	دکتر حجت درخشانفر	فلوشیپ طب اورژانس کودکان- دع پ شهید بهشتی
۱۲:۰۰-۱۲:۱۵	برخورد با کودک با علایم شوک	دکتر سمانه رحیمی	متخصص کودکان- دع پ شهید بهشتی
۱۲:۱۵-۱۲:۳۰	برخورد با کودک با علایم کاهش سطح هوشیاری	دکتر سمیرا سیاح	متخصص کودکان- دع پ شهید بهشتی
۱۲:۳۰-۱۲:۴۵	برخورد با شیرخوار بی‌قرار	دکتر کورش سلطانیه زنجانی	متخصص کودکان- دع پ شهید بهشتی

متخصص طب اورژانس - د.ع پ ایران	دکتر حمیدرضا خوش نژاد	برخورد با کودک آسیب دیده	۱۲:۴۵-۱۳:۰۰
متخصص کودکان - د.ع پ شهید بهشتی	دکتر بنفشه صادقی	برخورد با کودک با درد شکم	۱۳:۰۰-۱۳:۱۰
متخصص کودکان - د.ع پ شهید بهشتی	دکتر بهاره همتی	برخورد با کودک مراجعه کننده با اتساع شکم	۱۳:۱۰-۱۳:۲۰
فوق تخصص ریه کودکان - د.ع پ شهید بهشتی	دکتر مریم حسن زاد	برخورد با کودک با آسپراسون جسم خارجی ریه	۱۳:۲۰-۱۳:۳۰
جلسه پنجم: پانل بیماری‌های خواب کودکان گرداننده: دکتر زهرا سلطان تویه اعضای هیات رئیسه: دکتر شبنم جلیل القدر - دکتر محسن جوادزاده - دکتر سعید صدر-دکتر خاطره خامنه پور			۱۳:۳۰-۱۴:۲۰
اختتامیه			۱۴:۲۰-۱۴:۳۰
ناهار و نماز			۱۴:۳۰-۱۵:۰۰

کارگاه اقدامات پایه و پیشرفته احیا در کودکان - دبیر علمی: دکتر سمیرا سیاح - ۱۴۰۲/۰۹/۰۶ - مکان:

اسکیل لب

زمان	عنوان سخنرانی	نام سخنران	رشته، مرتبه علمی، وابستگی دانشگاهی، محل خدمت
۸:۰۰-۸:۳۰	اقدامات پایه احیا با معرفی AED	دکتر سمیرا سیاح	متخصص کودکان، د.ع پ شهید بهشتی
۸:۳۰-۹:۰۰	کار عملی با مولاز AED (با مشارکت شرکت کنندگان)	دکتر سمیرا سیاح	متخصص کودکان، د.ع پ شهید بهشتی
۹:۰۰-۹:۳۰	احیای پیشرفته	دکتر بنفشه صادقی	متخصص کودکان، د.ع پ شهید بهشتی
۹:۳۰-۱۰:۰۰	کار عملی احیای پیشرفته با مولاز	دکتر حجت درخشانی	فلوشیپ طب اورژانس کودکان، د.ع پ شهید بهشتی
۱۰:۰۰-۱۰:۱۵	پذیرایی		
۱۰:۱۵-۱۰:۳۰	مراقبت بعد از احیا	دکتر سمانه رحیمی	متخصص کودکان، د.ع پ شهید بهشتی
۱۰:۳۰-۱۲:۰۰	کار عملی	دکتر سمانه رحیمی	متخصص کودکان، د.ع پ شهید بهشتی

کارگاه تهویه مکانیکی در نوزادان - دبیر علمی: دکتر مینو فلاحی - زمان: دوشنبه ۱۴۰۲/۹/۶ - مکان:**سالن پاتولوژی**

عنوان	سخنران	موضوع	ساعت
فوق تخصص نوزادان - دع پ شهید بهشتی	دکتر مینو فلاحی	اکسیژن درمانی در NICU	۸-۸:۳۰
فوق تخصص نوزادان - دع پ شهید بهشتی	دکتر میترا رادفر	تهویه تهاجمی	۸:۳۰-۹:۰۰
فوق تخصص نوزادان - دع پ شهید بهشتی	دکتر فرزانه پالیزبان	تهویه غیر تهاجمی	۹:۰۰-۹:۳۰
فوق تخصص نوزادان - دع پ شهید بهشتی	دکتر مرضیه مداح	سورفکتانت تراپی	۹:۳۰-۱۰:۰۰
استراحت و پذیرایی			۱۰:۰۰-۱۰:۱۵
فوق تخصص نوزادان - دع پ شهید بهشتی	دکتر شیرین محمدی	وینینگ	۱۰:۱۵-۱۰:۴۵
فوق تخصص نوزادان - دع پ شهید بهشتی	دکتر شیرین محمدی	کار عملی	۱۰:۴۵-۱۱:۰۰
فوق تخصص نوزادان - دع پ شهید بهشتی	دکتر شهرزاد طباطبایی	عوارض تهویه مکانیکی	۱۱:۰۰-۱۱:۴۵
فوق تخصص نوزادان - دع پ شهید بهشتی	دکتر پریناز علیزاده	European consensus RDS	۱۱:۴۵-۱۲:۱۵
پرسش و پاسخ			۱۲:۱۵-۱۳:۰۰

کارگاه تنظیمات ونتیلاتور در بیماری‌های تنفسی کودکان - دبیر علمی: دکتر نرجس احمدی زاده -**دوشنبه ۱۴۰۲/۹/۶ - سالن معاونت آموزشی**

عنوان	سخنران	موضوع	ساعت
فلوشیپ مراقبت‌های ویژه کودکان - دع پ شهید بهشتی	دکتر معصومه هاشمی	کلیات تنظیم ونتیلاتور کودکان	۸-۸:۳۰
فلوشیپ مراقبت‌های ویژه کودکان - دع پ شهید بهشتی	دکتر آریتا بهزاد	تنظیمات ونتیلاتور در PARDS	۸:۳۰-۹:۰۰
فلوشیپ مراقبت‌های ویژه کودکان - دع پ شهید بهشتی	دکتر نرجس احمدی زاده	تنظیمات ونتیلاتور در بیماری‌های انسدادی - آسم	۹:۰۰-۹:۳۰
فوق تخصص ریه کودکان - دع پ شهید بهشتی	دکتر سعید صدر	تفسیر منحنی‌های ونتیلاتور	۹:۳۰-۱۰:۰۰

پذیرایی		۱۰:۰۰-۱۰:۱۵
فلوشیپ مراقبت‌های ویژه کودکان - دع پ شهید بهشتی	دکتر مریم عالم زاده	نحوه تجویز سدیشن در کودک تحت ونتیلاتور
فلوشیپ مراقبت‌های ویژه کودکان - دع پ شهید بهشتی	دکتر مریم عالم زاده	معرفی کیس
متخصص کودکان - دع پ شهید بهشتی	دکتر مریم میرجعفری	نحوه جداسازی از ونتیلاتور (weaning)

**سمپوزیوم مدیریت بیماری اختلال بیش‌فعالی و عدم تمرکز و توجه - دبیر علمی: دکتر غزال زاهد -
۱۴۰۲/۰۹/۰۶ - مکان آمفی تئاتر**

زمان	عنوان سخنرانی	نام سخنران	رشته، مرتبه علمی، وابستگی دانشگاهی، محل خدمت
۸:۰۰-۹:۰۰	تعریف و کرایت‌ها و انواع ADHD	دکتر زهرا مشایخی	فوق تخصص روانپزشکی کودک و نوجوان - دع پ شهید بهشتی
۹:۰۰-۱۰:۰۰	چگونگی تشخیص (علایم و نشانه‌ها) ADHD در کودکان	دکتر حنانه صفرزاده	فوق تخصص روانپزشکی کودک و نوجوان - دع پ شهید بهشتی
پذیرایی			۱۰:۰۰-۱۰:۱۵
۱۰:۱۵-۱۱:۰۰	همبودی و تشخیص‌های افتراقی	دکتر زهرا مشایخی	فوق تخصص روانپزشکی کودک و نوجوان - دع پ شهید بهشتی
۱۱:۰۰-۱۲:۰۰	بایدها و نبایدهای در درمان ADHD	دکتر حنانه صفرزاده	فوق تخصص روانپزشکی کودک و نوجوان - دع پ شهید بهشتی
	ارائه تکنیک و مهارت‌های مختلف برای آموزش به معلمان، والدین و کودکان ADHD	دکتر زهرا مشایخی دکتر حنانه صفرزاده	فوق تخصص روانپزشکی کودک و نوجوان - دع پ شهید بهشتی

وبینار کودک آزاری و نحوه افتراق تروماهای عمدی از غیرعمدی			
دبیر علمی: دکتر سهیلا سادات واقفی - ۷ آذر ۱۴۰۲			
عنوان	سخنران	موضوع	ساعت
متخصص پزشکی قانونی - دع پ شهید بهشتی	دکتر فارس نجاری	تعریف کودک آزاری و انواع آن	۸-۸:۳۰
متخصص پزشکی قانونی - دع پ شهید بهشتی	دکتر فرنوش داوری	آخرین قوانین کودک آزاری مصوب در ایران	۸:۳۰-۹:۰۰
متخصص پزشکی قانونی - دع پ شهید بهشتی	دکتر زهرا مهربانی	نحوه افتراق سوختگی عمدی از غیرعمدی	۹:۰۰-۹:۳۰
متخصص پزشکی قانونی - دع پ شهید بهشتی	دکتر سهیلا سادات واقفی	نحوه افتراق تروماهای عمدی از غیرعمدی منجر به انواع صدمات پوستی تنه و اندامها	۹:۳۰-۱۰:۰۰
متخصص پزشکی قانونی - دع پ شهید بهشتی	دکتر سارا نیک پور	نحوه افتراق شکستگی‌های استخوانی عمدی از غیرعمدی	۱۰:۰۰-۱۰:۳۰
متخصص پزشکی قانونی - دع پ شهید بهشتی	دکتر محمدعلی امام هادی	نحوه افتراق تروماهای عمدی از غیرعمدی سر	۱۰:۳۰-۱۱:۰۰
متخصص پزشکی قانونی - دع پ شهید بهشتی	دکتر سهیلا سادات واقفی	نحوه تشخیص کودک آزاری	۱۱:۰۰-۱۱:۳۰

وبینار شنوایی شناسی در کودکان			
دبیر علمی: دکتر رسولی فرد - ۸ آذر ۱۴۰۲			
تخصص	نام و نام خانوادگی	عنوان سخنرانی	ساعت
متخصص شنوایی شناسی - دع پ شهید بهشتی	دکتر احمدرضا ناظری	روند رشد و تکامل شنوایی و گفتار و اهمیت رویکرد مجموعه آزمون‌ها در ارزیابی شنوایی کودکان	۸:۰۰-۸:۳۰
متخصص شنوایی شناسی - دع پ شهید بهشتی	دکتر فاطمه حیدری	پروتکل کشوری غربالگری شنوایی نوزادان و کودکان و اهمیت غربالگری	۸:۳۰-۹:۰۰
متخصص شنوایی شناسی - دع پ شهید بهشتی	دکتر فاطمه حیدری	آزمون‌های رفتاری کودکان	۹:۰۰-۹:۳۰
متخصص شنوایی شناسی - دع پ تهران	دکتر پریسا رسولی فرد	ماهیت ارزیابی الکتروفیزیولوژیک در کودکان	۹:۳۰-۱۰:۲۰
متخصص شنوایی شناسی - دع پ تهران	دکتر سعید فراهانی	اورژانس‌های شنوایی در کودکان	۱۰:۲۰-۱۱:۰۰

وبینار رادیوگرافی در کودکان			
دبیر علمی: دکتر میترا خلیلی - ۹ آذر ۱۴۰۲			
ساعت	عنوان سخنرانی	نام و نام خانوادگی	مرتبه علمی
۸:۰۰-۸:۲۰	Imaging approach to a child with fever and cough	دکتر الهام زارعی	متخصص رادیولوژی - دع پ ایران
۸:۲۰-۸:۴۰	Imaging approach to a child with Limping	دکتر مریم جعفری	متخصص رادیولوژی - دع پ ایران
۸:۴۰-۹:۱۰	Imaging in trauma in pediatrics	دکتر امیررضا جهانشاهی	متخصص رادیولوژی - دع پ تبریز
۹:۱۰-۹:۳۰	Imaging in pediatric acute abdomen	دکتر فاطمه زمانی	متخصص رادیولوژی - دع پ تهران
۹:۳۰-۱۰:۰۰	Imaging in neonatal intestinal obstruction	دکتر میترا خلیلی	متخصص رادیولوژی - دع پ شهید بهشتی
۱۰:۰۰-۱۰:۳۰	Imaging approach to foreign body in pediatric	دکتر زهرا قمی اویلی	متخصص رادیولوژی - دع پ شهید بهشتی
۱۰:۳۰-۱۱:۰۰	How to request imaging modalities for common pediatric disease	دکتر ندا پاک	متخصص رادیولوژی - دع پ تهران

عنوان: فیزیوتراپی در کودکان و نوزادان			
دبیر علمی: دکتر مینو خلخالی زاویه - جمعه ۱۰ آذر ۱۴۰۲			
ساعت	عنوان سخنرانی	نام سخنران	تخصص سخنران
۸:۰۰-۸:۳۰	فیزیوتراپی و نقش آن در بیماری‌های کودکان و نوزادان	دکتر مینو خلخالی زاویه	متخصص فیزیوتراپی - دع پ شهید بهشتی
۸:۳۰-۹:۱۵	فیزیوتراپی در اختلالات ارتوپدی شایع کودکان و نوزادان	ملیحه حاتمی نیا	کارشناس ارشد فیزیوتراپی - دع پ شهید بهشتی
۹:۱۵-۱۰:۰۰	فیزیوتراپی در اختلالات تنفسی کودکان و نوزادان	دکتر محسن عابدی	متخصص فیزیوتراپی - دع پ شهید بهشتی
۱۰:۰۰-۱۰:۴۵	فیزیوتراپی در اختلالات نورولوژی شایع کودکان و نوزادان	دکتر مینو خلخالی زاویه	متخصص فیزیوتراپی - دع پ شهید بهشتی
۱۰:۴۵-۱۱:۰۰	جمع‌بندی و پاسخگویی به سوالات		

برنامه تفضیلی هفتمین کنگره کشوری مراقبت‌های پرستاری در اورژانس‌ها و بیماری‌های شایع کودکان

ثبت نام			۷:۰۰-۷:۳۰
تلاوت قرآن و سرود ملی - افتتاحیه			۷:۳۰-۷:۴۵
دبیر اجرایی	خانم فریبا صفایی	سخنرانی افتتاحیه	۸:۰۰-۸:۱۰
دبیر علمی	دکتر اعظم شیرین آبادی فراهانی		۸:۱۰-۸:۲۰
مدیر کل ارتقای سلامت معاونت پرستاری وزارت بهداشت	دکتر مریم رسولی		۸:۲۰-۸:۳۰
الف- مراقبت در اورژانس اطفال			
جلسه اول: اخلاق و صلاحیت بالینی در مراقبت‌های پرستاری اعضای هیات رئیسه: دکتر عباس عباس زاده - دکتر وحید زمان زاده- دکتر منیژه نوریان			۸:۳۰-۱۰:۰۰
زمان	سخنران	عنوان سخنرانی	تخصص
۸:۳۰-۸:۵۰	دکتر عباس عباس زاده	مقدمه‌ای بر اخلاق در مراقبت از اطفال	دکترای پرستاری - فلوشیپ اخلاق
۸:۵۰-۹:۲۰	فروغ مولا	صلاحیت بالینی در مراقبت از اطفال	کارشناس ارشد پرستاری - د ع پ شهید بهشتی
۹:۲۰-۹:۴۰	دکتر وحید زمان زاده	آموزش در مراقبت (تاکید بر استقرار هیات علمی در بالین)	دکترای پرستاری - د ع پ شهید بهشتی
۹:۴۰-۱۰:۰۰	دکتر منیژه نوریان	مراقبت مبتنی بر شواهد در مراقبت اورژانس	دکترای پرستاری - د ع پ شهید بهشتی
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Seizures Following Pediatric Stroke: A Comprehensive Review of Pathophysiology, Diagnosis, and Management

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Abstract

Introduction: Pediatric stroke, while relatively rare, is a severe neurological condition in children, and it is often associated with a high risk of neurological complications. Stroke can manifest in children in three primary types: Arterial Ischemic Stroke (AIS), Cerebral Sino-Venous Thrombosis (CSVT), and Hemorrhagic Stroke (HS). Ischemic stroke can result from various causes, including arteriopathies, cardiac diseases, and hematologic disorders. Hemorrhagic stroke in children can result from arteriovenous malformations, aneurysms, or other vascular anomalies. Seizures are a common manifestation following pediatric stroke, occurring in a substantial proportion of affected children. This review article aims to elucidate the pathophysiological basis of seizures after pediatric stroke and provides an overview of diagnostic and management strategies.

Mechanism of seizures: The underlying mechanism of seizures in ischemic stroke is multifactorial. It may arise from the acute disruption of cerebral blood flow, hypoxia, and excitotoxicity, leading to the increased release of glutamate and subsequent neuronal hyperexcitability. The infarcted brain tissue also undergoes structural and functional changes, contributing to increased seizure susceptibility. Following hemorrhage, seizures may occur due to various factors, including direct irritation of the surrounding brain tissue by blood products, inflammation, or mass effect. Blood breakdown products can lead to local excitotoxicity and neuroinflammation, further increasing the risk of seizures.

Diagnosis: The clinical diagnosis of seizures following pediatric stroke is based on a thorough neurological evaluation. The presence of focal or generalized seizures, especially in the acute phase of stroke, should raise suspicion.

Management of atopic dermatitis

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The primary objectives of treating atopic dermatitis are to reduce symptoms, prevent exacerbations, and minimize therapeutic risks. To achieve these objectives, exacerbating factors must be eliminated, the skin barrier function must be restored, the skin must be hydrated, and patient education and pharmacologic treatment of skin inflammation must be provided. In general, patients with mild to moderate symptoms are treated with topical therapies. Atopic dermatitis is generally treated with topical corticosteroids and emollients rather than other anti-inflammatory agents. The choice of corticosteroid potency should be based on the patient's age, body area involved, and degree of skin inflammation. The use of topical calcineurin inhibitors is an alternative to topical corticosteroids in patients with atopic dermatitis who have areas at high risk for atrophy. For children over the age of 12 years, topical phosphodiesterase inhibitors and topical Janus kinase inhibitors are considered second-line treatments. The use of topical corticosteroids or calcineurin inhibitors is recommended as maintenance therapy for patients with mild to moderate atopic dermatitis that responds to continuous topical therapy. The use of biologics and immunosuppressants or phototherapy is recommended for patients with severe or moderate disease who have failed to respond to topical therapies.

Diagnosis, prognosis and differential diagnosis of atopic dermatitis

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Atopic dermatitis is a chronic inflammation of the skin that occurs in persons of all ages but is more common in children. The condition is characterized by intense pruritus and a course marked by exacerbations and remissions, Atopic dermatitis has been reported to affect 10 percent of children. The differential diagnosis of atopic dermatitis is extensive and includes: seborrheic dermatitis, psoriasis, neurodermatitis, allergic contact dermatitis, nummular eczema.

The most common and best way to identify atopic dermatitis from other dermatitis is based on age, lesion location, chronicity, itching, other causes of dermatitis, and family history of allergies.

The diagnosis of atopic dermatitis is based on the findings of the history and physical examination. Exposure to possible exacerbating factors, such as aeroallergens, irritating chemicals, foods and emotional stress, should be investigated: Major features include: pruritus, chronic or relapsing dermatitis, personal or family history of atopic disease, typical distribution and morphology of atopic dermatitis rash, facial and extensor surfaces in infants and young children, flexure lichenification in older children and adults. Minor features include: eyes cataracts (anterior subcapsular), keratoconus, infraorbital folds affected, facial pallor, palmar hyperlinearity, xerosis, pityriasis alba, positive skin tests, elevated serum IgE level, Early age of onset.

Unfortunately, no specific laboratory findings or histologic features define atopic dermatitis. Although elevated IgE levels are found in up to 80 percent of affected patients, IgE levels are also elevated in patients with other atopic diseases. The prognosis of this disease is good and most patients get better

with age. In severe and widespread cases, it is possible to persist in the form of chronic dermatitis of the hands in old age.

Atopic dermatitis is a common, potentially debilitating condition that can compromise quality of life. Its most frequent symptom is pruritus. Attempts to relieve the itch by scratching simply worsen the rash. Diagnosis of this disease is based on history, examination and other causes of dermatitis.

Contact dermatitis

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Contact dermatitis refers to inflammation of the dermis and epidermis as a result of direct contact between a substance and the surface of the skin. In fact, almost all dermatitis is the result of skin surface injury from epicutaneous exposures. Contact dermatitis is divided into two broad categories: irritant contact dermatitis and allergic contact dermatitis. Irritants cause immediate inflammation of the skin:

Allergic contact dermatitis (ACD) is an acquired, inflammatory reaction of the skin that requires absorption of antigen from the skin surface and recruitment of previously sensitized, antigen-specific T lymphocytes into the skin. Allergens cause an inflammatory response that is delayed by days. contact dermatitis (ACD) presents as pruritic dermatitis localized to the site of allergen contact with the skin. The configuration and location of the dermatitis often is a clue to the offending allergen.

The diagnosis of ACD should be considered in children who have localized pruritic dermatitis 12 to 24 hours after exposure to a contact allergen to which they have been sensitized. Epicutaneous patch testing may be necessary to make the diagnosis of ACD or to identify specific antigens. Patch testing should be performed by clinicians with experience in its performance and interpretation.

Avoidance of the allergen is essential in the treatment of ACD. We recommend topical corticosteroids as the first-line therapy for acute localized ACD. Mid-potency corticosteroids are applied twice daily for a minimum of 14 to 21 days. For patients with widespread acute ACD or acute ACD involving the face, we suggest systemic corticosteroids. A single morning dose of prednisone (1 to 2 mg/kg, up to a maximum dose of 60 mg) for 7 to 10 days is usually sufficient.

We suggest topical therapy with a mid-potency corticosteroid ointment for subacute or chronic ACD. Topical corticosteroids are applied twice daily for two to three weeks. Intermittent, twice-daily application of topical corticosteroids (eg, during the weekends) may be helpful to maintain long-

term remission. A diagnosis of irritant contact dermatitis should be considered in children who have localized, macular, erythematous rashes in which the skin is dry, cracked, and chapped.

We recommend the use of moisturizers for the treatment of dry skin dermatitis (Grade 1B). Moisturizers should be applied at least twice per day. Avoidance of the irritant (eg, frequent bathing, lip licking, soaps, etc) is essential in the treatment of dry skin dermatitis.

The role of allergens in the development and triggering of atopic dermatitis

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There is a higher incidence of allergic diseases among patients with Atopic Dermatitis (AD) than in the general population. Asthma and/or allergic rhinitis may develop in children with AD up to 80 percent of the time. Food-induced urticaria/anaphylaxis occurs in 10 to 20 percent of patients with AD, while 1 to 3 percent of the general population experiences such symptoms.

Food sensitization and allergy are believed to result from cutaneous sensitization caused by a disrupted skin barrier.

Those with atopic dermatitis (eczema) may be more prone to food allergies, especially those with more severe eczema symptoms. Atopic dermatitis may flare acutely when the offending food is consumed (eczematous lesions with increased erythema and pruritus).

wheat and hen's eggs are the most prevalent in the United States, Japan, Australia, and Europe.

In atopic dermatitis, an immune response to environmental allergens can occur through both IgE-mediated and non-IgE-mediated mechanisms.

When the reaction is IgE-mediated, the flare typically occurs within minutes to a few hours, while when it is not IgE-mediated, it may take hours to days for the flare to occur.

While patch tests and skin prick tests are effective methods for detecting these allergens through the two mechanisms outlined above, it is generally not recommended to perform patch tests for foods in individuals with AD since their diagnostic value is limited.

Approximately 40 to 85 percent of patients with AD exhibit delayed-type eczematous reactions after exposure to aeroallergens. Dust mite sensitization is also more common in patients with AD who undergo atopy patch testing (APT). AD can also be exacerbated by immune reactions to *Malassezia* species, both immunoglobulin E (IgE) and T cell-mediated. It has been found

that children over five years of age are more likely to become sensitized to aeroallergens than adults.

An environmental challenge chamber study of AD adults found that grass pollen exposure for two consecutive days resulted in significantly worsened AD.

Children and adults with moderate to severe AD are more likely to have positive APTs than young children with mild AD. It is important to note, however, that the results of APT cannot always be correlated with the extent, severity, or localization of the disease.

AD is currently treated primarily by treating the symptoms and avoiding irritating or allergenic factors, house dust mites being an important factor.

It has been reported that SCIT (subcutaneous immunotherapy) and SLIT (sublingual immunotherapy) to aeroallergens, particularly house dust mites, may improve the severity and quality of life of AD, although Expert commentary states that the treatment of AD with causative aeroallergens should only be recommended in selected patients who do not respond to conventional treatments.

A look at atopic dermatitis

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Background: Atopic dermatitis (AD) is a chronic inflammatory skin disease. The prevalence of AD has increased in the last decade, especially in developed countries. About twenty percent of children and ten percent of adults suffer from the disease, But the statistics are different in different countries. The highest prevalence of the disease is seen in children under 5 years of age.

Method and results: In the pathogenesis of this disease, the dysfunction of the skin barrier, genetic factors, immune dysregulation and inflammation, alteration of cutaneous microbiome and neuro immune interaction have been mentioned.

This disease is a heterogeneous disorder and various subtypes have been mentioned for it.

These divisions were based on IgE level - race - age - clinical manifestations and molecular mechanisms. Among these subtypes, intrinsic and extrinsic subdivision is the most commonly used one.

Extrinsic subtype is the most common form and is accompanied by a high level of IgE and dysfunction of the skin barrier. intrinsic subtype is characterized by normal IgE levels and normal skin surface function.

Manifestations of the disease are diverse but dry skin, pruritus and recurring periods of the disease are the main manifestations. Centro facial pallor, keratosis pilaris, pityriasis alba and some other forms are associated features of atopic dermatitis. There is no specific biomarker to diagnose the disease and the diagnosis is clinical.

Conclusion: Due to the high prevalence of AD, familiarization with its characteristics is recommended for all general practitioners and children.

MRI is the preferred modality for assessing stroke-related changes in the brain, including both acute and chronic effects.

EEG is essential for diagnosing and characterizing seizures and epileptiform activity. Continuous EEG monitoring may be required for patients at risk of non-convulsive status epilepticus, which can be challenging to diagnose clinically.

Management: Immediate management involves addressing acute seizures with antiepileptic drugs (AEDs), typically with intravenous administration in the hospital setting. AED choice should be guided by the type and duration of seizures. Additionally, it is essential to optimize the management of the underlying stroke, such as thrombolysis or surgical intervention, as appropriate. The management of post-stroke epilepsy in children may require long-term AED therapy. The choice of AED should be individualized, taking into consideration the type of seizures, potential side effects, and the patient's age and comorbidities. Close monitoring is necessary to evaluate the need for ongoing treatment.

Children who have experienced a stroke with subsequent seizures may require comprehensive rehabilitation, including physical, occupational, and speech therapy, to improve their functional outcomes and quality of life.

Conclusion: Pediatric stroke is a rare but critical condition in children, often complicated by seizures. A thorough understanding of the pathophysiology, early diagnosis, and appropriate management strategies is crucial to improving the outcomes of affected children. Future research should focus on optimizing treatment strategies, minimizing long-term complications, and enhancing the quality of life for pediatric stroke survivors.

Key Words: Pediatric stroke, complications, seizure.

Endotracheal stenosis following problematic tracheal intubation in PDA operation: a case report

Dr.Ahmad Eghball zarch

Gluts stenosis is occurred during long-term tracheal intubation and in patients with one and short-term intubation is rare Stenosis in glottis might be happen in patients with problematic intubation due to trauma and fibrosis and even in some cases need to long-term and serious treatment such as tracheostomy. In the present report one glottis stenosis following problematic intubation had been reported.

Introduction: Tracheal and glottis stenosis had been occurred usually during the long-term intubation and is rare in one-time intubation. Problematic intubation in children due to small airways and multiple tracheal trauma and fibrosis might lead to stenosis in their trachea and glottis. These patients need to long-term therapy and might lead to tracheostomy.

In the review by cardiac anesthesia department of Delhi city which was published in New Delhi journal, more than 20 days intubations in children of Intensive Care Unit (ICU) were due to surgery side effects. They found that risk of sub glottis is more in younger children. Glottis risk factors are low age and weight, multiple intubation, without sedation and infection, hypoxia, hypotension and trauma.

Recent studies showed that intubation less than seven days had lower incidence of glottis. Intubation with more than 10 days delay can increase glottis chance. Five infants among 64 infants. His symptoms were stridor and had not association between intubation duration and pathology. Although risk of 2 stenosis in one-time intubation is low, intubation in childhood and especially in problematic intubation, anesthesiologist must have suitable and equipment for intubation for stenosis prevention.

Case presentation

Patients Was 5 year old that was inferred in to the urgency department due to dyspnea. Patient had history of PDA and was pirated 1.5 months ago and discharged with suitable health situation.

Problematic intubation had been reported in anesthesia report of medical folder of patients. Physical signs in the time of PICU had been describe as below:

Preclinical findings were CBC (WBC: 16000, HGB: 13, RBC: 500), Normal serum level of electrolytes and laccotic situation in ABG Cardiac echocardiography: there is no evidence of PDA or operation side effects. in lung auscultation for hospitalization physical examination, wheezing or crackle were not heard and only inspiratory stridor had been heard. Bronchoscopy for confirmation of diagnosis had been suggested by pediatric pulmonologist super specialist. Patients after transferring to operation room and necessary monitoring, had been inducted by sevoflurane and then laryngoscopy was performed. Vocal cord movements were normal but glottis had stenosis, for the first-time intubation was performed with 2.5 mm diameter tube and then with 3 mm diameter tube. In the bronchoscopy report by pediatric pulmonologist, only glottis had stenosis and other parts of trachea were normal. term intubation and in problematic intubation, sufficient sedation and skills, using better devices for lowest tracheal trauma in glottis region (5).

Conclusion: Traumatized intubation in infants and children can cause stenosis on the glottis with severe symptoms and signs. In some cases (especially problematic intubation), experts with suitable devices can cause lowest glottis trauma.

Key words: Problematic intubation, Tracheostomy, Respiratory distress, Tracheal stenosis

The Importance of Early Initiation of Oral Feeding in Premature Infants

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Background: Although parenteral nutrition is an essential alternative for providing nutrients to premature infants, oral feeding is the preferred method of feeding for premature infants due to its nutritional and non-nutritional benefits. Recent most Cochrane studies support early enteral feeding started in the first weeks after birth because no increased risk of NEC was reported in infants born at less than 28 weeks' gestation or less than 1500 g. Because the negative consequences of prolonged starvation and complications of parenteral nutrition can be minimized by early enteral feeding. Early enteral feeding, which is defined as minimal enteral feeding (or MEF) can help improve the development of the neonatal intestinal mucosa and digestive enzyme release. The American Society for Parenteral and Enteral Nutrition (ASPEN) recommends initiating minimal enteral feeding within the first two days of life for infants ≥ 1000 g. There is scientific support for the effect of advancing early enteral feeding on the health of the preterm infant by increasing the delivery of micronutrients along with mucosal growth and intestinal motility maturation, developing the gut microbiome, reducing inflammation, and increasing neurodevelopment. In line with the recommendation that starting oral feeding helps to improve and accelerate the development of the infant's digestive system, it should be avoided to stop oral feeding for reasons that are not scientific evidence base. A 2019 Cochrane review found gastric residual monitoring as an unnecessary assessment of feeding tolerance to prevent NEC, and insufficient evidence for the effect of enteral nutrition during transfusion on the development of NEC. Therefore, there may be no reason to stop feeding during blood transfusion or because of the presence of gastric residual. Another aspect of premature infant's nutrition is the feeding method according to "Traditional" feeding regimes versus "cue-based" feeding. Based on "Traditional" feeding regimes gestational age, birth weight, and being well are critical for caregiver to initiate or delay oral feeding. Cue based feeding also referred to as "infant-led" or "demand feeding" opposed to volume-driven feeding, lead to

improved feeding success. Better weight gain, shorter hospital length of stay, fewer adverse events, improving parents' skills regarding infant feeding are some of benefits of cue-based feeding. Since achieving independent oral feeding is one of the criteria recommended by the American Academy of Pediatrics for hospital discharge, cue-based feeding has been favored in recent studies.

Conclusion: The conclusion can be obtained from the above-mentioned content is that due to the importance of oral feeding in the care of premature babies, all neonatal intensive care units should have a specific protocol with emphasis on early oral feeding with improving feeding methods for shortening hospital stay.

Infantile hemangioma

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Background: Infantile hemangioma is the most common tumor of infancy, involving about 5% of infants. IH is more common in premature infants and in females. Most infantile hemangiomas are small, harmless lesions. However, a minority of proliferating IH can make significant deformities or complications. Infants with five or more small (less than 5 mm) tumors are more prone to have hemangiomas of the liver, although the risk is low (about 16%).

Infantile hemangioma grows fast during the first 9 months of age (proliferating phase). In involuting phase (after 12 months), the tumor begins to regress. Involution ceases in most children by age 4. About one-half of cases will have a residual deformity.

A diffuse hemangioma replacing hepatic parenchyma needs TSH monitoring. Hypothyroidism is due to the expression of a deiodinase by the hemangioma, which inactivates the thyroid hormone. Vs diffuse hepatic hemangioma, a large single hemangioma in the liver does not require intervention and is often a rapidly involuting congenital hemangioma. Similarly, multiple small hepatic hemangiomas do not make morbidity unless significant shunting is present.

Topical timolol is effective for superficial lesions that are treated early (before 12 weeks of age). IHs that are not responsive to timolol are best managed by intralesional corticosteroids. Triamcinolone injection is effective in about two third of cases. Problematic IHs that are larger than 3 cm are managed by oral propranolol (2 mg/kg/day). About 90% of tumors will stop growing or regress. Oral prednisone is effective for hemangiomas that fail propranolol or if there is a contraindication to a beta-blocker.

Key words: Hemangioma, infant, propranolol

The effect of phototherapy on the infant's immune system

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Background: Phototherapy has been used for more than half a century to manage the treatment of neonatal jaundice, which has a high prevalence in the first week after birth. Despite the researchers' concerns about some side effects of phototherapy due to the reduction of blood exchange rate in infants with severe jaundice, it is still of special interest.

Phototherapy uses ultraviolet radiation, which increases the immune response and immune system of the skin and various cytokines that mediate immunity. The pro-inflammatory and anti-inflammatory effects of cytokines have been well demonstrated, especially in critically ill infants with sepsis and necrotizing enterocolitis. It is believed that the effect of phototherapy on the immune system may be partly due to the destruction of bilirubin. Unconjugated bilirubin activates the complement system and inhibits it through the classical pathway and prevents the migration of leukocytes.

There is now evidence to suggest that phototherapy can directly affect the expression and function of cell surface receptors including adhesion molecules, cytokines, and growth factor receptors. In addition, phototherapy could stimulate oxidative stress and have negative effects on the antioxidant/oxidant system.

studies have shown different results in the level of cytokines, especially IL-2, IL-3, IL-6, IL-8, IL-10, IL-1b, TNF-a, CD3+ and white blood cells in babies after phototherapy. Of course, physiological changes in the number of white blood cells during the first days after birth should be considered and the type of fluorescent used and the wavelength of radiation are effective in the amount of plasma level of pro-inflammatory cytokines. As an example, blue-green LED light increases the production of lumirubin, may perhaps induce a greater immune response.

Phototherapy at a wavelength of 420 to 480 nm, especially the blue light, is very effective for treatment of hyperbilirubinemia, and it does not contain

ultraviolet radiation. Therefore, all findings on the effect of ultraviolet radiation on cytokine production do not apply to phototherapy.

Conclusion: According to scientific evidence, It is recommended to avoid unnecessary phototherapy in neonatal jaundice due to the possibility of affecting the immune system.

Key words: phototherapy, neonatal jaundice, immune system

The Effect of probiotics on Prevention of Necrotizing Enterocolitis in Preterm Infants

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Abstracts

Background: Necrotizing Enterocolitis (NEC) is one of the common causes of mortality and morbidity in premature neonates. Due to high mortality complications in NEC, the use of probiotics can provide a simple, affordable and low cost solution to help solve this problem and may play an important role in future care of premature infants of VLBW. The aim of this study was to determine the effect of probiotics on the prevention of necrotizing enterocolitis in preterm infants.

Methods & Materials: In this double blind randomized clinical trial, 100 premature neonates were evaluated aged less than 34 weeks and weight 2500. Neonates were randomly distributed into two groups of interventional and control. The interventional group received oral probiotics, whereas the control group had normal saline. At the end of study, gestational age, gender, type of delivery, maternal steroid intake, breastfeeding, starting time of feeding, duration of admission, incidence or absence of NEC at or below 1 month of age, mortality and morbidity were examined.

Results: In this study, there were 5 patients with NEC in the control group, 3 of them suspected, 1 proven, and 1 Advanced, but in the intervention group only 4 cases were suspected. Data analysis shows that there is no difference between the two groups in gender and age and GA. The administration of

steroid, the type of milk used, the onset of feeding, and NEC was measured in two groups. There was no significant difference between the two groups in terms of these factors. The correlation between NEC and birth weight of newborns showed that there was no significant difference between these two factors ($p = 0.077$)

Conclusion: In our study, per-biocidal use has not been effective in preventing necrotizing enterocolitis in preterm infants.

Key words: Necrotizing Enterocolitis, preterm, probiotics

The effect of melatonin in the prevention and treatment of neonatal diseases

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Abstract

background: Melatonin (N-acetyl-5-methoxytryptamine) is secreted by the pineal gland, retina, gut, bone marrow, cerebellum, skin, placenta. It controls the circadian rhythm, inflammation, energy metabolism, reproductive physiology, and fetal development. the production of melatonin is activated after birth, but it lacks the rhythmic secretion until 3–5 months after birth. Here, we review the studies conducted on the effect of melatonin in the prevention and treatment of neonatal diseases.

Results: Some evidence supports the idea that therapeutic use of melatonin during pregnancy and lactation period may reduce fetomaternal complications. In addition, Beneficial effects of melatonin have been reported in cardiovascular and CNS disease, sleep disorders, prevent or treatment of neonatal diseases (sepsis, ROP, NEC, ...), dietary supplement. The melatonin level in newborns is regulated approximately in the third month after birth, and its highest level is between midnight and 8 am, and its production decreases with age. Melatonin has been shown to be twice as

active as vitamin E and is considered the most effective lipophilic antioxidant. Some studies also suggest that melatonin may be useful in fighting infectious diseases, including viruses such as HIV and bacterial infections, and potentially in the treatment of cancer. Side effects of oral melatonin supplements at low doses in the short term are minimal. Two systematic review studies showed that there were no adverse effects of exogenous melatonin use.

Conclusion: Melatonin has the potential to be used in various neonatal diseases, including sepsis, ROP, NEC, cardiovascular and CNS disease.

Key words: Oxidative Stress, Newborn, Melatonin

Comparison of phototherapy effect with and without Phenobarbital on the newborns with hyperbilirubinemia

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Abstract

Background: Jaundice is seen in 60% of term and 80% of preterm neonates. In this study we compared effect of phototherapy with and without Phenobarbital on icteric newborns.

Method: This study is a randomized clinical trial conducted from July until March 2018 at Imam Reza Hospital, Mashhad University of medical science, Iran Full-term and near term neonates more than 2000 grams who were hospitalized in the mentioned period for jaundice were entered to the study. The newborns were divided into two groups using block randomization. Data were analyzed by SPSS version 19.

Result: The mean gestational age in intervention group is 36.4 (SD; 2.39) and in control group is 36.9 (SD; 2.16), and there was no significant correlation between two groups. The mean of duration of the hospitalization in the intervention group was 72 hours (1.66) and in the control group is 55 hours (1.88). Serum bilirubin level at the day of discharge is 11.53 (0.77) in the intervention group and 10.80 (1.09) in the control group, which the difference is statistically significant.

Conclusion: According to this study, phototherapy with phenobarbital is not more effective than phototherapy alone in neonatal hyperbilirubinemia.

Key Words: Newborn, Phenobarbital, Hyperbilirubinemia, Phototherapy

ORAL COLOSTRUM THERAPY

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Background: It is well known that the immune response is blunted and underdeveloped in the premature neonates, but human milk supports the infant's growth, and development. Thus, own mother's colostrum (OMC) administered oropharyngeally has potential to deliver oral immune therapy.

It also reduces the time to full enteral feedings. Effects on other outcomes are unclear; like necrotizing enterocolitis, sepsis, and death.

When infants are fed via nasal gastric tube, the immune benefits of human milk bypass the oropharyngeal mucosal lymphoid tissue.

A proposed solution to early exposure of human milk to neonates in the NICU is to use OMC as oral immune therapy.

Oropharyngeal administration of OMC is not given as an enteral feeding and is in such small volumes that the infant does not need to swallow. A small amount of milk (typically 0.1 to 0.2 mL divided between 2 cheeks) is placed on the oral mucosa in the buccal cavity for absorption.

The milk expressed by women who deliver extremely premature infants is more highly concentrated in many protective biofactors – also present in amniotic fluid – compared to milk expressed at term gestation.

With oropharyngeal administration, milk drops are placed directly onto the infant's oral mucosa so that biofactors may provide immunostimulatory effects.

In published reports, there has been wide variation in the technique, including significant variation in the dose of milk administered (ranging from 0.1 mL to 1.0 mL), in the frequency of treatments (every 2 to 6 hours and also on an "as needed" basis), and in the duration of the treatment protocol (from 2 to 7 days).

Repeatedly dipping a swab into a container of mother's milk can contaminate the milk with NICU pathogens and increase infection risk for the infant. The

use of a cotton swab increases the risk that (cotton) fibers may be released during the administration procedure and potentially aspirated. Importantly, a cotton swab has been shown to absorb up to 97% of the milk during 10 seconds of swabbing. Administering a precise volume with a sterile syringe, as opposed to soaking a swab in the milk, minimizes the absorption of the milk into the swab. In this manner, more milk remains on the mucosa for a consistent “dose”.

Conclusion: OCT is safe and practical with very low to no risk associated with the intervention. Infants who received OCT began enteral feedings sooner and were less likely to be growth restricted at 36 weeks’ postmenstrual age.

DEFINITION OF CYANOSIS

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Background: Different Reasons of Cyanosis in Neonates

Cyanosis is a bluish discoloration of the tissues that results when the absolute level of reduced hemoglobin in the capillary bed exceeds 3 g/dL.

The appearance of cyanosis depends upon the total amount of reduced hemoglobin rather than the ratio of reduced-to-oxygenated hemoglobin.

Several factors can affect the detection of cyanosis:

- Hemoglobin concentration (cyanosis may not be apparent in patients with anemia)
- Skin pigmentation (cyanosis can be especially difficult to appreciate in infants with darkly pigmented skin)
- Physiologic factors that affect the oxygen dissociation curve such as alkalosis, acidosis, cold temperature, low levels of 2,3-diphosphoglycerate, and high levels of fetal

Routine pulse oximetry screening improves detection of cyanotic CHD, particularly in patients with mild desaturation.

EPIDEMIOLOGY

Congenital heart disease (CHD) is the most common group of congenital disorders, with a reported prevalence ranging from 6 to 13 per 1000 live births.

Cyanotic cardiac lesions account for approximately 15 percent of all CHD cases] and one-third of potentially fatal forms of CHD.

NONCARDIAC CAUSES OF CYANOSIS

Hypoxemia, with decreased arterial oxygen saturation leading to central cyanosis, can result from many different mechanisms. Common noncardiac causes of neonatal cyanosis include:

- Pulmonary disorders “ Pulmonary disorders are the most common causes of central cyanosis and include transient tachypnea of the newborn; respiratory distress
- syndrome; meconium aspiration; neonatal pneumonia; pneumothorax; hypoventilation; and structural abnormalities of the airway, lung, or diaphragm
- Persistent pulmonary hypertension of the newborn (PPHN) “ In PPHN, central cyanosis is caused by right-to-left shunting through the ductus arteriosus, resulting in
- differential cyanosis (ie, oxygen saturation measured in the arm [preductal] is higher than that in the leg [postductal]).
- Poor peripheral perfusion/shock "Shock states are often characterized by poor peripheral perfusion and cyanosis. Noncardiac causes of neonatal shock include sepsis, hypovolemia, fetomaternal hemorrhage, and adrenal insufficiency
- Acrocyanosis Acrocyanosis is often seen in healthy newborns and refers to the peripheral cyanosis around the mouth and extremities (hands and feet)

CARDIAC CAUSES OF CYANOSIS

- Transposition of the great arteries, dextro type (D-TGA)
- Tetralogy of Fallot (TOF)
- Truncus arteriosus
- Total anomalous pulmonary venous connection (TAPVC)
- Tricuspid valve abnormalities

A sixth "T" is often added for "Tons of other lesions", such as double-outlet right ventricle, pulmonary atresia, multiple variations of single ventricle, hypoplastic left heart syndrome (HLHS), complex conditions associated with heterotaxy syndromes, or anomalous systemic venous connection (left superior vena cava connected to the left atrium).

Overview of physiology

In cyanotic CHD, central cyanosis results from right-to-left shunting. Cyanotic cardiac lesions can be categorized according to the underlying physiology as follows:

- Decreased pulmonary blood flow (Tetralogy of Fallot, Pulmonary atresia with intact ventricular septum, Critical pulmonic stenosis, Tricuspid valve anomalies)
- Increased pulmonary blood flow (D-transposition of the great arteries, Truncus arteriosus, Total anomalous pulmonary venous connection, Left-sided obstructive lesions, Hypoplastic left heart syndrome, Coarctation of the aorta and Interrupted aortic arch)
- Severe heart failure

CHD lesions can also be categorized according to whether or not they are ductal-dependent. Ductal-dependent congenital heart lesions rely upon a patent ductus arteriosus (PDA) to supply pulmonary or systemic blood flow or to allow adequate mixing between parallel circulations.

Conclusion: cyanotic congenital heart disease (CHD), central cyanosis results from right-to-left shunting. Several factors can affect the detection of cyanosis, including haemoglobin.

concentration, skin pigmentation, and physiologic factors that affect the oxygen dissociation curve. Routine pulse oximetry screening improves detection of cyanotic CHD, particularly in patients with mild desaturation.

Cyanotic cardiac lesions account for approximately 15 percent of all CHD and one-third of potentially fatal cases of CHD. Ductal-dependent congenital heart lesions are dependent upon a patent ductus arteriosus (PDA) to supply pulmonary or systemic blood flow or to allow adequate.

mixing between parallel circulations. Many, but not all, cyanotic congenital heart defects are ductal-dependent.

Cyanotic CHD lesions can be classified based on their physiology as:

Decreased pulmonary blood flow, Increased pulmonary blood flow and Left-sided obstructive lesions.

Stimulants (Methamphetamine) Poisoning:

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Abstract

stimulant compounds are one of the substances that are commonly abused in Iran such as amphetamine and methamphetamine, especially its crystallized form called glass. Glass abuse has been increased 52 times in past 8 years in our society. The abundance and easy access to this drug causes the increasing prevalence of its accidental consumption by children which leads to dangerous poisoning in them. Amphetamines and methamphetamines (like glass) are derivatives of Phenylethylamine that is a group of stimulant drugs with an indirect effect that stimulates the CNS due to the release or inhibition of the reabsorption of excitatory neurotransmitters such as norepinephrine, dopamine, serotonin and epinephrine from the pre-synaptic spaces, and sometimes cause dangerous poisoning in the form of sympathomimetic syndrome. Clinical manifestations of glass poisoning are listed below:

Agitation, euphoria, talkativeness, insomnia, intense and continuous crying, sweating, nausea, vomiting, dehydration, mydriasis, and teeth grinding.

All vital signs increase at first. In case of disease progression, the patient may experience respiratory distress, hypotension, bradycardia, shock and cardiovascular collapse.

Headache, decrease in consciousness level, ataxia, tremor, hyperreflexia, seizure, coma, cerebral infarction, cerebral edema, cerebral hemorrhage, and head trauma injuries can be seen.

In cardiovascular system, chest pain, tachycardia, hypertension, resistant tachyarrhythmia, ventricular tachycardia, ventricular fibrillation, cardiac ischemia and infarction, cardiovascular shock and collapse, sudden death, aortic dissection, and myocarditis can be seen.

Shortness of breath, tachypnea, hyperpnea, ARDS, aspiration pneumonia, complications of barotrauma, and exacerbation of asthma attacks are included in pulmonary symptoms.

Anxiety, depression, agitated Delirium, psychosis, hallucinations, and delusions are listed as psychiatric symptoms. Other complications include muscle rigidity, myonecrosis, rhabdomyolysis, acute renal failure, metabolic acidosis, DIC, hepatitis, and SIADH. Laboratory findings can demonstrate leukocytosis, blood sugar changes, increased CPK, increased liver enzymes, and positive amphetamine urine test.

Management consist of ABCD treatment which is based on airway availability, fluid therapy, control of shock, agitation, hyperthermia, seizures, rhabdomyolysis, renal failure, electrolyte disturbances, metabolic acidosis, blood pressure, and other complications. Continuous Airway stabilization should be done, especially in cases of respiratory failure, decreased level of consciousness, resistant agitation, ARDS, aspiration pneumonia, muscle stiffness, severe hemodynamic disorder, shock and severe hyperthermia.

The patient's blood sugar monitoring and potential head, cervical or spine trauma should be considered. In agitation management, first line therapy is benzodiazepines. Midazolam infusion can also be used.

Benzodiazepines are used to control seizures, propofol or barbiturates such as sodium thiopental can be used in second line of treatment. However, if the seizure continues again, non-depolarizing muscle relaxants such as pancuronium bromide are used to control peripheral manifestations.

To control hyperthermia, ice packs are helpful, and also sedation can be done if it's necessary.

To control hypertension, the first line of treatment is sedation with benzodiazepines. For resistant hypertension, vasodilator drugs or alpha antagonists are useful.

For hypotension or shock treatment, fluid therapy is used first, vasopressor and cardiotoxic drugs are also used.

Cholinergic & Anticholinergic toxidrome; Clinical manifestation and management

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Abstract

Toxidrome recognition may offer a quick guide to possible toxicology diagnosis and treatment in poisoning emergency units. Two of major Toxidromes are Cholinergic & Anticholinergic toxidrome. The most common cause of Cholinergic toxidrome in pediatric age group is Organophosphate pesticides poisoning. Although it is not very common but can be serious and life threatening poisoning. Other rare cholinergic clinical poisoning are carbamates, scorpion sting, pilocarpine, nerve agent (soman, sarin), anti-Alzheimer drugs and muscarinic mushrooms. Cholinergic toxidrome consists of 2 distinct clinical manifestations; Muscarinic & Nicotinic.

a) Muscarinic → DUMBELS* : Diarrhea/Diaphoresis - Urination - Meiosis - Bradycardia, Bronchospasm, Bronchorrhea - Emesis - Lacrimation - Salivation.

b) Nicotinic → Muscle weakness - Fasciculation - Tachycardia - Mydriasis - seizure.

After clinical diagnosis and supportive care treatment consist of two main antidotes; Atropine for Muscarinic & Pralidoxime for Nicotinic signs. Atropine dose is 0.05-0.1 mg/kg for pediatric and 1-2 mg for adult patients intravenously and repeated every 2-20 min if needed. It is recommended to give atropine until signs of atropinization is present followed by continuous atropine drip.

Anticholinergics (antimuscarinics, or parasympatholytics or magic toxidrome) toxidrome is a relatively common clinical presentation including poisoning with Antihistamines, Atropine, Clidinium, Dicyclomine, Hyoscine, Belladonna, Antipsychotics, Plants (Jimson Weed = Datura), TCAs, Oxybutynin and tolterodine, ophthalmic eye drop (Homatropine), Ipratropium spray and et. The mnemonic below can be used to remember the symptoms

of anticholinergic toxicity: “**Blind** as a bat” (blurred vision, dilated pupils), “**Dry** as a bone” (dry mouth and skin), “**Red** as a beet” (vasodilation /flushing), “**Mad** as a hatter” (confusion, cognitive impairment, delirium, agitation, hallucinations, tremors, ataxia), “**Hot** as a hare” (hyperthermia), “And the **heart** runs alone” (tachycardia).

Anticholinergics toxidrome treatment is mainly supportive; GI Decontamination, cooling, benzodiazepines and general supportive care. BZDs (diazepam, midazolam) for Agitation, hypertension, tachycardia and seizures. Rapid external cooling, agitation control and hydration for hyperthermia control. The diagnosis for both Cholinergic& Anticholinergic toxidrome and treatment is largely clinical.

Vasoactive drug therapy in pediatric septic shock

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Abstract

Septic shock is an important cause of mortality and morbidity in pediatric intensive care units (PICU). Early vasoactive administration is the one of the main interventions to improved outcomes. Vasoactive drug therapy should be initiated after 40 to 60 mL/kg of fluid resuscitation if the patients have evidence of abnormal perfusion.

In the past, septic shock were divided in to warm or cold shock to guide the selecting vasoactive agents. However, recently instead prefers the use of advanced hemodynamic variables (eg, cardiac output/cardiac index, systemic vascular resistance, and ScvO₂, lactate) in addition to clinical finding to guide the ongoing vasoactive agents.

Epinephrine or norepinephrine is recommended as a first-line vasoactive agent for fluid-refractory pediatric septic shock. Norepinephrine (initial dose, starting dose 0.05 to 0.1 mcg/kg/min) is preferred for children with low systemic vascular resistance or vasodilation who do not respond to fluid resuscitation. Epinephrine, which at higher doses provides potent vasopressor effect, is a reasonable alternative, especially if myocardial dysfunction is concurrently present.

Epinephrine (initial dose, starting dose 0.05 to 0.1 mcg/kg/min) is preferred if there is evidence of myocardial dysfunction. Although dopamine may be substituted if epinephrine is not available. If abnormal perfusion, poor myocardial contractility, or hypotension persist despite additional doses of epinephrine, addition of norepinephrine is suggested to provide more vasoconstriction if systemic vascular resistance is normal or low. If there is evidence of high systemic vascular resistance, dobutamine or milrinone is

suggested because of their inotropic effect and afterload reduction. Vasodilators should be discontinued if hypotension worsens.

Vasoactive agents should be titrated (up to 1 mcg/kg/min) to reach a mean arterial pressure between the 5th and 50th percentage for the age, adequate urine output and adequate peripheral perfusion. Serial assessment with cardiac ultrasound or echocardiography can be helpful especially as vasoactive medications are titrated.

Patients who do not respond to norepinephrine infusion and are euvolemic may benefit from treatment with epinephrine or dopamine if inotropic support is necessary for documented or suspected myocardial dysfunction.

For catecholamine resistant shock despite adequate fluid resuscitation, vasopressin receptor agonist such as vasopressin (starting at 0.0005 U/kg/min and titrated to 0.002-0.005 U/kg/min) may also provide additional vasopressor effect through a noncatecholamine pathway.

If central venous access is not readily accessible, administration of diluted vasoactive with closely monitoring of access site is recommended.

Use of Blood Products and IVIG in Pediatric Septic Shock

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Abstract

Septic Shock is the subset of sepsis with circulatory and cellular/metabolic dysfunction associated with higher risk of mortality. An important Question in management of septic shock is when we can use blood products and Intravenous Immunoglobulin (IVIG) in treatment of these patients.

For transfusion of **RBCs** in hemodynamically stabilized patient (is defined as a MAP higher than 2 sds below normal for age and no increase in vasoactive medications for at least 2 hours), suggestion is transfusion is indicated in Hb less than 7 gr/dl, also in critically ill children with unstable septic shock, because of absent of pediatric data, there is not a recommendation.

Prophylactic **Platelet transfusion** in critically ill children based on solely platelet level in non-bleeding children is not a accepted because it could be associated with higher mortality rate, so clinical judgment based on patient risk factor for bleeding and platelet level must be considered.

In septic shock children and coagulation abnormality, prophylactic **Plasma transfusion** is not recommended, but in some patient such as children with comorbid cancer, who have sepsis on ECMO and who worsening coagulation tests at high risk for disseminated intravascular coagulopathy may benefit from prophylactic plasma transfusion.

About use of **IVIG** in septic shock children, suggestion is against the routine use of it, but also in selected patient like who have necrotizing fasciitis, those with primary humoral immunodeficiencies or immunocompromised with documented low immunoglobulin levels, IVIG may be beneficial.

Key words: pediatric septic shock, IVIG, Blood products, FFP, Platelet

The Evaluation of Safety and Efficacy of Domperidone in Comparison with placebo in PICU patients

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Abstract

Background: Delayed gastric emptying in patients admitted to the intensive care unit is a common disorder, and factors involved in it include drugs (narcotics, catecholamines, etc.), hyperglycemia, renal failure, mechanical ventilation, or the disease process itself. The delay in gastric emptying can lead to intolerance of enteral nutrition in these patients and cause problems such as abdominal distension, vomiting, and aspiration events. Prokinetic drugs such as domperidone improve gastric emptying. Since the effectiveness and safety of these drugs in children admitted to the intensive care unit have yet to be well determined, it is necessary to conduct this study.

Objectives: This study aims to determine the safety and efficacy of domperidone as a prokinetic agent in pediatric critical care.

Methods: Enteral nutrition tolerance is evaluated in this blinded randomized clinical trial in pediatric intensive care unit patients. Patients are randomly divided into the control group (placebo recipients) and the domperidone group. The dose, frequency, and duration of receiving prokinetic drugs of the patients included in the study were recorded. In addition to the demographic parameters, outcomes related to the duration of hospitalization, food intolerance, gastric volume residue, and occurrence of complications such as nausea, diarrhea, aspiration, arrhythmia, and Mortality are recorded. The inclusion criteria for the study include: 1. Age 1-15 years. 2. The indication for enteral nutrition for more than seven days. 3. Intolerance of gavage and exclusion criteria include 1. History of esophageal varices or adhesions. 2.

History of esophageal surgery 3. Allergy to demperidone 4. Active upper gastrointestinal bleeding. In this regard, several parameters, such as the amount of gastrointestinal return volume, the number of days required for mechanical ventilation, the duration of hospitalization in PICU, the need for an NPO order, and the rate of arrhythmia in patients treated with domperidone compared to patients treated with placebo.

Assessing the effectiveness of olanzapine in treating nausea and vomiting caused by chemotherapy in children

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Background: In this clinical trial, we assess the safety and effectiveness of olanzapine in children receiving moderate and severe emetogenic chemotherapy.

Objectives: chemotherapy-induced nausea and vomiting (CINV) is evaluated to be one of the troubling side effects of chemotherapy in children patients. CINV in patients has a notable effect on the feature of their lives and may cause life-threatening difficulties including respiratory problems and prolonged hospitalization. Our trial confirms that olanzapine has efficacy and safety for treatment of chemotherapy-induced nausea and vomiting in pediatric patients.

Methods: this study, which is a double blinded clinical trial, is conducted at Mofid Children's Center. Randomization is based on the block method with different codes which is made by the allocation officer. Criteria for entry into the study include age 1 to 15 years who are undergoing moderate to severe emetogenic chemotherapy. The criteria of exclusion from the study is heart failure or heart disease with a risk of arrhythmia, epilepsy, kidney or liver failure and mechanical ventilation. Informed consent is signed by the patients or their legal guardians. Both groups receive the standard protocol including dexamethasone and granisetron. Nausea and vomiting after chemotherapy is recorded as the main finding. Demographic information and medications list and tests and outcome of patients are recorded. EKG is checked and recorded on the first, third and fifth days.

Investigating the level of critical thinking skills in pediatric assistants of Shahid Beheshti University of Medical Sciences and Health Services

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Background: Critical thinking plays an important role in improving the quality of learning clinical subjects and professional performance in doctors. Training a self-directed person in learning new sciences related to the field of work and professional activity is one of the basic keys to success in the field of work. Critical thinking is a skill that can be developed and developing critical thinking skills in students should be considered by professors during their studies.

Training efficient, thoughtful, and creative learners with the ability to make appropriate decisions in the face of changing clinical conditions is one of the most important educational topics in all fields and levels of study. The field of medicine and medicine is one of the most important goals of education and treatment in the field of medical and health sciences, considering the sensitivity of human life and choosing the best methods of treatment based on the learnings of basic and clinical sciences and applying new methods of treatment. Educating learners who can face the many changes and challenges of personal and professional life in a rational way and in a correct way from their basic knowledge in line with clinical skills to make correct judgments and decisions in patient care is one of the keys the most important points in the training of doctors. Possessing creative thinking is one of the important steps in educating a lifelong learner with insight.

Objectives: To determine the extent to which assistants in pediatrics at Shahid Beheshti University of Medical Sciences have critical thinking skills.

Methodology: In this research, we will examine the average score of critical thinking test among the assistants of Shahid Beheshti University of Medical Sciences using the Watson Glazer standard critical thinking test or the California Critical Thinking Questionnaire using the porcelain platform.

Then the obtained average will be compared with the results of similar research inside and outside the country. If the average grades are low, based on the available scientific documents and references, we will try to do a proper planning to develop the critical thinking of the learners.

Key words: critical thinking. Pediatric residents, skills

Obesity and risk of functional constipation in children and adolescence: A Systematic Review and Meta-Analysis of observational studies

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Background: The association between overweight and gastrointestinal symptoms has been recently studied in the literature; however, there are conflicting results. The systematic and meta-analysis was performed to investigate the association between obesity and the risk of functional constipation in children and adolescence.

Methods: A comprehensive systematic search was conducted in MEDLINE/PubMed, Web of Science databases, Scopus, and Cochrane from inception to June 2023. Studies with case control design that reported odds ratio, and the corresponding 95% confidence intervals (CI) for functional constipation were included in this meta-analysis.

Results: Associations between obesity and functional constipation were reported in 12 studies with 5,404 participants. Pooled results showed a strong significant association between obesity and functional constipation (OR:1.21, 95% CI:0.85–1.56, pheterogeneity = 0.245: $I^2 = 27.8\%$). Moreover, a significant positive association between FC and risk of obesity (OR:1.49, 95% CI:1.12–1.86, pheterogeneity = 0.025: $I^2 = 51.1\%$).

Conclusions: This systematic review and dose-response meta-analysis highlights obesity as a significant risk factor related to the obesity in pediatric.

Key word: Obesity, functional constipation, Systematic Review and Meta-Analysis

Peptic Ulcer Disease

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Background: PUD is rare in children, and the incidence of gastritis and PUD in children varies by region. Peptic ulcers, primarily due to *Helicobacter pylori* infection and the use of nonsteroidal anti-inflammatory drugs (NSAIDs), are the most common cause of upper gastrointestinal bleeding. Up to 70% of duodenal ulcers and 100% of gastric ulcers in a pediatric series were idiopathic and not associated with *H. pylori* or medications. Approximately 70 percent of peptic ulcers are asymptomatic. Patients with silent peptic ulcers may later present with ulcer-related complications such as hemorrhage or perforation. Between 43 and 87 percent of patients with bleeding peptic ulcers present without antecedent dyspepsia or other heralding gastrointestinal symptoms.

The diagnosis of peptic ulcer disease is suspected in patients with dyspepsia, especially in the setting of nonsteroidal anti-inflammatory drug (NSAID) use or a history of *Helicobacter pylori* (*H. pylori*) infection. Occasionally peptic ulcers may be suspected based on imaging performed for evaluation of abdominal pain. The diagnosis of peptic ulcer disease is definitively established by direct visualization of the ulcer on upper endoscopy. Children with secondary PUD have more acute and severe presentations, such as gastrointestinal bleeding and perforation, compared with children with primary PUD, who more often present with chronic, nonspecific, and less severe abdominal pain.

Conclusion: Despite advances in management, upper gastrointestinal bleeding (UGIB) secondary to peptic ulcer disease (PUD) remains a prominent medical emergency associated with substantial morbidity, mortality, and healthcare expenditures. It is assumed that the burden of PUD has lessened due to advancements in endoscopic techniques, reduced prevalence *H. pylori*, and increased utilization of acid suppressive drug therapy. However, advances in the treatment of PUD have not necessarily translated to reduced admissions to hospital for UGIB secondary to PUD nor reduced the risk for undesirable outcomes, including mortality.

Key words: peptic ulcer disease, infants, diagnosis, treatment, GI bleeding.

Polyps

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Background: Polyps refer to any mass projecting into the lumen of the gastrointestinal tract. Colon polyps are usually asymptomatic but may ulcerate and bleed, cause tenesmus if in the rectum, and, when very large, produce intestinal obstruction. epithelial polyps may be divided into two major groups: neoplastic and non-neoplastic. Neoplastic polyps include benign adenomas and malignant carcinomas.

Occasionally, polyps in children may occur in the context of a genetic gastrointestinal polyposis disorder characterized by the presence of multiple polyps.

Juvenile polyps, single or multiple (<5), are the most frequent type of gastrointestinal polypoid lesion encountered in pediatric practice (97% of colonic polyps in our personal registry). Intermittent painless rectal bleeding is the most common presentation. Rectal bleeding occurs during defecation.

Colonoscopy is the procedure of choice for diagnosis of colorectal polyps of all sizes. It allows resection of most polyps.

Solitary polyps of the large intestine are common during childhood, usually presenting with painless rectal bleeding. These lesions, known as juvenile polyps, are benign and carry no long-term risk of neoplasia.

Conclusion: Polyps are rare in the first year of life and much less common in children older than 10 years of age.

Key words: pediatric. polyp, GIB

Cow's milk associated rectal bleeding

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Background: Isolated rectal bleeding in infancy is a well-known phenomenon. While cases of iron deficiency anemia, hypoalbuminemia, and even massive bleeding have been reported, it generally has a benign course. However, it is often a cause for concern in parents and a subject for various investigations and treatments. Potential etiologies for rectal bleeding include common (anal fissures and infection) and less common (Hirschsprung, inflammatory bowel disease) conditions. Cow's milk allergy (CMA) comprises one of the most common, significant and potentially fatal food allergies. It is associated with several distinct entities such as IgE-mediated CMA, food protein-induced enterocolitis syndrome, and even constipation. Skin prick tests (SPT) assist in making the diagnosis of CMA, predicting its persistence, and even in determining a starting dose for oral desensitization. However, an oral food challenge (OFC) is the gold standard for diagnosis. Once the diagnosis is made an elimination diet is required, and alternative formulas are given.

Although often implicated in this condition, the relative proportion of CMA as a cause for isolated rectal bleeding in infants is controversial. Several diagnostic methods, in addition to the infants' history, have been proposed, including the demonstration of improvement in symptoms with cow's milk elimination and recurrence upon provocation, elimination without provocation or the performance of colonoscopy with biopsies to demonstrate eosinophilic infiltration of the colonic mucosa. Still, given the invasiveness of performing biopsies and the fact that response to re-provocation may be delayed, a definitive diagnosis of CMA-induced allergic colitis is often not made.

Conclusion: In clinical practice, diagnosis and treatment include elimination of cow's milk protein (CMP) from the diet of the infant resulting in cessation of rectal bleeding within a few days. Typically, rechallenge with the suspected

offending food is not performed until the infant is 1 year old. However, given the transient nature of this condition, mislabeling of infants as having cow's milk-associated rectal bleeding may often occur and evidence regarding the need for such prolonged elimination diet is sparse. Recently, the role of CMP in the pathogenesis of rectal bleeding and the traditional approach of prolonged elimination diet have been questioned.

Although the natural course of rectal bleeding has been studied, no population-based studies providing information regarding its prevalence exist, to our knowledge. In this large-scale prospective study following a cohort of 13,234 newborns, we aimed to determine the prevalence and natural course of rectal bleeding attributed to CMP consumption, identify risk factors for its occurrence, and examine the effect of early reintroduction of CMP.

Key words: Rectal bleeding, Infants, Food allergy, Cow's milk protein allergy

Gastrointestinal bleeding in children (over view)

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Background: There are many causes of gastrointestinal bleeding (GIB) in children, and this condition is not rare, having a reported incidence of 6.4%. Causes vary with age, but show considerable overlap; moreover, while many of the causes in the pediatric population are similar to those in adults, some lesions are unique to children.

The diagnostic approach for pediatric GIB includes definition of the etiology, localization of the bleeding site and determination of the severity of bleeding; timely and accurate diagnosis is necessary to reduce morbidity and mortality. GIB is divided into upper and lower, UGI bleeding refers to bleeding occurring above the ligament of Treitz. Lower gastrointestinal (LGI) bleeding is defined as bleeding with an origin distal to the ligament of Treitz.

- Describe the location, duration, quantity, and appearance of the bleeding.
- What is the physical appearance and vital signs of the patient, if available?
- What other medical conditions does the child have?
- What medications is the child on?

Based on the answers to these questions one could approximate the severity of bleeding, where the patient needs to be sent, and what services need to be readied for therapy.

Conclusion: There is a broad clinical spectrum of gastrointestinal bleeding in children, ranging from subtle laboratory findings to dramatic clinical presentations

Key Words: Pediatric, Gastrointestinal bleeding, diagnosis, overview

Esophageal Varice in Children

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Esophageal varice is one of the most serious complications of portal hypertension in children. Esophageal varice develops when portal pressure gradient is at least 10 mm Hg and bleeding from esophageal varice occurs when portal pressure gradient is at least 12 mm Hg and it is the most common cause of severe acute upper gastrointestinal (GI) bleeding in children and it may lead to significant morbidity and mortality in children.

The most common etiologies of portal hypertension in children are biliary atresia and extrahepatic portal vein obstruction (EHPVO). Hematemesis and melena in patient with chronic liver disease or severe upper GI bleeding in child without any history of liver disease but massive splenomegaly due to EHPVO maybe a sign of bleeding from esophageal varices.

Upper endoscopy is the preferred method of screening for esophageal varices. It permits therapeutic intervention including band ligation or sclerotherapy for variceal bleeding. Patients who are hemodynamically unstable should be stabilized prior to endoscopy, including transfusion and correction of coagulopathy. Octreotide is administered in case of severe GI bleeding from esophageal varices to reduce blood pressure and tighten veins in portal venous system.

Relationship of sterile pyuria and fever in children

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Abstract

Introduction: Fever can cause temporary changes in urine analysis results in children, which can complicate the diagnosis of urinary tract infection and the prescription of antibiotics by physicians.

Methods: This descriptive study examined the urine analysis of 400 children aged 3 months to 14 years who were admitted to Loghman Hakim Hospital with fever complaints between 1396-1397. Urine cultures were also performed for all patients using blood agar medium. If a patient's urine culture was positive, the sample was excluded, and other diagnostic and therapeutic measures were taken. In cases where changes in urine analysis occurred, additional urine cultures were conducted to rule out urinary tract infection. The second and third urine tests were performed 24 and 48 hours after the fever subsided completely, and the results were documented in a questionnaire and software. The data were analyzed using SPSS24 and compared. If abnormalities persisted in the urine tests after the fever subsided, the patient was referred to a pediatric nephrologist for further necessary diagnostic measures.

Results: The study included 400 febrile children, consisting of 164 girls (41%) and 236 boys (59%), with an average age of 46.5 ± 36.9 months. Among them, 53 children (13.3%) exhibited abnormalities in urine analysis. Urine analysis returned to normal within 24 hours of fever cessation in 12.3% of patients, and within 48 hours in 4 patients (1%). The most common findings in urine analysis were sterile pyuria (9.3%) and microscopic hematuria (8.8%).

Conclusion: This study demonstrates that fever can lead to sterile pyuria and this would confuse the physicians in the diagnosis of urinary tract infection and antibiotic prescription.

Key words: Fever, sterile, pyuria, urine analysis

Chronic kidney disease in children: What should do and what shouldn't.

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Abstract: Chronic kidney disease (CKD) is a serious condition that affects children of all ages. It can cause a range of health complications, including hypertension, anemia, and growth failure. As a result, it is important for parents and caregivers to understand how to manage CKD in children. In this reviews we discuss about what should be done and what should not be done when managing CKD in children.

What should be done

Regular monitoring: Children with CKD require regular monitoring of their kidney function. This includes blood tests, urine tests, and imaging studies to assess the kidneys' size and structure. These tests help to identify any changes in kidney function and allow for early intervention if necessary.

Medication management: Children with CKD may require medication to manage their blood pressure, anemia, and other complications. It is important to work closely with a pediatric nephrologist to ensure that the child is receiving the appropriate medications at the correct dosage.

Diet management: Children with CKD may require dietary modifications to manage their condition. This may include reducing salt intake, and avoiding foods that are high in potassium and phosphorus. A dietitian can help develop a nutrition plan that is appropriate for the child's needs according to the results of tests and the etiology of CKD.

Education: Parents and caregivers should be educated about CKD and its management. This includes understanding the importance of regular monitoring, medication management, and dietary modifications. It is also important to educate children about their condition so that they can participate in their own care as they get older.

What should not be done

Delaying treatment: Delaying treatment can lead to further damage to the kidneys and increase the risk of complications. It is important to seek medical attention as soon as possible if a child is experiencing symptoms of CKD. Preemptive transplantation is the best treatment of end stage kidney disease (ESKD) in children, if possible. So, considering these patients for transplantation and discussing with their family as the donor especially when the GFR reaches under 20 ml/min is necessary.

Lifelong disease: CKD in children is a lifelong disease that affects all aspects of lifestyle such as exercise, education, mental health and so on. When they reach ESKD, lifelong transition between kidney transplantation (as the treatment of choice), hemodialysis or peritoneal dialysis is mandatory. So, any treatment option should not be harmful for future therapeutic needs. For example, femoral catheters could destroy vascular integrity which is needed for future transplantation. Subclavian catheters are inhibited to save vessels for the future vascular access. Using high glucose concentration in peritoneal dialysis solutions, could be avoid albumin or high-volume blood products in patients with ESKD because could result in severe volume over load of pulmonary edema. harmful for peritoneal membrane as dialysis membrane and results in a high transporter membrane with ultrafiltration problems causing volume overload.

Avoiding HLA sensitization of these children is very important. They may need for the third or fourth transplantation that would be very difficult. So, avoid blood products transfusions that contain alloantigen and use very low mismatched kidneys for transplantation to restrict HLA sensitization in these children. Blood transfusion is the last option in these children only in case of symptomatic patient with very low hemoglobin and failure to respond to erythropoietin or iron replacement.

Ignoring medication side effects: Some medications used to manage CKD can have side effects. It is important to report any side effects to the child's healthcare provider and not stop taking medication without consulting with them first.

Overlooking mental health: Children with CKD may experience anxiety, depression, or other mental health issues. It is important to address these concerns and seek appropriate treatment if necessary.

Neglecting overall health: Children with CKD require regular medical care, but it is also important to focus on their overall health. This includes getting enough exercise, maintaining a healthy weight, and avoiding smoking and alcohol.

In conclusion, managing CKD in children requires a comprehensive approach that includes regular monitoring, medication management, dietary modifications, education, and attention to overall health. Delaying treatment, ignoring medication side effects, overlooking mental health, and neglecting overall health should be avoided. With proper management, children with CKD can lead healthy and fulfilling lives.

Key words: CKD, ESKD, dialysis, transplantation

Chronic kidney disease (CKD) Definition

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The term chronic kidney disease (CKD) implies more detailed definition of renal injury than the term kidney failure or renal failure in the past years. The term renal failure was used to indicate somewhat decreased renal function calculated as Creatinine clearance or glomerular filtration rate (GFR) but with use of term CKD in recent years; if the GFR is even higher than normal which is evident in patients with nephrotic syndrome it is considered as stage one CKD because these patients have proteinuria.

To discuss the criteria for CKD based on National kidney Foundation Kidney Disease Outcome Quality initiative (NKF- K DOQI) which is shown in table below:

<p>Patient has chronic kidney disease (CKD) if either of the following criteria are present:</p> <ol style="list-style-type: none"> 1. Kidney damage for ≥ 3 mo, as defined by structural or functional abnormalities of the kidney, with or without decreased GFR, manifested by one or more of the following features: <ul style="list-style-type: none"> • Abnormalities in the composition of the blood or urine • Abnormalities in imaging tests • Abnormalities on kidney biopsy 2. GFR < 60 mL/min/1.73 m² for ≥ 3 mo, with or without the other signs of kidney damage described above

Calculating GFR based on creatinine clearance is not precise but inulin clearance is more accurate but still it is used for experimental studies.

we can use Diethylenetriamine Panta Acetate (DTPA) scan for calculating each kidney GFR separately and in total but it needs isotope radiation. Some centers use slope of clearance of Chromium EDTA to accurately measure GFR but we don't have this procedure. For estimation of GFR in clinical use we use Schwart's formula as below especially for young children:

Schwart's formula: Cr Clearance in ml/min/1.73m²= Height X 0.43/Plasma Cr

For adolescents or patients who cannot stand or whom we cannot rely on their height such as patients with kyphoscoliosis or meningomyelocele who cannot stand we use Cockcroft formula as below:

Cockcroft formula $\text{Cr Clearance} = (140 - \text{Age}) \times \text{weight} / (72 \times \text{Cr}) \times (0.85 \text{ for females})$

These formulas give us an estimation of GFR for clinical use.

Based on these calculations; the CKD is divided in five stages; this figure are used for treatment, prognostic purposes the prognosis for End Stage Renal failure. The younger the patient and earlier the development of CKD the poorer the prognosis for kidney function, for example in a patient with posterior urethral valve (PUV) which CKD is started in utero the experience confirms that in 10 years 50% fall into category of ESKF needing Renal Replacement Therapy (KRT) i.e., dialysis or transplantation. It is also observed that the lower the GFR the higher the percentage of patients reaching ESKF.

Conclusions: Probability of needing KRT at age 20 years according to GFR in early childhood based on a study was: In GFR 51–75 the Probability of needing KRT at age 20 years was 37%, in GFR 25-50 was 70% and GFR <20 in 97% of patients.

Fluid and Electrolyte Management in CKD

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Preview: Assessment of body water and electrolytes in children with various degrees of kidney failure is very important.

Kidney injuries in different stages, especially when reaching end-stage renal failure, cause major changes in body water, electrolyte and acid/base.

Disorders such as acidosis, hypo and hypernatremia, hyperkalemia, hyperphosphatemia, etc. need to be controlled and regulated.

When this patient needs renal replacement treatments (Hemodialysis, peritoneal dialysis), adjusting the volume of body fluids and controlling dry weight and regular control of electrolytes become more important to prevent irreversible complications.

Patient has chronic kidney disease (CKD) if either of the following criteria are present:

1. Kidney damage for ≥ 3 mo, as defined by structural or functional abnormalities of the kidney, with or without decreased GFR, manifested by one or more of the following features:
 - Abnormalities in the composition of the blood or urine
 - Abnormalities in imaging tests
 - Abnormalities on kidney biopsy
2. GFR < 60 mL/min/1.73 m² for ≥ 3 mo, with or without the other signs of kidney damage described above

Assessment of the fluid and electrolyte status is an essential step in the management of children with CKD, particularly in those on dialysis.

History and physical examination, BP assessment, are of utmost importance but not sensitive enough to capture early changes in volume status.

Several techniques have been proposed (bioimpedance analysis, blood volume monitoring (by lung ultrasound, inferior vena cava echography, N-terminal pro-brain natriuretic peptide analysis), but this remains largely an underexplored area, and to date, no technique is accurate enough to be considered gold standard.

For the clinician, it remains important to remember that patients often have a combination of etiologies (e.g., volume overload and increased renin) and that it is important to have a detailed understanding of the cause of fluid and electrolyte abnormalities to keep the child euvolemic and to avoid the deleterious effect of fluid excess or depletion.

Infants and children with renal dysplasia may be polyuric, with significant urinary sodium and free water losses, these children benefit from high-volume, low-caloric-density feedings with sodium supplementation.

Children with high blood pressure or edema benefit from sodium restriction and diuretic therapy.

Fluid restriction is necessary in severe cases of nephrotic syndrome or when renal function reaches to the severe status of requiring dialysis.

overhydration and dehydration remain a difficult balance to maintain for children with CKD.

For clinicians managing children with CKD, especially those on dialysis, an accurate assessment of volume is difficult.

A detailed clinical history and examination, supported by serial measurements using one or more of the above techniques of volume assessment, can guide management and maintain the child in an euvolemic state, avoiding the deleterious effect of fluid excess or depletion (table).

Table 1 Comparison of techniques for assessment of fluid status in children with CKD

Techniques for assessment and body "compartments" assessed	BIA ECW/ TBW	LUS ECW- TBW	BVM Intravascular space	IVC US Intravascular space	NT-proBNP Intravascular space
Reproducibility	+++	++	+++	+	+++
Ease of application	++	++	+++	+	+++
Time needed	++	+	+++	++	+++
Ease of interpretation	++	++	+	+	+
Applicability to CKD and PD	++	++	+	++	++
Sensitivity to volume status	++	++	++	+	+
Evidence in children	++	++	+++	+	+

+: poor, ++: moderate, +++: good. *CKD* chronic kidney disease, *BIA* bioimpedance analysis, *LUS* lung ultrasound, *BVM* blood volume monitoring, *IVC US* inferior vena cava ultrasound, *NT-proBNP* N-terminal pro-brain natriuretic peptide, *ECW/TBW* extracellular water to total body water ratio, *PD* peritoneal dialysis

Consequences of Excessive Volume Depletion:

Hypovolemia is common in children with salt wasting nephropathies, those treated with diuretics or those in whom UF is performed during dialysis.

Hypovolemia may be associated with several acute symptoms, including asthenia, fatigue, dizziness, cramps, nausea, and vomiting.

Intradialytic hypotension can cause hypoperfusion of several organs, (brain, eyes, gut, kidneys, and the myocardium).

The loss of residual kidney function is a particularly dramatic complication given the superiority of kidney clearance over dialytic clearance on uremic toxins.

Myocardial stunning, a segmental decrease of myocardial contractility, occurs in the majority of HD sessions, it is more common when high UF rates are used, and in the long term, it may be associated with severe cardiac impairment, as myocardial hibernation and fibrosis.

Brain hypoperfusion has been associated with infarctions in patients on HD undergoing intradialytic hypotension.

Anterior ischemic optic neuropathy is a rare but dramatic complication for patients undergoing PD, characterized by infarction of the optic nerve head due to hypoperfusion of the posterior ciliary arteries and causing sudden blindness, usually driven by hypotension. Access malfunction and thrombosis are other possible complications of hypovolemia in children treated with HD.

Consequences of Volume Overload

Patients with oligoanuric CKD and those on dialysis develop an increase in extracellular volume as a consequence of the loss of renal regulation of salt and water.

The resultant cardiovascular complications include hypertension, LVH, large arterial disease, cardiac failure and pulmonary edema.

Other possible consequences of volume excess include increased inflammation, loss of appetite, and malnutrition.

This risks progression is a vicious cycle linking volume overload, reduced appetite, and resultant loss of “real” body weight.

Furthermore, if a high UF rate is prescribed in case of severe fluid overload, it carries a risk of hypovolemia and its consequences.

Fluid therapy in CKD

OLIGURIA/ANURIA

Replacement of insensible fluid losses (25–40% of maintenance) with D5 ½NS
Replace urine output mL/mL with D5 ½NS ± KCl

POLYURIA

Replacement of insensible fluid losses (25–40% of maintenance) with D5 ½NS ± KCl
Measure urine electrolytes
Replace urine output mL/mL with solution based on measured urine electrolytes

Electrolyte Abnormalities

Common electrolyte imbalances in CKD patients include hyperkalemia, hyperphosphatemia, hypermagnesemia, hyponatremia, and metabolic acidosis.

Patients with renal dysfunction are more sensitive to sodium fluctuations with changes in fluid status.

Most patients with stable CKD retain more sodium and water, leading to extracellular fluid volume expansion, but most of them remain asymptomatic.

Alternatively, severe GI loss and over diuresis can compromise kidney function owing to hypoperfusion.

Potassium levels must be carefully monitored because of potential deleterious effects on cardiac conduction, additionally, ACE inhibitors and angiotensin receptor blockers can contribute to hyperkalemia, so extra caution is warranted.

Hyperkalemia can develop with severe deterioration in renal function, as well as in patients with moderate renal insufficiency who have excessive dietary potassium intake, severe acidosis, or hyporeninemic hypoaldosteronism (related to destruction of the renin-secreting juxtaglomerular apparatus).

Hyperkalemia may be treated by the restriction of dietary potassium intake, administration of oral alkalinizing agents, and/or use of Kayexalate.

Potassium levels ≥ 6.5 mEq/L, or < 6.5 mEq/L with ECG changes, constitute severe hyperkalemia.

In patients without ECG changes, regular insulin/dextrose, or Kayexalate should be considered to lower potassium.

If ECG changes are present, calcium gluconate can be used.

Dialysis may be required in emergent situations.

Sodium zirconium and patiomer are additional oral agents used to treat hyperkalemia in adults.

Metabolic acidosis develops because of a decreased net acid excretion by the failing kidneys and treated by, either Bicitra (1 mEq sodium citrate/mL) or sodium bicarbonate tablets (650 mg = 8 mEq of base).

Chronic Kidney Disease in Children

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Chronic kidney disease (CKD) is a major health problem with increasing incidence and prevalence in pediatric group. Independent of the initial cause and etiology, CKD is a clinical and paraclinical syndrome characterized by a gradual loss of kidney function over time. In particular, many guidelines have defined adult CKD as abnormalities of kidney structure or function, present for more than 3 months, but adult guidelines for definition and staging are not fully applicable to the pediatric population. Childhood CKD presents clinical and paraclinical features that are specific and totally peculiar to the pediatric age, such as mild proteinuria, hypertension or the impact of the disease on growth. This impact is often under-recognized but should not be neglected by physicians, nurses and specially pediatricians. Moreover, CKD has a great psychosocial impact, both on the patient and his family. All physicians and parents must be aware that the most cases of pediatric CKDs would be preventable and increasing survival of pediatric patients suffering from CKD is acceptable due to early diagnosis and the improvement in the clinical and therapeutic management.

Treatment of chronic kidney disease in children

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Abstract

Chronic kidney disease (CKD) is a major health problem worldwide. In particular, the Kidney Disease: Improving Global Outcomes (KDIGO) guidelines have defined CKD as abnormalities of kidney structure or function, present for more than 3 months, with implications to health.

Primary causes of CKD in children significantly differ from those that are responsible for the adult onset of the disease. In fact, the main aetiological factors of CKD in children are represented by CAKUT, steroid-resistant nephrotic syndrome (SRNS), chronic glomerulonephritis (e.g. lupus nephritis, Alport syndrome) and renal ciliopathies. Less common causes of CKD in children include thrombotic microangiopathies (especially atypical haemolytic uraemic syndrome), nephrolithiasis /nephrocalcinosis, Wilms tumour, infectious and interstitial diseases.

Growth impairment is a common and perhaps the most visible complication of CKD in children. Treatment over 2 years with recombinant human growth hormone (rhGH) has been shown to be effective without any major adverse effects.

Mineral and bone disorder (CKD-MBD) is a systemic disorder of mineral and bone metabolism due to CKD. Renal osteodystrophy is an aspect of CKD-MBD that refers only to bone pathology. A prompt and effective management of mineral and bone disorders of CKD during childhood is of utmost importance. Phosphate control begins with dietary restriction. However, dietary restriction is very rarely adequate and phosphate binders become necessary even earlier than in adult patients, due especially to the unpleasant taste of this medication and the need for its ingestion at every meal.

Anemia is a common complication in children with CKD causing many adverse clinical consequences. Anemia of CKD is the result of many

interacting factors, but decreased production of erythropoietin by the unhealthy kidney and iron dysregulation (including iron deficiency and iron-restricted erythropoiesis) are the primary defects. Treatment with recombinant human erythropoietin (rHuEPO) is safe and effective, both in children with conservatively treated CKD and in those on maintenance dialysis.

Hypertension can be present from the earliest stages of the disease and its prevalence increases as GFR progressively declines. To improve the recognition of hypertension in pediatric CKD patients, a 24-h ABPM monitoring should be performed whenever possible and the use of Renin angiotensin aldosterone system inhibition (RAAS-I) should be part of an effective antihypertensive medication management, especially in children with proteinuric disease.

Several reports confirm that cardiovascular disease (CVD) is the leading cause of death also in the paediatric CKD population, with a risk 1000 times higher in the ESRD group compared with the age-matched non-CKD population. Several modifiable risk factors, including hyperphosphataemia, hyperparathyroidism, anemia and hypertension, independently predict the presence of cardiovascular abnormalities in these cases.

Conclusion: pediatric nephrologists should be aware that complications in childhood CKD will have consequences beyond pediatric age and influence outcomes of affected young adults with CKD.

Supraventricular tachycardia (SVT)

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SVT is common in infancy and childhood. Most SVT in children is due to a re-entrant mechanism and usually occurs in otherwise normally well children. Greater than a third of new onset SVT occurs in the first few weeks of life, commonly presenting after many hours with signs of heart failure. SVT is one cause of narrow complex tachycardia.

Younger children: usually caused by atrioventricular re-entry (AVRT), including Wolff-Parkinson White syndrome.

Adolescents: more commonly caused by atrioventricular nodal re-entry (AVNRT).

Other causes: include sinus tachycardia, atrial flutter, ectopic atrial tachycardia and junctional ectopic tachycardia.

SVT typically has a fixed rate, usually >220 bpm. P-waves are either not visible or seen after the QRS complexes.

Factors that may contribute to tachycardia (eg: sepsis, pain, dehydration, anxiety, and fever) should also be considered.

Treatment: 1. Vagal manoeuvres

- Vagal manoeuvres are effective for reverting SVT in a hemodynamically stable child or infant.
- If unsuccessful, or child deteriorates, proceed to medical treatment.

DO NOT perform Eyeball pressure or carotid sinus massage as they are no longer recommended.

Neonates and infants

- ‘Elicit the diving reflex’ with facial immersion in ice water for 5 seconds.
- Facial immersion must not be used for infants in hemodynamic compromise/shock.

- The baby is attached to a cardiac monitor, arms are wrapped in a towel, and the whole face is immersed in an ice water slurry for five seconds. It is unnecessary to occlude the nostrils.

School-aged children

- Valsalva technique: with the child in the supine position, ask them to blow on their thumb or a 10 mL syringe, after full inspiration, for 10-15 seconds.
- Handstand is also a useful option.

2. Drugs

- Adenosine is the first choice in the acute medical treatment of SVT. Although it cannot terminate arrhythmia in other SVT types, such as automatic atrial tachycardias and atrial flutter/fibrillation, the p waves appear obviously during the temporary AV block, helping diagnose these SVT types. Since the half-life is very short (5-7 seconds), it should be administered by a central venous route and administered as a rapid push and undiluted, followed by sufficient saline washing. As a first dose, 100 µg/kg is recommended, up to 200-300 µg/kg doses in case of no response (maximum 6 mg for the first dose and maximum 12 mg for the second and subsequent doses).
- If it is not possible to stop SVT with adenosine, esmolol (50-200 µg/kg bolus in 10 minutes, and 50-100 µg/kg/min infusion for maintenance dose), amiodarone (5 mg/kg loading dose in 1 hour, 10-15 mg/kg/day infusion for maintenance dose), or verapamil (0.1 mg/kg IV bolus, can be repeated up to max. 5 mg dose; not used under 1 year old because of cardiac depressant effects) can be used.
- Synchronized (DC) cardioversion (1-2 J/kg) should be the first-choice treatment in hemodynamically unstable patients
- **Adenosine side effects:**
 - Transient flushing and chest discomfort.
 - Exacerbation of asthma due to bronchospasm.
 - Beware of Adenosine changing re-entry SVT to atrial fibrillation, which can be dangerous if WPW is present.

Pulmonary Hypertension Crisis in Children

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Pulmonary hypertension (PH) crises involve sudden increases in pulmonary vascular resistance, leading to elevated right ventricular afterload, right ventricular ischemia, and decreased right heart output. This reduction in cardiac output is further compounded by an increase in right ventricular end-diastolic volume and pressure, causing a leftward shift of the interventricular septum, subsequently decreasing left ventricular end-diastolic volume and stroke volume (referred to as ventricular interdependence). This decreased cardiac output results in lower systemic oxygen delivery, metabolic acidosis, and an increase in dead space ventilation due to decreased pulmonary blood flow, contributing to impaired respiratory acidosis and pulmonary vasoconstriction.

Management of a pulmonary hypertension (PH) crisis involves two key aspects: (1) the appropriate evaluation and treatment of right ventricular failure, and (2) immediate interventions to address extreme acidosis and tissue hypoxia. Addressing a PH crisis typically necessitates a combination of aggressive strategies for right ventricular failure, including careful management of inotropes, vasopressors (e.g., dobutamine, norepinephrine), prudent fluid balance, and maintaining sinus rhythm and atrioventricular synchrony. Balancing preload to avoid the adverse effects of ventricular interdependence is a significant challenge.

Managing acidosis and hypoxia involves oxygenation, alkalization, hypocapnia, and muscle relaxation. For example, hypoxic pulmonary vasoconstriction can contribute to PH after cardiac surgery, making supplemental oxygen a vital component of intensive care unit (ICU) therapy for a PH crisis. Proper respiratory support, including tracheal suction and careful analgesic use, should be part of standard management. However, both hypovolemia and hypervolemia can lead to suboptimal preload and reduced cardiac output. Mechanical ventilation is necessary in severe cases of PH with profound cyanosis, respiratory or metabolic acidosis, respiratory failure, or cardiocirculatory arrest. Mechanical ventilation is necessary in severe cases

of PH with profound cyanosis, respiratory or metabolic acidosis, respiratory failure, or cardiocirculatory arrest. Current clinical research supports gentle ventilation with smaller tidal volumes and limited inspiratory plateau pressure over moderate hyperventilation for managing perioperative pulmonary arterial hypertension (PAH) in pediatric patients. Avoiding permissive hypercapnia and resultant acidosis, which can increase pulmonary vascular resistance (PVR) and mean pulmonary arterial pressure (mPAP), is also crucial.

Key words: pulmonary hypertension, pulmonary arterial hypertension, primary pulmonary hypertension, idiopathic pulmonary hypertension.

Cardiac tumors in pediatrics

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Cardiac tumors are benign or malignant neoplasm arising primarily in the inner lining, muscle layer, or the surrounding pericardium of the heart. They can be primary or metastatic. Primary cardiac tumors are rare in pediatric. Also, cardiac tumors during fetal life have been reported. Causes of heart tumors vary. For the most part, heart tumors are believed to be the result of abnormal growth of heart tissue cells.

A small percentage of tumors are genetically inherited, which can be found with genetic testing. In most cases, tumors develop without any family history. The vast majority of primary cardiac tumors in children are benign. Sign and symptoms of the heart tumors include a change in the rhythms of cardiac and trouble breathing. Rhabdomyoma is the most common cardiac tumor during fetal life and childhood.

It accounts for more than 60% of all primary cardiac tumors. Myxomas are the most common primary tumors in adults constituting 40% of benign tumors.

Sarcomas make up 75% of malignant cardiac masses. Echocardiography, Computing Tomography (CT) and Magnetic Resonance Imaging (MRI) of the heart are the main non-invasive diagnostic tools.

Cardiac catheterization is seldom necessary. Tumor biopsy with histological assessment remains the gold standard for confirmation of the diagnosis. Surgical resection of primary cardiac tumors should be considered to relieve symptoms and mechanical obstruction to blood flow.

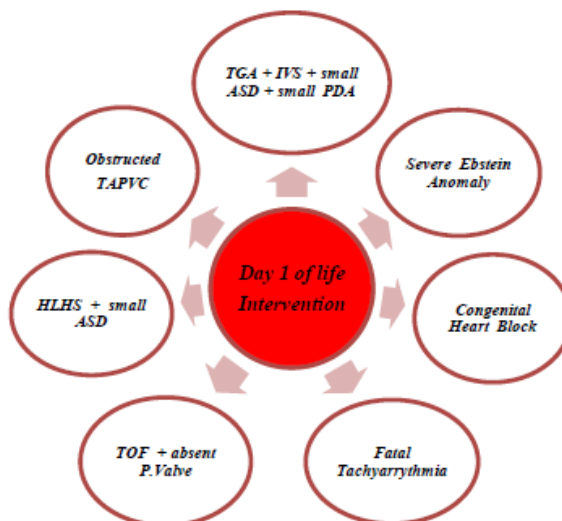
Infantile Heart Disease Urgencies

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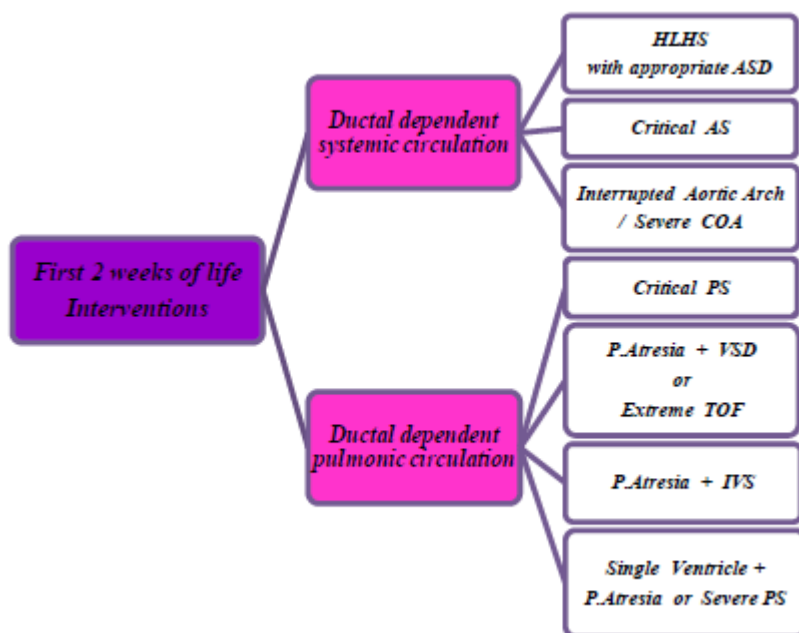
Cardiac Lesions Requiring Immediate Medical And/Or Invasive Interventions After Birth.

Cardiac Lesion	Potential Complications	Urgent Potential Interventions
TGA + IVS + small ASD + small PDA	Severe Hypoxemia Metabolic Acidosis	PGE1 Balloon Atrial Septostomy
HLHS + small ASD	Severe Hypoxemia Metabolic Acidosis	PGE1 Balloon Atrial Septostomy
Obstructed TAPVC	Severe Hypoxemia	Surgical Repair
Severe Ebstein Anomaly	Pulmonary hypoplasia Respiratory failure Severe hypoxemia hydrops	Oxygen therapy Mechanical ventilation (positive pressure) Inhaled nitric oxide Drainage of associated pleural effusions or ascities
TOF (Absent Pulmonic Valve)	Airway compression Respiratory failure Air trapping	Mechanical ventilation (positive pressure) Plication of pulmonary arteries
Congenital Heart Block	Cardiac failure Hydrops	Medical therapy with chronotropic agents Temporary cardiac pacing Drainage of associated pleural effusion or ascities
Fatal Tachyarrhythmia	Cardiac failure	Anti-Arrhythmia Medications



Cardiac Lesions Requiring Medical And/Or Invasive Interventions In The First 2 Weeks Of Life.

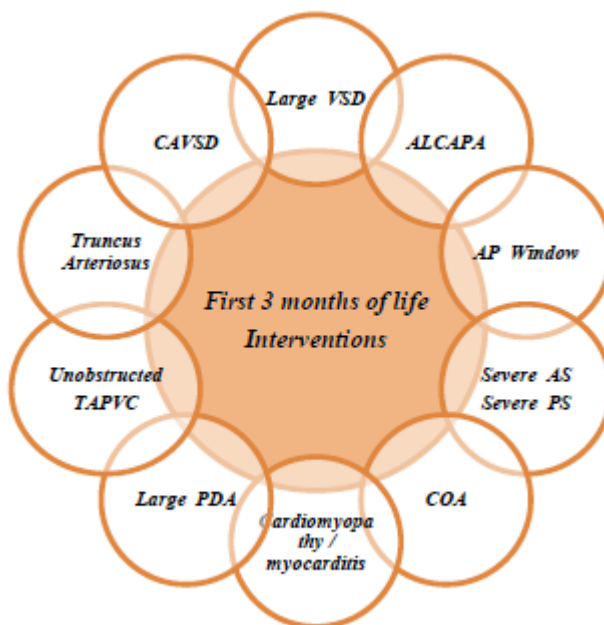
Cardiac Lesion	Potential Complications	Urgent Potential Interventions
HLHS with appropriate ASD	Metabolic Acidosis	PDA Stenting With RPA & LPA Banding
Critical AS	LV Dysfunction Heart Failure	Surgery or Balloon Aortic Valve Angioplasty
Interrupted Aortic Arch Severe COA	LV Dysfunction Heart Failure	Surgery or Balloon / Stent Angioplasty
Critical PS	RV Dysfunction Severe Hypoxemia	Surgery or Balloon Pulmonic Valve Angioplasty
P.Atresia + VSD Extreme TOF	Severe Hypoxemia	BT Shunt Surgery or PDA Stenting / RVOT Stenting
P.Atresia + IVS	Severe Hypoxemia	Surgical Pulmonary Valvotomy or Pulmonary Valvotomy Angioplasty or PDA Stenting
Single Ventricle + P.Atresia or Severe PS	Severe Hypoxemia	BT Shunt Surgery or PDA Stenting



In all the above cardiac lesion, PGE1 is started.

Cardiac Lesions Requiring Medical And/Or Invasive Interventions In The First 3 Months Of Life.

Cardiac Lesion	Potential Complications	Potential Interventions
Large VSD	PH / Heart Failure	PA Banding or Total Correction
Large PDA	PH / Heart Failure	Surgical or Angioplastic Closure
CAVSD	PH / Heart Failure	PA Banding or Total Correction
Truncus Arteriosus	PH / Heart Failure	Surgical Total Correction
Unobstructed TAPVC	PH / Heart Failure	Surgical Total Correction
AP Window	PH / Heart Failure	Surgical Total Correction
ALCAPA	LV Dysfunction Heart Failure	Surgical Total Correction
COA	LV Dysfunction Heart Failure	Surgery or Balloon / Stent Angioplasty
Severe AS Severe PS	LV Dysfunction / RV Dysfunction Heart Failure	Surgery or Balloon Aortic/Pulmonic Valve Angioplasty
Cardiomyopathy Myocarditis	LV Dysfunction / RV Dysfunction Heart Failure	Medical Treatment



In all the above cardiac lesion, medical treatment is started.

Cardiogenic Shock

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Shock is a physiologic state characterized by a significant, systemic reduction in tissue perfusion, and oxygen delivery. Physiologic responses among children make it not to be recognized early, whereas response to treatment is favorable.

Shock develops as the result of the followings:

- Hypovolemic shock: Decreased intravascular volume, caused by fluid or blood loss
- Distributive shock: Abnormal distribution of intravascular volume, because of sepsis, anaphylaxis or nervous system injury
- Cardiogenic shock: Impaired cardiovascular function, as the result of cardiomyopathies, arrhythmias or blood flow obstruction
- Obstructive shock: During compensated shock, tachycardia and peripheral vasoconstriction occur; systolic blood pressure is maintained; Common features include tachycardia and signs of compromised organ perfusion (skin, brain, and kidneys). Children with shock often present before hypotension develops. Once hypotension develops, the child's condition will deteriorate rapidly to cardiovascular collapse and cardiac arrest. Progressive end-organ dysfunction leads to irreversible organ damage and death.

A history of heart disease, worsening clinical condition with fluid resuscitation, tachycardia out of proportion to fever or respiratory distress, cyanosis unresponsive to oxygen, raised jugular venous pulsations, and absent femoral pulses are suggestive of cardiogenic shock; although it is less common than other forms of shock in children.

The goals of the evaluation are to identify life threatening conditions and initiate treatment before hypotension develops. Rapid assessment determines the presence and type of shock. Clinical goals (pulses, capillary refill, mental status, systolic blood pressure, urine output) should be targeted. Tachycardia and high blood lactate are important indicators.

For children with suspected cardiogenic shock or signs of fluid overload, fluid resuscitation should be administered carefully with lower isotonic crystalloid fluid volume over a longer period of time (5 to 10 mL/kg, infused over 15 to 30 minutes), to decrease the likelihood of exacerbating heart failure.

Inotropic agents are indicated for children with shock and no improvement with initial fluid resuscitation. The choice agent depends upon the etiology:

- Anaphylaxis or shock after cardiac arrest – Continuous infusion of epinephrine
- Septic shock – Continuous infusion of epinephrine or norepinephrine
- Cardiogenic shock – Continuous infusion of dobutamine or phosphodiesterase inhibitors

Specific management for cardiogenic shock includes:

- Cardiac arrhythmias (supraventricular or ventricular tachycardia or symptomatic bradycardia) should be addressed prior to fluid resuscitation.
- Children with poor cardiac function may also be volume depleted. Fluid administration should be slowly in boluses of 5 to 10 mL/kg.
- Dobutamine or phosphodiesterase inhibitors can improve myocardial contractility and reduce systemic vascular resistance.
- Norepinephrine, a potent vasopressor with some positive inotropic properties, may be used for rapid initial circulatory support. The minimum required dose should be used.
- Dopamine, a vasopressor at low doses, has positive inotropic effects but at higher doses it results in vasoconstriction and increased systemic vascular resistance and undesirable elevation in pulmonary capillary wedge pressure (PCWP). The minimum required dose should be used.
- Dobutamine is limited to patients with a low cardiac index, high PCWP and borderline low blood pressure but without severe hypotension.

Adrenal crisis and acute adrenal insufficiency

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Adrenal crisis is an event caused by an acute relative insufficiency of adrenal hormones. It may be the first presentation of underlying adrenal insufficiency or there may be a history suggestive of chronic hypoadrenalism.

Common symptoms include: Weakness, Fatigue, Anorexia, Syncope, Nausea /vomiting, Weight loss, Confusion and Seizure.

Examinations: Evaluate degree of dehydration, Hypotension and tachycardia. Assess pigmentation in skin creases, nail bed or scars (may be present in primary adrenal failure), genital (in CAH) and CNS signs (in Adrenoleukodystrophy).

Investigations: Blood glucose. Blood pressure. Electrolytes. Blood gas. ECG.

If first presentation (prior to steroid administration if possible): Check Cortisol, ACTH, 17 hydroxyprogesterone, DHEAS, Androstenedion, Testosterone, (if CAH is considered) Plasma renin activity and Urine for urinary steroid profile and urinary sodium.

Treatment includes:

1. Steroid replacement: IV bolus of 50-100 mg/m² hydrocortisone immediately. Follow with IV hydrocortisone 6 hourly.
2. Intravenous fluids: Give 0.9% sodium chloride (normal saline) 10-20 mL/kg during the first hour of treatment. Repeat until circulation is restored. Replace remaining deficit + maintenance fluid requirements evenly over 24 hours with 0.9% sodium chloride and 5% glucose.
3. Treat hypoglycaemia: Give an IV bolus of 10% dextrose 2-4 mL/kg and recheck blood glucose level after 15 minutes to ensure recovery to >50 mg/dL.
4. Treat Hyperkalaemia: Children with potassium >6.0 mmol/L should have ECG and be on cardiac monitoring and If potassium is >7.0 mmol/L and

ECG changes of hyperkalaemia are present, treat with either calcium gluconate or insulin/dextrose infusion. kayexalate most be considered.

5. Precipitating illness/injury: Identify and treat the illness or injury that precipitated the adrenal crisis.

Genetic study in children with adrenal tumors

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Background: Pediatric adrenocortical tumors are rare endocrine neoplasms in childhood. The median age at diagnosis is 17 months and the female: male ratio is 3.3-3.6/1. 80-90% of patients shows hormonal imbalance such as Cushing syndrome and iso-sexual or heterosexual precocious puberty. Genetic susceptibility was established in a group of patients. Genetic defects are more important in pediatric than adult cases of adrenocortical tumors.

Method: In this study we reviewed genetic cause of adrenal tumors.

Results: The first evidence for inherited, inborn conditions predisposing to Adrenocortical carcinoma was presented in a series of cases of pediatric ACC patients by Fraumeni et al. in 1967 A total of 50-80% of children have different genetic defects involving tumor protein p53, insulin-like growth factor II, multiple endocrine neoplasia type 1 (MEN1), dysfunctional alternative lengthening of telomeres, PRKAR1A, IGF1R, ZNRF3, CTNNB1 and epidermal growth factor receptor. Hereditary syndromes associated to adrenocortical carcinoma include Li-Fraumeni (LFS), Beckwith-Wiedemann, MEN1, Neurofibromatosis type 1, familial adenomatous polyposis coli (FAP), carney complex and Lynch. Germline TP53 mutations can be detected in 80% of children with adrenocortical carcinoma (ACC). The occurrence of ACC in multiple family members has also been well recognized, especially in LFS families.

There are several characteristics that clinically raise suspicion of a hereditary syndrome as a predisposition to cancer development consist of ACC diagnosed during childhood, diagnosis of coexisting congenital malformations in an ACC patient, occurrence of bilateral or metachronous ACC, other family members affected with ACC or rare cancers, higher than usual number of affected individuals with cancer in the patient's family pedigree or second cancers in the same individual.

It is also necessary to obtain a thorough review of systems and perform a full physical exam with special attention to organ systems known to be related to hereditary conditions, such as the skin (e.g. café au lait spots, skin-associated tumors) or skeleton (e.g. osteomas) to identify patients with a possible familial cancer susceptibility syndromes.

Conclusion: Whole genome analyses as conducted for several cancers will add significant knowledge about predisposition to ACC development. Clinically it is important to consider the occurrence of ACC as part of a syndrome as it may guide therapy (e.g. caution with radiation therapy in LFS patients). Genetic study in ACC patients give the possibility for individualized screening for other commonly observed cancers in these syndromes, and identify family members at risk.

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Adrenal Insufficiency

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Adrenal insufficiency is a life-threatening disorder that can result from primary adrenal failure or secondary adrenal disease due to impairment of the hypothalamic–pituitary axis.

Clinical features are weight loss, anorexia, postural hypotension, profound fatigue, muscle and abdominal pain, and hyponatremia.

Cause

Primary adrenal insufficiency

In developed countries, most causes of primary adrenal insufficiency are autoimmune adrenalitis, which are differentiated as isolated or as part of an autoimmune polyendocrine syndrome (APS). Other cause of this disease is X-linked adrenoleukodystrophy which is caused by a mutation in the ABCD1 gene, and lead to accumulation of very-long-chain fatty acids. Other rare causes of primary adrenal insufficiency are adrenal infiltration or hemorrhage.

Secondary adrenal insufficiency

The most frequent cause is a tumor of the hypothalamic-pituitary region which interfere with adrenocorticotropin hormone secretion.

Diagnosis of adrenal insufficiency

A low serum cortisol concentration (<80 nmol/L [30 $\mu\text{g/L}$]) in a blood sample taken in the early morning strongly suggests adrenal insufficiency. A screening test of adrenal insufficiency is measurement of salivary cortisol concentration at 0800 h. If cortisol is more than 16 nmol/L (5.8 $\mu\text{g/L}$) excludes adrenal insufficiency, whereas a value of less than 5 nmol/L (1.8 $\mu\text{g/L}$) indicates a high probability of adrenal insufficiency. The most accurate diagnostic test is standard-dose corticotropin test, which is safe, reliable and accurate. Pharmacological doses (250 μg) of exogenous corticotropin are used intravenously or intramuscularly, and serum cortisol concentrations are

measured at baseline, 30 min and 60 min after stimulation. A peak cortisol concentration is defined as normal if more than 500 nmol/L (180 µg/L).

In male patients with isolated Addison's disease and no autoantibodies, plasma concentrations of very-long-chain fatty acids (C26, C26/C22, and C24/C22 ratios) must be measured to exclude X-linked adrenoleukodystrophy.

Treatment

Patients with adrenal insufficiency should be treated with hydrocortisone. The recommended daily hydrocortisone dose is 10–12 mg/m²; which can be given in two to three doses, half to two-thirds of the total daily dose can be given in the morning. Longer-acting synthetic glucocorticoids, such as prednisolone, prednisone, and dexamethasone, should be avoided.

Acute Mastoiditis in a Child with a History of Cochlear Implantation: A Case Report

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Background: Acute mastoiditis is one of the complications of acute otitis media in children. Patients with acute mastoiditis commonly have manifestations of acute otitis media and inflammation of the mastoid bone. Computed tomography is the most frequent diagnostic method for diagnosing acute mastoiditis. In this report, we presented a 6-year-old boy with a history of cochlear implantation three years ago, who was referred for acute swelling and pain in the mastoid bone one day ago.

Case presentation: A 6-year-old boy with fever, pain, redness, and swelling of the posterior side of his right ear from one day ago was referred to the clinic. Physical examination showed tenderness, redness, warmth, and swelling on the right auricle and mastoid bone. Implantation in the right ear about three years ago was mentioned. Last week, involvement with coryza, nasal congestion, and low-grade fever without ear pain was mentioned. Acute mastoiditis was confirmed with CT scanning, and he was cured with antibiotic therapy.

Discussion: Acute mastoiditis is not common. It may occur after a few times of cochlear implantation, but it occurs rarely after a long time. The main cause is bacterial infection. After confirmation of the diagnosis with CT scanning, treatment with antibiotics should be started intravenously, and then it can be changed to oral antibiotics.

Conclusion: Acute mastoiditis should be considered as a differential diagnosis in pediatrics with acute swelling, pain, and any manifestation of inflammation on mastoid bone, even though there is no history of acute otitis media.

Key words: Mastoiditis, Cochlear Implantation, pediatric, infectious disease

Cancer Rehabilitation in Children: what is the logical root for it?

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Background: With the increasing prevalence of cancer in children and their longer life expectancy, improving and enhancing the performance of children and restoring them to their previous quality of life are goals emphasized by the National Institutes of Health (NIH). Rehabilitation holds a special place in these patients, encompassing increased performance and function in affected and unaffected body parts, the use of assistive devices, environmental modifications for greater adaptation, and the use of psychological techniques for enhanced acceptance.

Methods: In this article, we have examined various rehabilitation methods for cancer patients.

Results: Rehabilitation in cancer can be considered in four stages, based on Dietz's classification:

Preventative: This stage involves early interventions and patient education to prevent or delay cancer-related complications or treatments. These interventions can range from prescribing range of motion exercises for spastic patients to prophylaxis for deep vein thrombosis in hospitalized patients. Exercise, nutrition, and physiotherapeutic interventions are preventive measures to reduce cancer-related complications and disabilities.

Restorative: In this stage, rehabilitation helps the patient return to their previous level of function without disabilities.

Supportive: This stage is applied when the patient has persistent impairments or disabilities due to cancer. Rehabilitation in this phase aims to maximize functional independence in the desired environment.

Palliative: This stage is considered for patients whose disease is progressing or experiencing frequent relapses. Palliative rehabilitation focuses on educating caregivers, minimizing the patient's care-related problems,

providing greater comfort to the patient, and recommending changes or the use of suitable devices based on the patient's condition.

Conclusions: For practical application of these definitions in the rehabilitation of cancer patients and addressing treatment-related impairments, three approaches should be considered when a patient visits the rehabilitation clinic: the first approach based on common symptoms in pediatric cancer, the second approach based on common pediatric tumors and their impairments, and the third approach based on complications arising from anti-cancer treatments.

Key words: rehabilitation, cancer, children

راهنمای استفاده از نبولایزر در خانه برای والدین

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اهداف مقاله: اهداف این مقاله شامل توضیح نحوه عملکرد نبولایزر، انواع نبولایزر و شرایط نگهداری آن هستند.

مقدمه: نبولایزر به عنوان یک وسیله مؤثر در تحویل داروهای تنفسی به کودکان با بیماری‌های ریوی و تنفسی است. این نوع درمان به ویژه در بیماری‌هایی همچون آسم شدید و برونشیت بسیار مؤثر بوده و به علت تاثیر سریع دارو و ممانعت از اثر دارو بر سایر بافت‌های بدن، همواره مورد توجه اغلب پزشکان و بیماران می‌باشد. نبولایزر با دستگاه بخور و مرطوب کننده تفاوت دارد. دستگاه بخور ذرات آب را تبدیل به بخار می‌کنند که قابلیت رسوب در ریه را ندارد ولی نبولایزر دارو را به ذرات کوچک که می‌توانند در ریه بنشینند تبدیل می‌کند. (سایز ۲ تا ۵ میکرون)

انواع نبولایزر و ویژگی‌های آن: نبولایزرها در ۳ مدل پنوماتیک، مش کپ و اولتراسونیک در بازار موجود می‌باشند. نبولایزر پنوماتیک یا جت نبولایزر (Jet Nebulizer) فشار هوا با کمک یک پمپ، آب را به ذرات بسیار ریز تبدیل می‌کند. نبولایزر با تکنولوژی مش کپ (Mesh Nebulizer) ذرات دارو را تا اندازه ۲ تا ۶ میکرون کوچک می‌کنند تا بر روی برونشیول‌ها اثر کنند. نبولایزر اولتراسونیک (Ultrasonic Nebulizer) ذرات دارو تا حدود ۰/۵ تا ۲ میکرون کوچک می‌کند.

بیماری‌های شایع کودکان نیازمند نبولایزر: بیماری‌هایی مانند آسم، برونشیت، سیستیک فیبروزیس و عفونت‌های تنفسی نیازمند استفاده از نبولایزر هستند.

داروهای مورد استفاده در نبولایزر: گشاد کننده برونش‌ها مثل ونتولین، آنتی کولینرژیک‌ها مثل ایپراتروپریوم بروماید، کورتون‌ها مثل پالمیکورت، آنتی بیوتیک‌ها مثل آمیکاسین، رقیق کننده‌های خلط مثل NAC.

نحوه استفاده از نبولایزر در کودکان: حتماً باید کمپرسور در سطح صاف باشد و پس از تمیز کردن دستگاه و شستن دست‌ها باید نکات مهم در مورد استفاده داروهای قابل نبولایز و ترکیب آن‌ها با دیگر مواد و نحوه نشستن و دریافت نبولایزر رعایت گردد.

نحوه تمیز کردن و نگهداری نبولایزر: در پایان هر روز باید محفظه دارو، ماسک و قطعه دهانی با آب گرم و صابون و یک ضد عفونی کننده معمولی تمیز شود. لازم است که از شستشو دادن لوله و نبولایزر جداً خودداری شود. در ضمن می‌توان از محلولی با یک قسمت سرکه سفید و ۳ قسمت آب برای ۳۰ دقیقه برای ضد عفونی استفاده کرد.

مشکلات شایع و عوارض جانبی: ممکن است تنفس سریع‌تر، عوارض گوارشی، تحریک راه‌های هوایی، آلرژی و حساسیت، و تداخل با داروهای دیگر از عوارض نبولایزر باشند.

نحوه مراقبت از دستگاه نبولایزر: نگهداری و مراقبت از نبولایزر بسیار مهم است تا از عملکرد صحیح آن و همچنین برای جلوگیری از ابتلا به عفونت و بیماری‌های دیگر، از جمله عفونت‌های تنفسی اطمینان حاصل شود. همچنین برخی از قطعات نبولایزر مانند ماسک و شیشه دارویی باید به طور دوره‌ای تعویض شوند تا به عملکرد صحیح نبولایزر کمک کنند. همچنین، قبل از هر استفاده، باید از قطعات نبولایزر، به خصوص شیشه دارویی، بررسی شود تا دچار آسیب و خراش نشده باشد.

توصیه‌ها به والدین کودکان: والدین باید با پزشک همکاری کنند، تکنیک‌های صحیح را یاد بگیرند، مراقبت از دست‌ها و شستشوی آن‌ها را جدی بگیرند.

کلید واژه‌ها: نبولایزر، کودکان، داروهای تنفسی، توصیه‌ها به والدین، بیماری‌های تنفسی، عوارض جانبی، مراقبت و نگهداری

Pulmonary Alveolar Proteinosis in Children: Diagnosis and Treatment Outcomes

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Background: Pulmonary Alveolar Proteinosis (PAP) is an uncommon pulmonary disease characterized by the accumulation of surfactant composed of proteins and lipids due to disruption of surfactant clearance by alveolar macrophages. The current standard treatment is lung lavage. There are no specific criteria for lavage, but in case of observing these signs it is recommended to perform lavage for the patient: progressive respiratory failure, no labored breathing at rest, and drop in oxygen level during activity (>5%).

Objective: Assessment of diagnosis and treatment outcomes of pulmonary alveolar proteinosis in children.

Materials and Methods: In this study, patients with PAP admitted to Pediatric ward of Masih Daneshvari Hospital were studied. The required data were collected including the patient's demographic data, clinical signs and radiographic data, the number of admissions, the age of diagnosis, detection and treatment methods, number of lavage, current condition of the patient, and in case of death, the cause of death.

Results: In this study, 17 patients with PAP who were admitted during the past 15 years were examined; among which 7 patients were boys (41.2%) and 10 were girls (58.8%). The mean age of population was 11.79 ± 7.21 years. Transbronchial Lung Biopsy (TBLB) (47.1%) and open lung biopsy (52.9%) were used for diagnosis of patients. Lung lavage was used to treat patients, 15 of whom were treated by this method. Five of the patients died because of their serious conditions.

Conclusions: Therapy method in the present study was lavage for both lungs, and it was performed for all patients except for two patients due to their anatomical complications. This method is still considered as the gold standard for PAP. Considering the findings from previous studies and the

present study, it seems that Whole Lung Lavage (WLL) was fruitful for patients who had the indication for using this therapy and it played a significant role in improving the prognosis of patients. Besides, it is recommended to do follow-up regularly in order to have more therapeutic efficacy and increased patient longevity.

Key words: Pulmonary alveolar Proteinosis; Diagnosis; Outcome

Mucolytic drugs in pediatrics

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Background: Mucolytic drugs are mucoactive agents that enhance the clearance of mucus in the respiratory tract. Mucus serves as a protective barrier against pathogens and irritants, and its regulation is carried out by mucus-secreting cells and the mucociliary escalator. However, in conditions like asthma, mucus hypersecretion leads to the accumulation of excess mucus, impairing clearance and causing further complications. Similarly, in cystic fibrosis, impaired mucus secretion results in the accumulation of thick and viscous secretions. Classic mucolytics like N-acetylcysteine are used to decrease mucus viscosity and improve clearance in conditions like COPD, while peptide mucolytics target DNA polymers in cystic fibrosis.

Objectives: The objective of this study is to understand the mechanism of action of classic mucolytics and peptide mucolytics in enhancing mucus clearance.

Methods: A literature review was conducted to gather information on the mechanism of action of classic mucolytics and peptide mucolytics.

Results: Classic mucolytics, such as N-acetylcysteine, work by disrupting the disulfide bonds present in mucus polymers. N-acetylcysteine contains a thiol group that hydrolyzes the disulfide bonds, reducing them to sulfhydryl bonds. This disrupts the 3-D structure of mucus, making it less viscous and more easily cleared. N-acetylcysteine also has anti-inflammatory and antioxidative properties, which help reduce reactive oxygen species and inflammatory mediators in the respiratory airways. Peptide mucolytics target DNA polymers present in thick and viscous secretions in conditions like cystic fibrosis. These drugs break down the DNA polymers, reducing their viscosity and improving clearance.

Conclusions: Mucolytic drugs play a crucial role in enhancing mucus clearance in conditions characterized by mucus hypersecretion or impaired mucus secretion. Classic mucolytics like N-acetylcysteine disrupt disulfide bonds in mucus polymers, reducing viscosity and improving clearance. Peptide mucolytics target DNA polymers, reducing their viscosity and

enhancing clearance. Understanding the mechanism of action of these drugs is essential for their effective use in managing respiratory conditions.

Key words: mucolytic, pediatric, nebulizer

Influence of nebulizer type with different pediatric aerosol masks on drug deposition in a model of a spontaneously breathing small child

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Background: The performance of nebulizers varies with the design type as well as the breathing patterns of various age groups. The present study quantified aerosol delivery using spontaneously breathing parameters of a small child (2-4 years) by a lung simulator to determine the influence of nebulizer type, actuation mechanisms, and pediatric aerosol masks.

Methods: Three types of nebulizer (constant-output, breath-enhanced, and breath-actuated nebulizer) and 3 masks (standard pediatric mask, the Fish mask, and a valved mask) were chosen for the testing. The actuation mechanism of the breath-actuated nebulizer was tested by manual synchronization with inspiration, breath actuation, and continuous nebulization. The nebulizer performance was determined by determining mass median aerodynamic diameter and analyzing drug deposition distal to the trachea (inhaled mass), on the face, on the mask, residual drug in the nebulizer, and the time of nebulization. The quantity of salbutamol deposited was determined by spectrophotometry (276 nm).

Results: Mass median aerodynamic diameter was similar across nebulizers. Breath-actuated nebulization generated a lower inhaled dose and higher nebulization time than continuous nebulization ($P = .001$). Breath synchronized aerosol generation, whether breath-actuated or manually actuated, yielded 10-20 times lower inhaled mass than continuous nebulization (0.1-0.6% vs 5-11%, respectively). The AeroEclipse, operated continuously, delivered greater inhaled dose than the LC Plus ($P = .025$). Higher inhaled dose was achieved with the Fish mask than standard or valved mask, with all nebulizers tested ($P = .001$).

Conclusions: In this model using ventilatory parameters associated with a 2-4-year-old child, breath-actuated nebulization was not as effective as continuous nebulization. Aerosol mask design can impact inhaled drug dose across the range of nebulizers tested.

Key words: nebulizer, pediatric, aerosol

Effect of Vibrating Mesh Nebulizer Aerosol Technology on the In Vitro Activity of Ribavirin Against Respiratory Syncytial Virus

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Abstract

Background: Ribavirin is an antiviral drug that for many years has been administered to the lungs by aerosolization. Despite advancements in oral delivery routes, there has been a renewed interest in delivering ribavirin via the pulmonary system in select patients and the severely ill. The vibrating mesh nebulizer was previously demonstrated to be an effective alternative to the small-particle aerosol generator in particle size, chemical makeup, and concentrations of the ribavirin before and after nebulization. However, the antiviral activity of ribavirin has never been examined. We sought to study ribavirin's activity before and after nebulization via vibrating mesh nebulizer.

Methods: We grew and infected human epithelial type 2 cells and primary airway epithelial cells with respiratory syncytial virus (RSV). We then compared the antiviral effect of non-nebulized (control) and aerosolized ribavirin to untreated controls. We used traditional plaque assay and real-time polymerase chain reaction to determine the quantity of virus.

Results: Both non-nebulized (control) and nebulized ribavirin reduced the size of RSV plaques compared to untreated controls. Additionally, the non-nebulized and nebulized ribavirin equally inhibited RSV replication. There were no statistically significant differences between the non-nebulized and nebulized ribavirin across all time points.

Conclusions: The vibrating mesh nebulizer did not affect the antiviral properties of nebulized ribavirin when compared to non-nebulized drug. Our findings add supporting evidence for the use of the vibrating mesh nebulizer in the administration of inhaled ribavirin.

Key words: RSV, activity assay, airway epithelial cells, inhaled ribavirin, nebulization, nebulized, ribavirin.

Advances in Nebulizer Therapy in Pediatrics: Optimizing Respiratory Care for Children

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Objective: This article aims to elucidate the functionality of nebulizers, categorize the different types available, and detail the essential maintenance requirements associated with nebulizer therapy in pediatric patients.

Summary: Nebulizers serve as a highly efficacious means of administering respiratory medications to pediatric patients with lung and respiratory disorders. This method of treatment is particularly indispensable in managing severe asthma and bronchitis. Unlike traditional steam inhalation, nebulizers efficiently convert medicinal solutions into fine particles, with a size range of 2 to 5 microns, enabling optimal deposition within the lungs. Nebulizers come in three distinct models: pneumatic, mesh cap, and ultrasonic. The pneumatic nebulizer, or jet nebulizer, employs a pump mechanism to produce exceptionally fine aerosol particles. The mesh cap technology, known as the Mesh Nebulizer, refines drug particles to a size range of 2 to 6 microns, which proves highly effective in reaching the bronchioles. Ultrasonic nebulizers take drug particle size to about 0.5 to 2 microns. Conditions such as asthma, bronchiolitis, cystic fibrosis, and respiratory infections necessitate the use of nebulizers. Medications commonly administered through nebulizers encompass bronchodilators, anticholinergics, corticosteroid, antibiotics and mucolytics. To ensure the proper operation of the nebulizer and prevent infections and other respiratory complications, it is vital to position the compressor on a level surface. Additionally, adhering to strict hygiene practices such as device cleaning and hand washing is crucial. Proper administration of nebulized medications, understanding their compatibility with other substances, and the correct posture during treatment are all pivotal. Maintenance is paramount for nebulizer longevity and efficient operation. Some components, notably the mask and medication chamber, should be replaced periodically to guarantee the device's functionality. Regular inspections for damage and scratches, particularly on the medication

chamber, should be conducted before each use. Furthermore, parents play a pivotal role in this process, actively participating in the care of their children by cooperating with healthcare providers, mastering the correct techniques, and adhering to strict hand hygiene.

Conclusions: this article elucidates the pivotal role that nebulizers play in pediatric respiratory care. Nebulizer therapy stands as an invaluable tool for the management of lung and respiratory disorders in children, providing a highly efficient means of delivering medications precisely to the targeted areas. With three distinct types available, tailored to specific requirements, nebulizers have transformed the treatment landscape for conditions such as asthma, bronchiolitis, cystic fibrosis, and respiratory infections. Moreover, the article underscores the critical importance of proper maintenance and stringent hygiene practices in ensuring the durability and efficacy of nebulizers.

Key words: Nebulizers, Cystic Fibrosis, Inhalation Technique, Disinfection.

Vasculitis in autoinflammatory disorders

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Vasculitis is a rare condition that causes inflammation of blood vessels, leading to reduced blood flow and possible organ damage. As well as this, Autoinflammatory disorders (AIDs) are a group of diseases that involve dysregulation of the innate immune system, resulting in recurrent episodes of inflammation. Moreover, some AIDs are associated with vasculitis, either as a primary feature or a secondary complication. The pathogenesis of vasculitis in AID is not fully understood, but it may involve genetic mutations, cytokine dysregulation, neutrophil activation, and environmental triggers. Further, the most common AIDs that are associated with vasculitis are familial Mediterranean fever (FMF), Behcet's disease, STING-Associated Vasculopathy With Onset in Infancy (SAVI), Aicardi-Goutiere Syndrome (AGS), deficiency of adenosine deaminase 2 (DADA2), Haploinsufficiency A20 (HA20), cryopyrin-associated periodic syndromes (CAPS), and tumor necrosis factor receptor-associated periodic syndrome (TRAPS). The clinical manifestations, diagnosis, and treatment of vasculitis in AIDs vary depending on the type and size of the affected blood vessels, the organs involved, and the underlying disease. In conclusion, early diagnosis and appropriate management of vasculitis in AIDs are essential to prevent irreversible organ damage and improve the quality of life of patients.

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Recurrent aphthous stomatitis (RAS)

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- **Definition** – Recurrent aphthous stomatitis (RAS) is a common disease of the oral mucosa characterized by the recurrent development of one to several discrete ulcers that typically heal within two weeks.

- **Clinical subtypes** – Clinical subtypes of RAS include minor aphthous stomatitis (most common), major aphthous stomatitis, herpetiform aphthous stomatitis, and severe aphthous stomatitis. Minor aphthosis is the more common form of the disease. Patients experience several self-limited episodes per year, and involvement is limited to the oral mucosa. Patients with major aphthosis may have both the oral and genital mucosa involved. The lesions are more numerous, more painful, and larger, often taking up to four to six weeks to resolve.

- **Clinical presentation** – RAS presents with round to oval, painful ulcers varying in size from a few millimeters to >1 cm. Ulcers typically show an erythematous rim and adherent, yellowish exudate centrally. Patients with minor aphthosis have one to five discrete ulcers that are generally <1 cm in diameter and most commonly develop on the nonkeratinized oral mucosa (typically buccal and labial mucosae). In most cases, lesions resolve in 10 to 14 days.

* DIFFERENTIAL DIAGNOSIS

Mucocutaneous diseases associated with oral ulcers such as Herpes simplex virus infection, Autoimmune bullous disease such as pemphigus vulgaris, Drug-induced mucosal ulcers

Systemic diseases associated with oral ulcers such as Behçet syndrome, Systemic lupus erythematosus, Cyclic neutropenia, PFAPA syndrome, Celiac disease, Inflammatory bowel disease, Reactive arthritis, Agranulocytosis, HIV infection

- **Diagnosis** – The diagnosis of RAS is usually made on clinical grounds, based upon a typical history and physical examination. Most patients are

otherwise healthy. In patients with more severe or recalcitrant disease, it is appropriate to evaluate for underlying disease. In patients with recurrent and/or major aphthosis, the diagnosis of Behçet syndrome and other above-mentioned differential diagnoses must be excluded. Biopsy of a lesion will usually not distinguish between these entities.

● **Management** – There is no uniformly effective therapy for RAS. General measures aimed at oral hygiene, avoidance of trauma to the oral mucosa, and use of topical pain relievers and anti-inflammatory drugs are appropriate for all patients with RAS.

The role of oral multivitamin supplementation, including vitamin B12 supplementation in patients without a documented deficiency, remains uncertain.

Majority of patients respond to general measures and topical Corticosteroids, topical Tetracyclines and Sucralfate suspension. For **refractory aphthosis**, systemic Corticosteroids, Colchicine/Dapsone, Thalidomide, Apremilast, Montelukast, Pentoxifylline and Anti-TNF-alpha agents may be used.

● **Prognosis** – In most patients, RAS resolves or subsides spontaneously with age. In a minority of patients with major aphthosis, the pain and frequency of outbreaks may have a significant impact on the overall quality of life.

Clinical manifestations and diagnosis of Behçet syndrome

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Definition – Behçet syndrome is a rare disease characterized by recurrent oral aphthae and any of several systemic manifestations including genital aphthae, ocular disease, skin lesions, gastrointestinal disease, neurologic disease, vascular disease, and arthritis. Most clinical manifestations of Behçet syndrome are believed to be due to vasculitis.

• **Epidemiology** – Behçet syndrome is more common (and often more severe) along the ancient silk road, which extends from eastern Asia to the Mediterranean Sea; it is most common in Turkey, while the prevalence is much lower in North America and northern Europe. It typically affects young adults 20 to 40 years of age but may also be seen in children. Although there are limited data on children with Behçet syndrome, clinical manifestations appear to generally be similar to those in adults. Among some populations, there may be differences in the frequencies or types of certain manifestations, including neurologic disease. In a comparison of a pediatric clinical database and an adult clinical database, juvenile-onset disease was associated with more familiar predisposition, articular manifestations were more common in juvenile-onset disease, and venous vascular events were more common in adult-onset disease, while human leukocyte antigen (HLA) B51 positivity and other clinical manifestations occurred at similar rates.

• Clinical manifestations

• **Oral ulcerations and urogenital lesions** – The common clinical feature in patients with Behçet syndrome are the presence of recurrent and usually painful mucocutaneous ulcers. Other clinical manifestations of this disorder are more variable among different patients and populations.

• **Ocular, neurologic, and vascular involvement** – The greatest morbidity and mortality occur with ocular disease (affecting up to two-thirds of patients), including uveitis and other changes; with vascular disease, including pulmonary artery aneurysms; and with central nervous system disease, including focal parenchymal lesions, complications of vascular

thrombosis, and other abnormalities. Vasculitis in patients with Behçet syndrome is remarkable for its ability to involve blood vessels of all sizes and to involve both arteries and veins.

- **Other manifestations** – Cutaneous manifestations are common, which include acne, folliculitis, and erythema nodosum lesions. Pathergy may be seen as an erythematous papular or pustular response to local skin injury. Arthritis may be present, which is characteristically intermittent, inflammatory but nonerosive, asymmetric, and, usually, nondeforming; it often occurs during disease exacerbations and most commonly affects the medium and large joints. A variety of gastrointestinal symptoms may also occur.

- **Less common manifestations** – Less common manifestations include renal disease and peripheral nervous system involvement. Cardiac and pulmonary disease may also be present.

- **Diagnosis** – There are **no** pathognomonic laboratory tests in Behçet syndrome; as a result, the diagnosis is made on the basis of the clinical findings. According to International Study Group (ISG) criteria, In the absence of other systemic diseases, Behçet syndrome is diagnosed in patients with **recurrent oral aphthae** (at least three times in one year) **plus** two of the following clinical features:

- 1- Recurrent genital aphthae

- 2- Eye lesions (including anterior or posterior uveitis, cells in vitreous on slit lamp examination, or retinal vasculitis observed by an ophthalmologist)

- 3- Skin lesions (including erythema nodosum, pseudo-vasculitis, papulopustular lesions, or acneiform nodules consistent with Behçet syndrome)

- 4- A positive pathergy test.

A consensus classification criterion has been developed for **pediatric Behçet syndrome** that may be more sensitive than prior criteria in the pediatric population:

1. Recurrent oral aphthosis

2. Recurrent genital aphthosis

3. Eye lesions (including anterior or posterior uveitis, cells in vitreous on slit lamp examination, or retinal vasculitis observed by an ophthalmologist)
4. Skin lesions (including erythema nodosum, pseudo-vasculitis, papulopustular lesions, or acneiform nodules consistent with Behçet syndrome)
5. Neurologic signs: with the exception of isolated headaches
6. Vascular signs: Venous thrombosis, arterial thrombosis, arterial aneurysm

Three of six items are required to classify a patient as having pediatric Behçet syndrome.

Kawasaki disease: A never ending story?

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- **Overview** – Kawasaki disease (KD, also called mucocutaneous lymph node syndrome) is one of the most common vasculitis of childhood. KD occurs only rarely in adults. It is typically a self-limited condition, with fever and manifestations of acute inflammation lasting for an average of 12 days without therapy. It is unclear at this time whether children who have normal-appearing coronary arteries during the acute phase of the disease will be at risk for endothelial dysfunction and accelerated atherosclerosis later in life.
- **Clinical manifestations** – KD is characterized by systemic inflammation manifested by fever and mucocutaneous involvement, including bilateral nonexudative conjunctivitis, erythema of the lips and oral mucosa, polymorphous rash, extremity changes, and cervical lymphadenopathy. These findings are often not present at the same time. Thus, repeated histories and physical examinations are important in making a timely diagnosis of KD in children with fever and signs of mucocutaneous inflammation.
- **Laboratory findings** – No laboratory studies are included among the diagnostic criteria for typical KD. However, the presence of compatible laboratory features strongly supports the diagnosis.
- **Diagnosis** – The diagnosis of KD according to classical criteria requires the presence of fever ≥ 5 days, combined with at least four of the other five signs of mucocutaneous inflammation, without any other explanation. A significant proportion of children with KD have a concurrent infection; therefore, ascribing the fever to such an infection or to KD requires clinical judgment. Additional clinical and laboratory features are often used to guide diagnosis in children who have fewer than five criteria for KD (incomplete KD).
- **Differential diagnosis** – Kawasaki disease is a clinical diagnosis and initially mimics a viral syndrome, making recognition difficult, especially in the early days of the disease. The presence of clinical features not commonly found in KD, including exudative conjunctivitis, exudative pharyngitis, discrete intraoral lesions, bullous or vesicular rash, splenomegaly, and/or generalized lymphadenopathy, suggest another diagnosis. Nonetheless, KD is

sufficiently pleomorphic that none of these findings can definitively exclude the diagnosis. Children with KD can have concurrent infections, particularly with viruses circulating in the community at the time of their diagnosis.

- **Rationale for treatment** – Patients who fulfill the criteria for Kawasaki disease (KD) or incomplete KD require treatment because of the risk of cardiovascular complications that may result in significant morbidity and even mortality.

- **Initial treatment in all patients:** IVIG (2gr/kg) is the standard-of-care therapy for the initial treatment of KD + Aspirin 30 to 50 mg/kg/day in four divided doses. The dose of aspirin is decreased to 3 to 5 mg/kg/day 48 hours after the resolution of fever. Aspirin is continued until laboratory markers of ongoing inflammation (eg, platelet count and erythrocyte sedimentation rate return to normal, unless coronary artery abnormalities are detected by echocardiography, in which case aspirin therapy is continued.

For patients with acute KD who are at high risk of IVIG resistance or developing coronary artery aneurysms, use of IVIG with adjunctive glucocorticoids or other non-glucocorticoid as initial therapy is conditionally recommended over treatment with IVIG alone.

Henoch-Schönlein purpura

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Background: Henoch-Schönlein purpura (HSP) is a vasculitis involving the small vessels of the joints, kidneys, gastrointestinal tract, skin, CNS and the lungs; It is an acute immunoglobulin A (IgA) mediated disorder that is typically self-limited and managed with supportive care; however, serious complications, such as renal failure, may occur as a result of the disorder. Environmental factors, Infectious disease of upper respiratory tract, genetic, and antigenic factors appear to contribute to the etiology of HSP.

Objectives

Identify the etiology of HSP.

Describe the role of IgA in the pathophysiology of HSP.

Outline the management of HSP.

Review the importance of collaboration and communication among the interprofessional team members to be aware of the possible complications and improve outcomes for patients affected by HSP.

Methods: Review of articles

Results: The pathophysiology of HSP is not fully understood; however, IgA plays a significant role. IgA-antibody immune complexes caused by antigenic exposure from an infection or medication deposit in the small vessels (usually capillaries) of the skin, joints, kidneys, and gastrointestinal tract. This results in an influx of inflammatory mediators such as prostaglandins. Complement C3 receptor lymphocytes may bind to immune complexes and deposit in the vessel walls contributing to the hyper-inflammatory response. If the immune complexes are deposited in the intestinal wall, they may cause gastrointestinal hemorrhage. Renal involvement of IgA-mediated immune complexes may result in mild proliferative or severe crescentic glomerulonephritis.

The diagnosis of Henoch-Schönlein purpura is made based on the presence of petechiae (without thrombocytopenia) or palpable purpura that predominantly affects the lower limbs plus at least one of the following four characteristics: Abdominal pain, Arthralgia or arthritis, Renal involvement (proteinuria, red blood cell casts, or hematuria), Proliferative glomerulonephritis or leukocytoclastic vasculitis with predominant deposition of IgA on histology. Symptomatic and supportive care are the foundations of treatment for patients with HSP unless there is renal involvement. Acetaminophen and nonsteroidal anti-inflammatory drugs may be used for joint pain and fever; however, NSAIDs should most certainly be avoided if there is gastrointestinal or renal involvement. Supportive and symptomatic care may include: Rehydration with IV fluids, Pain management, Wound care for ulcerative skin lesions. The management of Henoch-Schönlein purpura nephritis may include the following: Corticosteroids, Plasma exchange, Immunosuppressants, Angiotensin-converting enzyme inhibitors. Early oral prednisone treatment is useful for the management of renal, joint, and gastrointestinal manifestations. Prednisone does not prevent renal disease; however, it reduces the risk of developing a persistent, renal disease in children.

Conclusions: An interprofessional approach is necessary for the adequate diagnosis and management of the illness. Patients may present with non-specific symptoms such as malaise, upper respiratory symptoms, or arthralgias before the development of the characteristic rash. This may result in a delayed diagnosis. Nurse practitioners, physician assistants, and physicians may see patients during different stages of the disease; therefore, it is important for medical staff to communicate and be aware of the potential complications. A surgical team and radiologist may be required for the diagnosis and management of intussusception. An important aspect of the disease process is adequate to follow up with frequent urinalyses to screen for potential renal involvement.

Patients with severe renal disease will need to see a nephrology team comprised of medical assistants, nurses, physicians, and possibly a transplant team.

Non-pharmacological management of attention-deficit hyperactivity disorder (ADHD)

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Abstract:

Background: Attention-deficit/hyperactivity disorder (ADHD) is a chronic neurodevelopmental disorder. Non-pharmacological management of ADHD generally includes psychoeducation and parent management training (PMT), life and social skills training, and cognitive-behavior therapy (CBT), depending on age and developmental stage.

Methods: This script reviews non-pharmacological interventions that are available children and adolescents.

Results: The goals of implementing non-pharmacological management of ADHD, depending on age and developmental stage, are:

Improving time management and organizational skills

Learning how to reduce impulsive behavior

Developing problem-solving skills

Coping with academic, work or social failures

Improving self-esteem and self-confidence

Learning ways to improve relationships with family, peers and friends

Developing strategies for controlling temper

The most appropriate non-pharmacological intervention for preschoolers is parent training. For school-age children there is some evidence to suggest that parent management training programs and classroom behavioral interventions may suffice as a first-line treatment. Multimodal interventions are preferred for middle school children and adolescents. These interventions usually integrate home and school treatment strategies and often include an element of social skills training.

CBT has also been found to be effective at addressing the complex needs of this population. Cognitive component focuses on identifying and modifying thought distortions so that the patient's thoughts are more aligned with confidence. Behavioral component involves learning what reinforces and maintains problem behaviors, and constructive behaviors so that constructive.

Conclusions: With improved education and using effective treatments, mental health care specialists provide more effective, lower risk and lower cost care for patients with ADHD.

Key words: ADHD, Non-pharmacological management, intervention

Involving other healthcare professionals of attention-deficit hyperactivity disorder (ADHD)

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Abstract

Background: Attention-deficit/hyperactivity disorder (ADHD) is a chronic neurodevelopmental disorder.

When a person with ADHD has a coexisting condition, contact the relevant healthcare professional, with consent, to explain.

Methods: This script reviews Involving other healthcare professionals of attention-deficit hyperactivity disorder.

Results: Following a diagnosis of ADHD, have a structured discussion with people (and their families or carers as appropriate) about how ADHD could affect their life. This could include:

the positive impacts of receiving a diagnosis, such as: improving their understanding of symptoms, identifying and building on individual strengths, improving access to services.

the negative impacts of receiving a diagnosis, such as stigma and labelling, a greater tendency for impulsive behaviour, the importance of environmental modifications to reduce the impact of ADHD symptoms, education issues, employment issues and social relationship issues, the challenges of managing ADHD when a person has coexisting neurodevelopmental or mental health conditions, the increased risk of substance misuse and self-medication, the possible effect on driving.

Conclusions: This structured discussion should inform the shared treatment plan. With improved education and using effective treatments, mental health care specialists provide more effective, lower risk and lower cost care for patients with ADHD.

Imaging approach to foreign body in pediatric

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Ingested and aspirated foreign bodies are one of the most prevalent entities in pediatric emergency departments. Imaging has a significant role in the workup of pediatric patients suspected of aspirating or ingesting foreign body, and familiarity with the imaging features of this entity is crucial for pediatricians, especially in pediatric emergency wards.

Imaging Approach to Suspected Foreign-Body Ingestion

The first imaging modality for evaluating a kid with foreign body aspiration is x-ray. The complete examination should include frontal and lateral x-ray of the chest and the neck, and frontal x-ray of abdomen. Lateral images are useful in determining the position of foreign body in gastrointestinal (GI) or respiratory tract.

In general, if the foreign body is seen in stomach or more distal in GI tract, no further imaging modality is required; unless it is a high-power magnet or there is suspicion for complications like GI obstruction or abscess formation. Further imaging may also be needed if the foreign body has worrisome features (including large size and sharp edges).

Disk batteries are the type of foreign bodies which need special attention because they can cause caustic injuries to GI mucosa in as early as 1-2 hours. They are detected in x-ray examinations by their bilaminar or beveled edge appearance. Their detection within lumen of esophagus or stomach warrants endoscopic retrieval.

Multiple magnets within GI lumen also need endoscopic removal (if found in esophagus or stomach) or serial imaging with x-rays (if seen in bowel loops). Most of the ingested sharp objects are radiopaque, and they must be closely followed by serial imaging.

Imaging approach to aspirated foreign bodies

Management of a child with suspected foreign body aspiration is generally determined by clinical conditions. If it is determined to evaluate the patient

with imaging modalities, chest x-ray is the first choice. However, only 10% of the aspirated foreign bodies are radio-opaque, and the initial chest x-ray is normal. The most common abnormal imaging finding in cases of aspirated foreign bodies will be focal or unilateral hyperlucency, a finding that should be carefully searched for in pediatric chest x-rays.

How to request imaging modalities for common pediatric disease

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Considering the rapid progress in adventing new technologies in radiology, the choices of imaging modalities have become increasingly complex. Selecting the best imaging modality highly depends on the clinical question. The more focused the question, the clearer the choice of imaging modality. Radiation protection is the most important point in paediatrics. The first imaging should be with low or free radiation techniques.

For example in a child with abdominal pain, ultrasound must be the first imaging modality, US requires no patient sedation and can be performed at the patient's bedside if necessary. US is limited by body habitus and overlying bowel gas or air. CT scan may be required for further work up. For pulmonary disease, the first imaging modality must be CXR, which could be completed by chest ultrasound for evaluation of complicated pleural effusion or CT scan for complicated pneumonia or tumoral lesions.

For neck lesion, ultrasound is first imaging modality which may need post contrast CT for more evaluation. The clinician must be familiar with contrast administration in imaging modalities, for example non contrast abdominal CT scan is mostly used for evaluation of renal stone, other abdominal situations mostly need post contrast CT scan. In CNS imaging, in emergencies, CT scan is modality of choice, but in other conditions, such as epilepsy, developmental delay, MRI may be preferred imaging modality. Finally the imaging modality must be requested according to clinician's question about the patient to be answered.

Imaging in neonatal intestinal obstruction

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Neonatal intestinal obstructions are the most common surgical emergencies in the neonatal period. Neonatal intestinal obstruction occurring during the first month of life and the obstruction etiology is different from older age group. Early and accurate diagnosis is mandatory for proper management. Neonatal intestinal obstruction is divided to two types, high and low intestinal obstruction. Besides clinical findings, imaging has an important role in diagnosis of intestinal obstruction and its type.

Based on abdominal X-ray we determine the type of obstruction and also the next step. In suspected high intestinal obstruction, Ultrasound and upper GI series are indicated and in low intestinal obstruction, contrast enema is mandatory to clarify the etiology of obstruction. In some pathologies like hypertrophic pyloric stenosis ultrasound is the best modality and in other pathologies such as malrotation and duodenal web upper GI series is the priority. The aims of this presentation are determining the radiologic approach and description of radiologic signs in abdominal X-ray and contrast studies in neonatal intestinal obstructions.

Imaging approach to a child with Limping

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Abstract

Background: Hip limping among pediatric patients is a diagnostic challenge due to the various ranges of potential etiologies. This abstract provides an insight into the role of different modalities in the evaluation of pediatric hip pathologies. The common causes of hip pain in children, including developmental disorders, traumatic injuries, infective process, inflammatory disease and malignant process. Imaging modalities are radiography, ultrasound, magnetic resonance imaging (MRI), and computed tomography (CT).

In most children, limping is because of a minor trauma which is self-limiting. In some cases, a limp could be a sign of a serious event and Delays in diagnosis and treatment may cause morbidity and mortality. Fever, sweats especially in night, and recent history of weight loss are suggestive of infection, inflammatory process, or malignancy. Physical examination helps to focus on the type of limp and localize the site of pathology. The presence of focal pain may be due to contusions, fractures, osteomyelitis, or malignancy. Detecting of a palpable mass raises the suspicious of malignancy. Based on the radiologic findings, physical examination, and laboratory tests, we can confirm the diagnosis.

The initial methods of evaluation after clinical exam are Radiography and ultrasound while they are quick and accessible assessments of bone, joint to detect signs of different disease such as malignancy or infection. Ultrasound, especially is beneficial in infants and younger children, it can dynamically evaluate of hip stability and detect effusion. On the other hand, MRI is a non-invasive tool, providing visualization of soft tissues components, and tissue enhancement; it is invaluable in finding subtle fractures, ligament injuries, and inflammatory process. CT scans are better for cases with bony lesions, fractures with complications or post-traumatic deformities. A multidisciplinary team including pediatricians, radiologists, pathologist and orthopedic specialists is necessary to interpret the imaging results in the

proper clinical setting considering patient history, and laboratory data. In this review we would review the different aspect and radiologic characteristics of hip pathologies in pediatric limping.

Imaging in pediatric acute abdomen

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Ultrasonography (US) is the preferred imaging technique for assessing neonates and children with acute abdominal pain. It can help in making important changes to the patient's management plan and also uncover clinically unexpected diseases. In recent years, the US has also been used as a useful and promising bedside technique for evaluating acute abdominal conditions, particularly in neonates. Bedside ultrasound can replace radiography and contrast studies in critically ill children. In pediatrics, the differential diagnosis of acute abdomen varies with age and gestation. We must be familiar with common causes of acute abdominal emergencies in different age groups of pediatrics and their associated ultrasonographic findings. Ultrasonography plays a critical role in guiding the mode of intervention for some complicated cases. Bedside US can assess and monitor neonatal abdominal conditions such as necrotizing enterocolitis, malrotation with midgut volvulus, segmental volvulus, meconium peritonitis, and complicated inguinal hernia. Acute abdomen is caused by a different set of diseases beyond the neonatal period. Intussusception is a common cause in the age group of 1 month to 2 years. Other surgical causes that need to be considered in this time period include strangulated inguinal hernia, complicated Meckel diverticulum, and volvulus with malrotation. Appendicitis can sometimes cause acute abdomen in infants. However, due to its rarity, it is often missed by physicians and radiologists. Appendicitis is a common cause of acute abdomen after infancy. Other causes include primary peritonitis (especially in patients with nephrotic syndrome), colic, and gastroenteritis.

Imaging approach to a child with fever and cough

Dr. Elham Zarei

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Pneumonia is one of the major infectious diseases responsible for significant morbidity and mortality in young children globally. Early diagnosis and management are critical to short- and long-term health outcomes.

Imaging plays a crucial role in the detection and management of patients with pneumonia.

It can establish the presence of pneumonia, determine its extent and location, and assess the response to treatment. The imaging examination should always begin with CXR and ultrasound. When the results of routine radiography are inconclusive, computed tomography is mandatory.

A combination of pattern recognition with knowledge of the clinical setting is the best approach to the pulmonary infectious processes and can help us in narrowing the differential diagnoses

The purpose of this article is to review the various pulmonary imaging manifestations of pneumonia. This knowledge along with clinical history and laboratory investigations of the patient may help in guiding the treatment of pneumonia.

Imaging in trauma in pediatrics

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Some difference of pediatrics trauma in comparison with adults are exist which are include, injuries regarded as common and serious in the adult population such as spinal or pelvic injury are exceedingly rare in pre-adolescent children and Injuries regarded as life-threatening in the adult population (for example, liver and spleen trauma) are routinely managed conservatively in children and it has recently become increasingly clear that the cancer risk of computed tomography (CT) in childhood is real, significant and is higher in younger ages.

The use of adult protocols and in particular the 'whole-body' CT trauma survey is not appropriate as a routine investigation in childhood and Exposure to ionizing radiation should always be kept to a minimum and the 'as low as reasonably achievable' (ALARA) principles should be adhered to.

In the acute pediatric trauma setting, there is currently no role for ultrasound outside of assisting in interventional procedures and 'Focused Abdominal Sonography in Trauma (FAST) does not offer any additional information to that obtained with a CT scan and should not be performed if it would delay transfer to CT' with studies demonstrating negative predictive values of only 50–63% in unstable patients.

In the acutely injured child, magnetic resonance (MR) imaging is primarily reserved for potential spinal cord injury, though it is acknowledged that access to MR imaging may be difficult.

CT is the primary investigation for cranial imaging in the child who has suffered head trauma. It displays high sensitivity and specificity for identification of traumatic brain injury and is readily available in most centers.

Pediatrics cervical spine injury is uncommon thus Appropriate clinical evaluation must be undertaken before imaging is performed as it is an anatomical area that is relatively radiosensitive. Initial imaging of the cervical spine may be with plain radiographs or CT scan depending on the clinical situation.

The primary investigation for blunt chest trauma is the chest X-ray. This will detect pneumothorax, hemothorax, rib fractures, gross mediastinal abnormalities, diaphragmatic injuries and rib fracture. Penetrating trauma is an indication for contrast-enhanced chest CT due to the incidence of occult vascular injury.

Where clinically indicated, contrast-enhanced CT is the modality of choice for the assessment of acute traumatic intra-abdominal injury. There are no mechanisms of injury which mandate abdominal CT as an isolated factor and Decisions to perform abdominal CT should be made on the basis of the clinical history and examination. Pelvic fractures are rare in children and a screening pelvic radiograph is not indicated in all cases and Pelvic imaging should only be considered if there are concerns after clinical assessment

For limbs trauma, we should use the clinical history and examination, and clinicians should request plain radiographs of the injured region as the primary investigation. This will usually be anteroposterior and lateral views including the adjacent joints.

Conclusion: This document provides clear evidence-based guidance for those involved in imaging decisions for pediatric trauma. Injury patterns in children differ vastly to those in adults; this important factor must be taken into account. The need to keep radiation dose as low as possible while still providing good quality examinations is paramount.

Neonatal transfusion

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Neonates are defined as infants up to 28 days after birth. Most neonatal transfusions are carried out in low birth weight preterm infants treated on neonatal intensive care units (NICUs). Transfusion triggers in neonates are controversial and mainly based on expert clinical opinion:

Neonatal red cell exchange transfusion

Neonatal red cell exchange transfusion is mainly used in the treatment of severe hyperbilirubinaemia or anaemia in babies with hemolytic disease of the fetus & newborn (HDFN). A 'double volume exchange' (160–200 mL/kg) removes around 90% of neonatal red cells and 50% of bilirubin.

Large volume neonatal red cell transfusion

Large-volume transfusion, equivalent to a single circulating blood volume (approximately 80 mL/kg), is mainly used in neonatal cardiac surgery.. It should be transfused less than 5 days from donation to reduce the risk of hyperkalaemia. Irradiated blood is required in babies with known or suspected to suffer from T-cell immunodeficiency, such as DiGeorge syndrome, in which case the blood should be transfused within 24 hours of irradiation.

Neonatal 'top-up' transfusion

small-volume red cell transfusions (up to 20 mL/kg) are commonly carried out in preterm babies, mainly to replace losses from repeated blood testing exacerbated by reduced red cell production ('anaemia of prematurity'). Up to 80% of preterm babies weighing less than 1500 g at birth are transfused at least once.

Neonatal platelet

Suggested transfusion thresholds for neonatal prophylactic platelet transfusion (excluding NAIT)

Platelets <20 or $30 \times 10^9/L$	In the absence of bleeding
Platelets $<50 \times 10^9/L$	Bleeding, current coagulopathy, planned surgery or exchange transfusion
Platelets $<100 \times 10^9/L$	Major bleeding, major surgery (e.g. neurosurgery)

Severe thrombocytopenia ($<50 \times 10^9/L$) is a common finding in infants treated on NICUs

Neonatal FFP and cryoprecipitate transfusion

FFP transfusions to infants were given 'prophylactically' in the absence of bleeding, on the basis of abnormal clotting tests. that is not claim no wedges. BCSH guidelines recommend that FFP should be used for:

- Vitamin K deficiency with bleeding
- DIC with bleeding
- Congenital coagulation factor deficiencies where no factor concentrate is available (Factor V deficiency)

“Complications Of Neonatal Transfusion”

Acute Immune-mediated Transfusion Reactions

Acute Active Immune-mediated Haemolytic Transfusion Reactions

Acute Passive Immune-mediated Haemolytic Transfusion Reactions

Anaphylactic Reactions

Transfusion-related acute lung injury (TRALI)

Transfusion Associated Circulatory Overload (TACO)

Metabolic Complications Of Massive/Exchange

Transfusion Transfusion Associated Necrotising Enterocolitis (TANEC)

TA-GVHD

Neonatal anemia

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Neonatal anemia is a major, globally recognized public health problem that is associated with short- and long-term morbidities. It is defined as hemoglobin or hematocrit that is at least two standard deviations below the mean at a particular gestational and/or chronological age, secondary to a reduction in red blood cell (RBC) mass from multiple etiologies

PATHOPHYSIOLOGY: Normal erythropoiesis is influenced by several factors, especially erythropoietin (EPO), which stimulates maturation of red blood cell (RBC) precursors. Anemia, may be due to three general causes: blood loss, \uparrow RBC destruction or \downarrow RBC production.

CAUSES OF NEONATAL ANEMIA

1. Blood loss, the commonest cause of neonatal anemia, including:

A. Obstetrical causes: placental abruption, placenta previa, trauma to placenta or umbilical cord during delivery and rupture of anomalous placental vessels.
B. Feto-maternal transfusion
C. Feto-placental transfusion due to positioning of infant above level of placenta after delivery.
D. Twin-twin transfusion
E. Internal hemorrhage such as intracranial hemorrhage, subgaleal hemorrhage, cephalohematoma, adrenal hemorrhage, subcapsular hematoma of liver or ruptured viscus
F. Iatrogenic blood loss secondary to sampling of blood for laboratory tests.

2. \uparrow RBC destruction

A. Intrinsic causes: Hereditary RBC disorders, including: RBC Enzyme defects (G6PD). RBC membrane defects (hereditary spherocytosis). Hemoglobinopathies (α -thalassemia)

B. Extrinsic causes: Immune hemolysis (Rh incompatibility -ABO incompatibility -Minor blood group incompatibility {Kell, Duffy}) - Hemangiomas (Kasabach Merritt syndrome) - Acquired hemolysis: Infection

3. ↓ RBC production:

A. Anemia of prematurity due to transient deficiency of erythropoietin B. Aplastic or hypoplastic anemia (e.g., Diamond-Blackfan) C. Bone marrow suppression (e.g., with Rubella or Parvovirus B19 infection) D. Nutritional anemia (e.g., iron deficiency)

CLINICAL FINDINGS vary with the severity of anemia and other associated conditions. There may be no signs with mild anemia. With more severe anemia, findings include:

Pallor-Tachycardia-Tachypnea -Apnea -↑ O₂ requirements-Lethargy-Poor feeding-Hepatosplenomegaly (hemolytic disease) -Jaundice-Wide pulse pressure-Hypotension

DIAGNOSTIC EVALUATION

1. **History:** Family (Anemia, ethnicity, jaundice) Maternal and perinatal (Blood type and Rh; anemia; complications of labor or delivery) Neonatal (Age of onset; presence of other physical findings)

2. **Laboratory Evaluation** may include the following, depending history and physical findings:

CBC with platelets, smear and reticulocyte count -Blood group and type, Direct Antiglobulin test (Coombs Test) - Bilirubin (total and direct), hemoglobin electrophoresis and RBC enzyme

Ultrasonogram for internal bleeding (head, abdomen) - Bone marrow aspiration is almost never necessary to diagnose anemia in a newborn

MANAGEMENT will depend on cause and severity of anemia.

1. **Prenatal:** Diagnosis of significant fetal anemia is unusual except in hemolytic disease of the newborn and Parvovirus B-19 infection. Fetal transfusion may be needed for severe anemia.

2. Postnatal:

A. Anemia of prematurity: The main methods of management are Limit blood drawing for laboratory tests- Treatment with recombinant human erythropoietin (r-Hu-EPO) -Transfusion with packed red blood cells (PRBCs) for severe anemia.

B. Other causes of anemia: Treat underlying cause when feasible.
Transfusion guidelines for treatment of anemia in newborns Administration of Blood Products

C. Severe anemia: With severe, symptomatic anemia, the infant's cardiovascular system may not be able to tolerate the \uparrow blood volume from simple transfusion of PRBCs. In such cases, perform a partial exchange transfusion with PRBCs.

آسیب‌ها و تهدیدات شبکه‌های اجتماعی بر سلامت کودکان

پرویز قدم لی

بیمارستان شهدا تجریش - دانشگاه علوم پزشکی شهید بهشتی

کافی است به اطراف خود بنگریم که زندگی الکترونیکی چگونه همه عرصه‌های زندگی بشری را یکی پس از دیگری به تصرف خود درآورده و به همراه ویژگی‌های مثبت و مفید خود، اثرات سوء و مخربی را نیز به دنبال آورده است. اگرچه همه اقشار جوامع بشری در سطوح گوناگون از منافع و تسهیلات زندگی الکترونیک بهره‌مند و یا دست کم از آن سخن به میان می‌آورند اما کمتر کسی به آسیب‌های ناشی از همه‌گیر و فراگیر شدن این پدیده پیچیده و غامض که ابعاد آن ناشناخته و حیرت‌انگیز است، توجه داشته است.

دسترسی ساده به اطلاعات، ورود بسیار ساده و سریع، حداقل محدودیت برای دسترسی، برقراری ارتباط با سراسر دنیا به اشکال مختلف و عدم وجود محدودیت زمانی و مکانی، دسترسی به پایگاه‌های اطلاعاتی مختلف و شرکت در فعالیت‌های اقتصادی، علمی، فرهنگی، هنری و ... موجب شده تا گسترش این پدیده شبکه‌های اجتماعی جزئی از زندگی روزمره گردد.

جولیان آسانژ موسس وبسایت ویکی لیکس درباره یکی از معروف‌ترین شبکه‌های اجتماعی می‌گوید "فیس‌بوک تنفرآمیزترین ابزار جاسوسی است که تاکنون خلق شده است. هرکس که نام و مشخصات دوستان خود را به شبکه اجتماعی فیس‌بوک اضافه می‌کند، باید بداند که به شکل رایگان در فهرست دستگاه‌های اطلاعاتی آمریکاست و این گنجینه اطلاعاتی را برای آن‌ها تکمیل می‌کند."

عوارض استفاده از وسائل الکترونیکی

دردهای عضلانی، درد مچ دست، خمیدگی پشت، دردهای موضعی، مشکلات بینایی از قبیل سرخی و سوزش و آبریزش چشم‌ها، کاهش قدرت بینایی، خستگی، سردرد و ...

عشق‌های مثلثی، ازدواج سفید، آسیب‌های خانوادگی، اعتیاد اینترنتی، افسردگی، گوشه
گیر شدن، اختلال‌های جنسی و روابط نابهنجار، فرقه‌های انحرافی، خودکشی، سرقت و ...

Unsettled or crying babies (Colic)

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Background: Crying is normal physiological behavior in young infants. At 6-8 weeks age, a baby cries on average 2-3 per 24 hours. Excessive crying is defined as crying >3 hours/day for >3 days/week. This is often referred to as "colic". There is usually no identifiable medical problem. The parents are often distressed, exhausted, and confused, having received conflicting advice from various health professional."

Objective: Crying is a non-verbal way of communication in children, which is used to express need, fear, anger and fatigue. Usually, one of the most controversial topics in pediatrics is dealing with restless babies. Diagnosing the cause of restlessness is not easy. A wide range of differential diagnoses from simple causes to simple to complex differential diagnoses may cause restlessness in the infant. This study was carried out with the aim of diagnosing and treating restless infants. Every baby is different in the level of sensitivity and reaction to new physical and emotional events.

In the history, one should pay attention to the underlying disease, nutritional habits, state of defecation and urine, recent vaccinations, recent diseases, medications and history of allergies. The doctor also asks the parents about a history of similar bouts of restlessness and intense crying. In case of repeated similar attacks, one should ask about the time of the start of crying, the duration of each attack, their intervals and what makes the restlessness better. In the examination of a restless infant, of course, one should pay attention to his general condition and vital signs. Therefore, each of the organs should be examined separately. In the examination of each of the organs, the cases that lead to restlessness in the patient, the possibility of trauma to that part and child abuse should also be considered.

Results: The results showed; Parents who have had psychological problems, family stress and difficult childhood are less confident in responding to the infant's restlessness. Excessive crying is associated with increased postpartum depression.

The Pediatrician task is to describe normal patterns of crying and sleep, to help parents help their child cope with discomfort and distress, to assess the emotional state of the mother and the relationship between mother and baby, and to provide printed information. Medication is rarely indicated. The medicine should be used only for a short time and under the supervision of a doctor. Formula changes are usually not helpful unless there is proven cow milk allergy. Weaning from breast milk has no benefit. The treatment of restless infants mostly includes supportive measures and follow-up if needed.

Investigating of sleep habits related to insomnia in children aged 3 to 10 years referring to Qazvin Children's Hospital, 2015-2021

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Background: Insomnia is one of the most common complaints of parents regarding children's sleep problems and is examined in 3 sections: "difficulty in falling asleep", "frequent awakening at night and difficulty in maintaining sleep", and "daily complications".

Objectives: Considering the lack of sufficient research on children's insomnia in Iran, in this study, we investigated sleep habits related to insomnia in children aged 3 to 10 years who referred to the sleep department of Qazvin Children's Hospital.

Methods: The study was a cross-sectional descriptive study. Its statistical population included 3 to 10 years old children who were referred to the sleep department of Qazvin Children's Hospital during 2015-2021, and the Iranian version of the children's sleep habits questionnaire was completed by their parents. All analyzes were done using SPSS 20 software. Mean and standard deviation were used to describe quantitative variables. The CSHQ is a 45-question questionnaire that is completed by parents and describes the child's sleep habits during the past week. Answers to the questions are based on a 3-point Likert scale: usually = 3 (5-7 night per week), sometimes = 2 (2-4 nights per week) and rarely = 1 (0-1 night per week).

Results: Of the 163 patients who participated in this study, 102 (62.6%) were boys. The average age of the children was 6.35 ± 3.72 years. Based on the parents' statements, the average score of "bed time resistance" was 2.08 ± 0.38 . And their most complaints in this scale were related to "the need for parents to sleep" and "Afraid of sleeping alone" respectively ($2.42 \pm 0.86 - 2 \pm 0.95$)

Regarding "night awakenings", the overall score was 1.6 ± 0.57 . "Waking once a night" with a score of 1.9 ± 0.84 was the highest score. "Waking up more than once a night" with a score of 1.6 ± 0.82 and "Moving to someone else's bed" with a score of 1.53 ± 0.81 were in the next ranks.

The overall score of the daily sleepiness habits of children was 1.6 ± 0.39 , the highest score was assigned to "waking up the child without the need of others" (2.3 ± 0.86) and the lowest score was related to "Sleeping in a moving car" (1.18 ± 0.5).

Conclusion: Sleep disorders and inappropriate sleep habits are very common in children and affect their behavioral performance and physical health. By identifying these problems and performing the necessary behavioral and therapeutic interventions, it is possible to help improve the quality of life of children and their parents. It should be noted that children's negative sleep habits, especially in cases resistant to behavioral interventions and sleep health education, may be a sign of a serious underlying disease such as sleep-related breathing problems, sleep movement disorders, or seizures. More studies are suggested to generalize the results to children in the community.

Key words: Sleep habit, Insomnia, Children, Sleep

Evaluation of the effectiveness of non-pharmacological methods on controlling pain caused by venipuncture in patients referred to the emergency department of Mofid Pediatric Hospital

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background: Pain is an unpleasant sensory experience that can lead to negative perceptions of clinical situations in younger children. Different non-pharmacological and pharmacological methods can be used to control pain in children. Due to the ease of access and less side effects of non-pharmacological methods, we decided to compare the effectiveness of some non-pharmacological methods.

Methods: The present study is a clinical trial. The sample consisted of 120 children 1 to 14 years old who were referred to the hospital emergency department who were randomly divided into 4 groups. In the first group, the conventional method of venipuncture and in the second group, the ice pack, in the third group, the method of auditory deviation (music), in the fourth group, deliberate deviation (using toys) were used.

Results: All pain control methods had a significant effect on reducing the amount of pain felt by patients. ($P = 0.005$) so that the ice pack method reduced pain by almost 20% compared to other pain control methods.

Conclusion: According to the results of this study and most studies on the same subject, the use of non-pharmacological methods of pain control such as the use of musical balls, music and ice packs can significantly reduce the pain caused by therapeutic measures, including blood vessels.

Opioids poisoning among Iranian children

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Background: Opioids poisoning is a common and fatal poisoning among Iranian children.

Objectives: Respiratory suppression (bradypnea, hypopnea, apnea and cyanosis), CNS depression (lethargy, confusion, coma), miosis are the classic symptoms of Opioid poisoning.

Vomiting, nausea, Itching, ileus, hypothermia, reduced DTR can present in Opioid poisoning.

Although Opioid poisoning can be serious and fatal, it has effective antidote. Naloxone (0.01-0.1 mg/kg max stat 2 mg; cumulative dose 10mg) prescribes for patients with critical symptoms of Opioid poisoning.

Given that opioids have long half-life, Naloxone infusion is necessary for preventing opioids poisoning symptoms.

Conclusion: as regards of opioids poisoning fatalities, doctors should be aware of opioid poisons symptoms and prescribe Naloxone Properly.

آسپیراسیون هسته زردآلو در کودک نوزده ماهه: یک گزارش موردی

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مقدمه: آسپیراسیون جسم خارجی در کودکان یک اورژانس پزشکی است که منجر به عوارض بالایی می‌شود که بین ۱۰ تا ۲۰ درصد در سراسر جهان متغیر است. تنها در ایالات متحده، آسپیراسیون جسم خارجی منجر به هزاران مراجعه به اورژانس در هر سال می‌شود که ۵ درصد از کل مرگ و میرهای تصادفی در کودکان زیر ۴ سال را تشکیل می‌دهد، بنابراین این مشکل به دلیل اصلی مرگ‌های تصادفی برای کودکان زیر ۶ سال تبدیل می‌شود. علیرغم افزایش آگاهی از این مشکل، به نظر می‌رسد که میزان بروز این مشکل رو به افزایش باشد (۱).

شرح مورد بالینی: آسپیراسیون هسته زردآلو توسط یک کودک نوزده ماهه رخ داده است. کودک به دنبال آسپیراسیون هسته زردآلو از سه روز قبل (طبق شرح حال مادر کودک)، با علائم سرفه، افت اشباع اکسیژن شریانی و دیسترس تنفسی پیش‌رونده در تاریخ بیست و چهارم تیرماه امسال به اورژانس یک مرکز درمانی مراجعه کرده است. پس از ویزیت توسط سرویس طب اورژانس، بلافاصله اقدامات اولیه از جمله اکسیژن درمانی با ماسک، تعبیه لاین وریدی، مونیتورینگ و پالس اکسیمتری توسط پرستاران اورژانس صورت گرفته، رادیوگرافی قفسه سینه انجام شد، که یافته قابل توجهی در آن دیده نشد. بر اساس شرح حال و معاینه بالینی، طبق هماهنگی با پزشک اطفال کشیک، بیمار تحت اکسیژن‌تراپی و مانیتورینگ و پالس اکسیمتری به بخش کودکان انتقال یافته و توسط متخصص کودکان ویزیت گردید. پس از معاینه بالینی و اخذ شرح حال با توجه به وضعیت

ناپایدار کودک و نیاز مبرم به برونکوسکوپي به عنوان یک روش تشخیصی-درمانی قطعی، طی هماهنگی با سرویس گوش، حلق، بینی و اطفال، کودک به همراه کادر مجرب و آمبولانس مجهز به مرکز آموزشی و درمانی بیمارستان کودکان اعزام شد. کودک در بیمارستان مقصد، توسط سرویس اطفال و سرویس گوش، حلق، بینی ویزیت شد. گرافی مجدد قفسه سینه انجام شد که نشان دهنده جسم خارجی در برونش چپ بود. بیمار جهت برونکوسکوپي به اتاق عمل فرستاده شد. پزشک کشیک، سرویس گوش، حلق، بینی متاسفانه موفق به خارج کردن جسم خارجی نگردید. کودک به صورت اینتوبه در بخش آی سی یو اطفال در سرویس ریه بستری گردید. در شیفت صبح کاری روز بعد، بیمار توسط پزشک سرویس ریه در اتاق عمل تحت برونکوسکوپي قرار گرفت که جسم خارجی با موفقیت خارج گردید. بیمار مجدداً به بخش آی سی یو اطفال انتقال یافت و به مدت یک هفته به دلیل دارا بودن علائم پنومونی آسپیراتیو تحت نظر و تحت درمان با آنتی بیوتیک قرار گرفت. نهایتاً با حال عمومی خوب از بیمارستان ترخیص گردید.

نتیجه گیری: نوع، محل و سطح انسداد مواد آسپیره شده، سن بیمار و زمان تشخیص بر شدت تصویر بالینی تأثیر می‌گذارد. در تشخیص آسپیراسیون جسم خارجی، اخذ شرح حال از والدین خیلی مهم است و مهمترین مرحله حفظ شاخص ظن بالا است. در بیمارانی که با سرفه، دیسترس تنفسی یا سیانوز، کاهش یک طرفه صداهای تنفسی، رونکای یا استریدور در معاینه فیزیکی و گیر افتادن هوا در عکس قفسه سینه مراجعه می‌کنند، باید آسپیراسیون جسم خارجی را در نظر گرفت. برونکوسکوپي در صورت وجود هرگونه سابقه مشکوک حاکی از آسپیراسیون جسم خارجی یا ذات‌الریه نجات دهنده حیات است، حتی اگر معاینه فیزیکی و یافته های رادیولوژیک طبیعی باشد، به خصوص در کودکان در معرض خطر بین ۱ تا ۳ سال (۲). همچنین آموزش به والدین در زمینه پیشگیری از آسپیراسیون نیز اهمیت بالایی دارد که پرستار می‌تواند در این زمینه نقش مهمی داشته باشد.

صلاحیت بالینی پرستاران بخش کودکان و عوامل مرتبط با آن، یک مطالعه

مروری

رضا عبدالهی

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چکیده

زمینه و هدف: صلاحیت بالینی از اصول مهم حرفه پرستاری در کودکان بوده و اخیراً جهت مراقبت اخلاقی و با کیفیت مورد توجه قرار گرفته است. به همین دلیل، یافتن مولفه‌ها و عوامل موثر بر صلاحیت بالینی پرستاران کودکان و ارتقا آن همیشه مورد توجه نظام‌های آموزشی، بهداشتی و درمانی بوده است. لذا هدف این مطالعه بررسی عوامل مرتبط با صلاحیت بالینی پرستاران بخش کودکان به صورت مروری می‌باشد.

روش کار: در مطالعه مروری حاضر برای جستجوی مقالات، از پایگاه‌های اطلاعاتی و منابع بین‌المللی معتبر و در دسترس شامل Scopus, Web of Science, PubMed, ProQuest و بانک‌های اطلاعاتی فارسی شامل Irandoc, idml.research, Magiran, SID با کلید واژه‌های انگلیسی شامل "Clinical competence" و "pediatric nurse" بود. این کلید واژه‌ها در زبان فارسی شامل "صلاحیت بالینی" و "پرستار کودکان" بودند. کلیه مقالات از سال ۲۰۰۰ تا پایان سال ۲۰۲۳ میلادی که در زمینه صلاحیت بالینی بودند، وارد مطالعه شدند. پس از جستجو ۵۲ مقاله یافت شد که در نهایت ۳۳ مقاله وارد مطالعه شد.

یافته‌ها: نتایج بررسی ۳۳ مقاله نشان داد که عواملی مانند رضایت کاری پرستاران، کیفیت زندگی کاری، مهارت‌های ارتباطی پرستار، سن، وضعیت تأهل، وضعیت شغل، سطح تحصیلات و میزان علاقه‌مندی به رشته، وضعیت روانشناختی، داشتن بیماری

جسمی، خودکارآمدی مراقبتی، سبک مدیریتی سازمان و جو سازمانی از عوامل تاثیرگذار بر صلاحیت بالینی پرستاران بخش کودکان می‌باشند.

نتیجه‌گیری: با توجه به نتایج مطالعات، صلاحیت بالینی پرستاران بخش کودکان تا حدود زیادی تحت تاثیر متغیرهای سازمانی قرار می‌گیرد، لذا شایسته است مدیران و سیستم‌های پرستاری با اتخاذ راهکارهای مناسب، صلاحیت بالینی پرستاران را ارتقا داده و شرایط لازم جهت ارتقا صلاحیت بالینی و بهبود کیفیت ارائه خدمات پرستاری را فراهم آورند.

واژگان کلیدی: صلاحیت بالینی، پرستار کودکان

بررسی مراقبت مبتنی بر شواهد در پیشگیری از عفونت خون مرتبط با رگ مرکزی در بخش مراقبت ویژه کودکان

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زمینه و هدف: عفونت خون مرتبط با رگ مرکزی (central line associated blood stream infection: CLABSI) منبع اصلی عفونت‌های بیمارستانی در بخش‌های مراقبت ویژه کودکان است. CLABS در کودکان ۰/۵ تا ۲/۸ در هر ۱۰۰۰ رگ مرکزی در روز است که نرخ آن در کشورهای در حال توسعه بیشتر از کشورهای توسعه یافته است. CLABS در بخش ویژه کودکان با عوارض و مرگ و میر بالا همراه می‌باشد. هدف از این پژوهش بررسی مراقبت مبتنی بر شواهد در کاهش عفونت خون مرتبط با رگ مرکزی در کودکان بستری در بخش ویژه کودکان است.

روش کار: این مطالعه مروری سیستماتیک جستجوی مقالات پایگاه‌های اطلاعاتی فارسی و انگلیسی زبان؛ پایگاه مرکز اطلاعات علمی جهاد دانشگاهی (SID)، مگیران و موتور جستجوی گوگل اسکالرو پاب مد (Pub Med) با استفاده از کلید واژه‌های؛ بخش مراقبت ویژه، کودکان، عفونت خون مرتبط با رگ مرکزی، پیشگیری، مراقبت بسته‌ای انجام شد.

یافته‌ها: در این مطالعه مروری مشخص شد شایع‌ترین عفونت بیمارستانی در بخش مراقبت ویژه کودکان CLABSI است که در بیماران تحت کموتراپی و تحت درمان با داروهای ایمنوساپرسیو و تغذیه کامل وریدی TPN و پیوند شده این میزان بالاتر می‌باشد. عامل شایع عفونت خون مرتبط با رگ مرکزی استافیلوکوک کوآگولاز منفی، استاف اوربوس، کلبسیلا پنومونیه بودند. فاکتورهای خطر در بروز CLABSI در کودکان، وزن کم (کمتر از ۸ کیلوگرم)، سن کم (کمتر از ۲-۳ سال)، کاتتر با چند لومن، بستری

طولانی مدت قبل از تعبیه رگ مرکزی، تعبیه در جایی غیر از اتاق عمل و عدم اجرای کامل نکات استریلیزاسیون و ناهنجاری‌ها و بیماری‌های زمینه‌ای خاص در کودکان مشخص شد. روش‌های پیشگیرانه برای کاهش خطر ابتلا به CLABSI بر تدوین دستورالعمل پیشگیری از عفونت خون مرتبط با رگ مرکزی، آموزش کارکنان، اجرای مراقبت بسته‌ای از زمان تعبیه تا مراقبت حین استفاده و پس از خروج کاتتر به عنوان بخشی از بهترین شیوه‌های کنترل عفونت برای جلوگیری از CLABSI تمرکز دارد.

نتیجه‌گیری: مرکز کنترل بیماری‌ها باید دستورالعمل‌هایی را برای پیشگیری از عفونت خون مرتبط با رگ مرکزی را در کودکان ارائه دهد. این دستورالعمل‌ها شامل توصیه‌هایی برای آموزش پرسنل بهداشتی و درمانی به ویژه پرستاران در مورد مراقبت صحیح از کاتتر، استفاده از رویکرد مراقبت بسته‌ای است. از آنجا که پرستاران نقش مهم در مراقبت از بیماران دارند، پایبندی پرستاران به روش مبتنی بر شواهد در کاهش بروز CLABSI بسیار مهم است.

لغات کلیدی: رگ مرکزی، عفونت خون، مراقبت بسته‌ای، پیشگیری، کودکان، بخش ویژه

بررسی انطباق سطح تریاژ بر ESI بر حسب پیامد در بیمارستان کودکان علی

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مقدمه و هدف: تریاژ یک فرآیند ارزیابی پزشکی است که در بیمارستان‌ها برای اولویت‌بندی بیماران و تعیین سطح اورژانسی آن‌ها استفاده می‌شود. در این پژوهش، میزان انطباق تریاژ انجام شده برحسب پیامد در بیمارستان کودکان علی اصغر (ع) با استاندارد ESI بررسی شد و مورد ارزیابی قرار گرفت.

مواد و روش‌ها: این پایان‌نامه، میزان انطباق تریاژ انجام شده برحسب پیامد در بیمارستان کودکان علی اصغر (ع) با استاندارد سال ۱۳۹۹ مورد بررسی قرار گرفت. برای این منظور، از اطلاعات موجود در پرونده بیماران به صورت گذشته استفاده شد. فرم ESI به عنوان یک استاندارد تریاژ در بیمارستان‌های کشور بررسی می‌شود. بیمار و نحوه مراجعه و سابقه بیماری بیمار است و قسمت دوم شامل علائم بیمار به تفکیک سطح تریاژ است. معیارهای ورود به مطالعه شامل تمام افرادی است که در بازه زمانی از ابتدای سال

۱۳۹۸ تا اوایل سال ۱۳۹۹ با سنی بین نوزادی و کودکان مرکز درمانی علی اصغر (ع) مراجعه کرده‌اند. همچنین، مخدوش بودن پرونده بیماران و ناقص بودن پرشدن پرونده‌ها نیز به عنوان معیار خروج از مطالعه مورد استفاده قرار گرفت. برای محاسبه حجم نمونه، از فرمول برآورد نسبی یک صفت کیفی در یک گروه استفاده می‌شود. با استفاده از مطالعات مشابه و با در نظر گرفتن درصد و بیشترین احتمال پیامد، حجم نمونه ۴۰۳ نفر تعیین شده است. در این تحقیق، نرم‌افزار SPSS در ویرایش ۲۱ برای تجزیه و تحلیل داده‌ها به کار گرفته شد.

یافته‌ها: در این مطالعه ۴۰۳ بیمار مورد بررسی قرار گرفت. از کل افراد مورد مطالعه ۲۴۳ بیمار پسر و ۱۶۰ بیمار دختر بودند. نتایج نشان داد افرادی که ترخیص یا ارجاع شده‌اند و افرادی که بستری شدند بیشتر یا تطابق داشتند و یا سطح تریاژ کمتر از امتیاز ESI داشتند. اما بین پیامد و تطابق ارتباط معناداری مشاهده نشد ($PVALUE=0.195$) افراد با سطح تریاژ ۴ اکثراً سطح تریاژ پایین‌تری از ESI داشتند. همچنین مشخص شد ارتباط سطح تریاژ با انطباق معنادار است ($PVALUE=0.0001$).

نتیجه‌گیری: ابزار ESI یکی از ابزارهای رایج پرستاران در اورژانس بیمارستان‌ها جهت تریاژ می‌باشد. آشنایی پرستاران مسئول تریاژ با این ابزار یکی از ضروری‌ترین موضوعات و اولویت‌های اورژانس بیمارستان بایستی باشد. همان‌طور که نتایج این مطالعه نشان داد افرادی که ترخیص یا ارجاع شده‌اند و افرادی که بستری شدند بیشتر یا تطابق داشتند و یا سطح تریاژ کمتر از امتیاز ESI داشتند.

کلمات کلیدی: اورژانس اطفال، تریاژ

بررسی اثربخشی آموزش نحوه استفاده از آسمیار با کمک فیلم آموزشی در کودکان مبتلا به آسم

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مقدمه: آسم یکی از مهمترین علل تنگی نفس است و داروهای استنشاقی رایج‌ترین داروهای کنترل کننده آسم هستند. با توجه به اینکه روش استفاده از اسپری‌ها در روند درمان آن‌ها نقش بسزایی دارد. هدف از این پژوهش بررسی تاثیر اثربخشی آموزش نحوه استفاده از اسپری در کودکان مبتلا به آسم با کمک فیلم از دیدگاه والدین کودکان مبتلا به آسم می‌باشد.

روش کار: این مطالعه مقطعی بر روی کودکان مبتلا به آسم مراجعه کننده به مرکز آموزشی درمانی هفده شهریور رشت در سال ۱۴۰۱ انجام شد. داده‌ها با استفاده از یک فرم جمع‌آوری شدند و داده‌های جمع‌آوری شده وارد نرم‌افزار آماری spss نسخه ۲۰ شدند و برای تجزیه و تحلیل داده‌ها از آزمون مجذور کای استفاده شد.

یافته‌ها: میانگین و انحراف معیار بیماران $۵/۰۸ \pm ۸/۳۶$ سال بود. در بیماران استفاده کننده از اسپری با آسمیار پایین‌ترین امتیاز (۳۳/۴٪) مربوط به خروج بازدم از بینی و بالاترین امتیاز (۷۸/۹٪) مربوط به تعداد دم و بازدم بوده است. ۹۴٪ والدین از آموزش با کمک فیلم آموزشی رضایت داشتند.

نتیجه‌گیری: والدین از آموزش به کمک فیلم رضایت بالایی داشتند و پرستاران و سایر ارائه دهندگان مراقبت می‌توانند برای شناسایی اشکالات در حین آموزش و ارتقا اثربخشی آموزش به بیمار به خصوص در بیمارهای تنفسی از این روش استفاده کنند.

واژگان کلیدی: آسم، اسپری، فیلم آموزشی، کودک مبتلا به آسم، آموزش به بیمار

The effects of nursing training in physical restraint of mental health in pediatric patients

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Abstract: Physical restraint is commonly used as a responsive behavior management strategy in mental health pediatric patients who are living in mental health residential care facilities. The purpose of this article is to highlight key concepts and principles in clinical ethics and how to maintain high ethical standards in matters such as: respect for autonomy, kindness, justice and avoiding violence while working with young children and their families. Awareness of doctors, nurses, and health care workers in dealing with this type of ethical challenges will reduce infants' vulnerability and psychological damage in children and adolescents.

Methods: The study is an extensive review of articles and publications available in scientific websites such as PubMed and IRAN DOC.

Results: The purpose of this article is to systematically review and investigate types and methods of physical restraints in children in psychiatric care centers or hospitals under specific treatment conditions. Restraint includes individual restraint, mechanical and chemical restraint (use of medication). Individual restraint means applying physical force without using any means to restrain the free movement of the patient's body. Time-out: It means restricting a person for a short period of time in a certain area, in order to create an opportunity for the person to regain his control. Serious injuries mean any significant damage in the person's physical condition that is diagnosed by a doctor. These injuries include burns, lacerations, bone fractures, hematomas, injuries to internal organs, etc., which are caused by the patient himself or by another person. Every person has the right to be free from restraint or seclusion in any form used for correction or discipline.

Conclusion: Our review demonstrated that, restraining measures can be reduced. In 1998, the Hartford Courant reported that 142 patients in the United States had died from mechanical restraints. Most of these children had

died from suffocation caused by restraints. Definitions of restraints and physical restraint laws vary from country to country. but it broadly refers to an involuntary behavior. These laws have been reduced by revision, for example, in Sweden, the mechanical restraint law for children was reduced from 4 hours to one hour. This development is in line with the United Nations' guidelines on people's rights, which states that all actions related to children should be considered expedient. In Finland, the physical restraint of adolescents is strongly criticized. In a study on American children and adolescents aged 12-15, they described physical restraint as fear, anger, and injury. These studies demonstrated that restraining affects the patients emotionally and leads to isolation and abuse and negative feelings.

Key words: mechanical restraint, professional nursing ethics, pediatric mental health

PEDIATRIC PAIN MANAGEMENT IN THE EMERGENCY DEPARTMENT: THE TRIAGE NURSES' PERSPECTIVE

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Introduction: The World Health Organization has declared that pediatric pain treatment is a public health concern of major significance. Studies indicate that inadequate pain management during medical care can have numerous detrimental effects, including an extended length of stay, slower healing, and emotional trauma and suffering. Furthermore, negative effects may extend into adulthood and can include fear of medical events or health care consultations, avoidance or overuse of medical care, and heightened sensitivity to subsequent medical care. Pain is the most common reason for seeking health care, accounting for up to 80% of all ED visits. Patients may have pain from an underlying illness or injury, as well as from necessary medical procedures such as venipuncture or fracture reduction. A large multicenter study found that only 60% of patients with moderate to severe pain receive any analgesia in the emergency department. Unfortunately, oligoantigenic (under-treatment of pain) remains a well-documented problem in the ED setting. Triage has been recognized as a site to effect large improvements in overall pain treatment in the emergency department. The assessment of pain and provision of analgesia early in a patient's stay are key to decreasing the pain experienced within the emergency department and improving patient satisfaction. Several centers have implemented pain protocols that allow for triage nurse-initiated analgesia. Studies of these centers have found statistically significant improvements in overall analgesia provision, time to analgesia, and patient satisfaction. The objectives of this study were to describe comfort with triage pain treatment protocols used, knowledge of pain management modalities, and perceived barriers and attitudes toward implementation of pain treatment protocols at triage.

Methods: This research is a review study in which research information is often completed in the form of a paper questionnaire by nurses in different countries.

Results: Triage-initiated pain protocols have been shown to decrease the time to analgesia and increase the rate of analgesia provision to children with pain. Through our survey, we have found that triage nurses are willing and able to implement triage pain protocols and have identified monitoring capability, time, and access to medications as barriers to doing so. We have also shown that children presenting to pediatric emergency departments with pediatric-only triage appear to have access to triage nurses with more comfort treating them; general triage emergency departments may benefit from more educational initiatives to support triage nurses, who are highly interested in treating children's pain but may lack experience, training, and comfort in doing so.

Development and Psychometric Evaluation of the commitment to care questionnaire in mothers with a child with a life-threatening illness

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Background: When caring for a child with a chronic disease, parents, especially the mother, are affected by various problems and challenges and are considered as secret patients; Commitment to care is one of the most important coping strategies that effectively help the process of continuing care; but a review of the literature shows that there is no scale to measure caregivers' commitment.

methods: The present study is a part of a large study that was conducted in three steps using a sequential exploratory combination method. In the first step (qualitative step), the concept of commitment to care and its dimensions were explained using content analysis. Data were collected from August to October 2022 using semi-structured interviews from 30 mothers with children suffering from life-threatening chronic diseases in Tehran. This purposive sampling continued until data saturation. In the second step, the set of items extracted by reviewing the existing texts and tools were combined and a draft of the tool was prepared. In the third step (quantitative step), the psychometric properties including the determination of face validity, content,

structure and internal consistency were measured; 200 mothers who were available participated in the third step and data analysis were done with SPSS 19 software.

Findings: Based on qualitative findings and literature review, a set of 114 proposed items was defined. These items were reduced to 50 items after initial refinement, qualitative and quantitative face and content validity, and item analysis. The result of principal components analysis reduced the number of items to 35. which were categorized into 6 components: "vigilance", "sense of belonging", "intuition", "attachment", "responsibility" and "sacrifice". The explained variance of these 6 components was 45.987% of the total variation of the questionnaire. Cronbach's alpha coefficient for intraclass correlation for the entire questionnaire was 0.786, which indicates the high reliability of the questionnaire.

Conclusion: The new tool designed with suitable psychometric features can be used in different clinical environments to evaluate the perception of home caregivers of a sick child about commitment to care.

Key words: mother, life-threatening illness, children, commitment to care, psychometric, questionnaire

Explaining the concepts of family vigilance theory in the field of anticipatory grief in mothers of children with life threatening illnesses: A directed qualitative content analysis

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Background: Mothers who are losing a child to a life-threatening chronic illness experience unique challenges during the complex transition of their child's illness.

Objective: To determine the predictors of anticipatory grief behaviors based on the understanding of the participants in the cultural context of Iranian society.

Method: The present qualitative research is a part of a broad sequential exploratory research that was conducted using a directed content analysis approach based on (with the help of the framework) Family Vigilance Theory (FVT). Data were collected from August to October 1400 using semi-structured interviews from 19 mothers with children suffering from life-threatening chronic diseases in the cities of Shiraz and Tehran, the capital of Iran. This purposive sampling continued until data saturation. Data analysis

was done using MAXQDA software according to the process described by Elo and Kingas in three stages of preparation, organization and reporting.

Findings: From the thematic data analysis, five categories of "emotional upheaval", "commitment to care", "resilience", "dynamic nexus" and "transition" related to predetermined components were identified and extracted.

conclusion: Family Vigilance theory helps to support the theoretical understanding of care by exploring the experience of care and specifically examining the meaning, patterns and daily rhythm of parents who are present at the bedside of sick children; and since anticipatory grief is a complex multi-dimensional phenomenon that is affected by many variables such as cultural habits and beliefs. Therefore, this theory can be a comprehensive tool for understanding, explaining, interpreting and predicting the phenomenon of mourning.

Key words: anticipatory grief, family vigilance theory, mother, child with life threatening illnesses

Effects of Whistling Compared with Buzzy Device During Blood Sampling on Pain and Fear in Children's Emergency Department

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Blood sampling from a peripheral vein in children can be significant. Pediatric nurses should be able to use the techniques which decrease the pain and fear duration of the blood sampling. This research studied the effect of vibration bee and whistling (concentrate on breathing) blood sampling on pain and fear in the children's emergency. In this randomized clinical trial study, 120 children ages 3-6 years referred to a pediatric ward in Najaf, Iraq, using Random Blocking Method, were divided into three groups; vibration bee, whistling, and control group. A musical vibration bee, with the cold bag attached to it, was closed for 5 minutes at approximately 5-10 cm above the blood sampling site. A final minute, the vibration was applied; then, the procedure was done. The pain severity was measured by Wong Baker Faces scale. Data were analyzed by SPSS19 software at the significant level of 95%. There was a significant difference in pain intensity between the control groups and the intervention groups ($p = .000$). Moreover, there was a significant difference in children's medical fear scale between the control groups and the intervention groups ($p = .000$). Whistling (concentrate on breathing) may be an easily accessed, inexpensive, and effective technique to control or reduce pain and fear in young children. But, vibration bee with cold has a greater effect for reducing pain and fear. It is suggested to use vibration bee (with cold) in painful aggressive procedures in children.

The Impact of the Evaluations Made by Mini-CEX on the Clinical Competency of Nursing Students

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Abstract

Objectives: Clinical competency is defined as one's capabilities in terms of knowledge, attitude and practice, and is a necessity for nursing practice. Evaluation is the inseparable part of the education process, without which the quality of education could not be measured. Considering the characteristics of clinical education and its impact on the clinical competency of students, as well as the importance of making precise evaluations of them using scientific, modern and efficient approaches, this study aims to investigate the impact of the evaluation made using Mini-Clinical Evaluation Exercise on the clinical competency of the nursing students of the School of Nursing and Midwifery Shahid Beheshti University.

Methods: This is a quasi-experimental study with a control group conducted on students who were taking courses "Nursing care for a sick child". The students were classified into the intervention and control groups using complete enumeration. The evaluations were made using Mini-Clinical Evaluation Exercise in the intervention group and the portfolio approach in the control group. The skills regarding patient (mother-child) education, IV therapy and medication were evaluated by checklists.

Results: The results showed that the mean score of clinical competency in the intervention group was significantly higher than that of the control group.

Conclusion: Considering the improvement of clinical competency in the intervention group, it is recommended to use Mini-Clinical Evaluation Exercise for the evaluation of students.

Keywords: Clinical Competency, Evaluation, Mini-Clinical Evaluation Exercise, Nursing Student

New Findings in Pediatric palliative care

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Introduction: Optimizing the quality of medical care at the end of life has achieved national status as an important health care goal. Palliative care, a comprehensive approach to treating the physical, psychosocial, and spiritual needs of patients facing life-limiting illnesses and their families, requires the coordinated efforts of a multidisciplinary group of caregivers.

Method: In this study, using the keywords: “Palliative Care”, “Pediatric Palliative Care”, “End of Life” and “Pediatric” search in internal databases such as: SID, Magiran and Iran Medex and foreign databases such as : Pub Med, Scopus, Embased, was done from 2010 to 2023. The studies were screened according to the title, abstract and relevance to the topic.

Result: Although the medical community acknowledges the importance of providing good end-of-life care in the ED, a number of barriers to success in this setting exist. The core concepts in emergency medicine of diagnosing and treating illness in an effort to cure do not always match palliative care goals. ED clinicians often make rapid decisions in a fast-paced environment allowing little time for discussions of complex issues and challenging medical decisions that require in-depth conversations.

Conclusion: Palliative care, a comprehensive approach to treating the physical, psychosocial, and spiritual needs of patients facing life-limiting illnesses and their families, requires the coordinated efforts of a multidisciplinary group of caregivers. Understanding the basic principles of palliative care can aid ED staff in identifying patients who could benefit from palliative care services and in managing the challenging situations that arise when such patients present to the hospital for care.

Key Words: Pediatric, Palliative Care, Pediatric Palliative Care, End of Life

Effectiveness of Mandala Coloring on Children's Pre-operative Anxiety

Running title: Mandala Coloring, Children's

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Background: Mandala Coloring is one of distraction strategies to reduce the anxiety level in children. However, its effects are inconsistent and it has received little attention for the management and prevention of anxiety in hospitalized children. This study aimed to examine the effectiveness of Mandala Coloring in reducing preoperative anxiety in children.

Methods: In this randomized controlled trial, 64 children who underwent surgery were divided into mandala and control groups using a single-blind block randomized design. Children in the control group underwent routine preoperative visits. Meanwhile, the children in the intervention group, mandala coloring was done at least one hour before entering the operating room for 15-20 minutes. The level of anxiety was measured through the Spielberger State-Trait Anxiety Inventory, before and after the intervention of both groups. The data was analyzed using SPSS-25 software.

Results: Evaluation of the average anxiety scores before and after the intervention showed a significant decrease in the Mandala group ($P < 0.05$). But, based on the results, after the end of the intervention, there was not a statistically significant between the mandala group and the control in terms of average anxiety levels ($p > 0.05$). The comparison of two groups showed no

statistically significant difference in terms of trait anxiety and state anxiety ($P>0.05$).

Conclusions: The results indicated that mandala coloring was not effective in reducing preoperative anxiety in children. Further studies are needed to more assess the effects of mandala coloring on anxiety of children undergoing surgery and their parents.

Keywords: Mandala coloring, Art therapy, Preoperative Anxiety, Anxiety Management, Children

The effect of telenursing on the treatment adherence of children with chronic diseases

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Background: A long-term disease or debilitating disease that continues for a long period of time is called a chronic disease. Chronic diseases create many challenges for the health system every year. It is estimated that by 2025, more than one out of every four Americans will suffer from two or more types of chronic diseases, and it will cover 75% of healthcare costs. The World Health Organization (WHO) emphasizes the necessity of adherence to treatment and training of health care workers, and believes that adherence to treatment means the extent to which a patient's behavior in taking medication, following a diet, or implementing changes in lifestyle are consistent with Recommendations are agreed upon or coordinated with the opinions of health care providers. One of the complex problems of the health system is non-adherence to treatment in patients with chronic diseases, especially in adolescence and puberty, which is the most sensitive stage of human development. Nurses have a valuable role in educating patients. Considering that education increases the patient's ability to take care of himself and improve health, this is one of the main duties of nurses. Therefore, the present study was conducted with the aim of investigating the effect of telenursing on the treatment compliance of children with chronic diseases.

Objectives: Investigating the effect of telenursing on treatment compliance in children with chronic diseases.

Methods: An electronic search was conducted in PubMed, Google Scholar, Scopus, Sid databases from 2015-2023. Keywords treatment adherence, chronic disease, children, mobile health application were selected for the search.

Results: In the reviewed articles, the effective role of telenursing on the treatment compliance of children with chronic diseases, including; Leukemia, asthma, and anemia of kidney diseases were seen and no study that violates the results was found in the reviewed articles.

Conclusions: Telenursing (SMS, social media, applications) plays an effective role in adherence to chronic disease treatment. This intervention can be useful and effective in all age groups. Therefore, it is important to use this technology in the country and provide a platform for the correct use of patients, because it can have favorable consequences, including reducing costs incurred in the health and treatment system and long-term hospitalizations.

The role of religion in the acceptance of parents of children with cancer

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Cancer, as a chronic disease, is one of the common causes of death in children around the world. A child's cancer causes many changes in the lives of both parents and causes many psychological and social problems for them. With the diagnosis of this disease and the start of treatment, in addition to the child, the parents face psychosocial problems such as post-traumatic stress disorder, anxiety, and depression. Parents' mental health has always been a factor affecting their child's health.

Religion is considered as a source of adaptation for parents of children with cancer, and it is useful for maintaining self-confidence, providing a sense of meaning and purpose, creating emotional peace, and strengthening hope. Praying, reading books of revelation, or attending religious services are among the resources that religious people, including these parents, can suffer less damage in the face of life's stressful events. Research showed that to face the tensions caused by illness and possible death, most parents turn to religious approaches to improve their children's mental health as well as their peace. In other words, one of the most important needs of parents of children with cancer is their religious needs. Treatment based on religion has led to the improvement of the mental state of parents of affected children so that they can better adapt to their child's condition. By creating a sense of hope and control over fate, religious interventions protect people from worrying about uncontrollable life events such as death and severe illness that lead to distress and anxiety.

Key words: religion, parents of children with cancer

The art of nurse communication in improving the child

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The main feature of nursing care is the art of communication. Considering the importance of the subject, it seems necessary to know the ways of communication. About three percent of children are admitted to medical centers at least once and nearly five percent several times during their childhood, and hospitalization is considered a crisis for them. Optimal communication between the child and the nurse is effective in reducing the stress of the hospitalized child. Nurses must have special skills and abilities in communicating. Learning effective communication skills is very important for nurses. When the child is hospitalized, the family members are affected. Nurses are responsible for providing complete and accurate information to families and also informing health team members about the needs of the sick child and his family. Supporting parents is known as one of the main skills of pediatric nurses. The nurse acts through partnership with the child and parents regarding meeting the needs and providing the services needed to meet the needs of the child. Conducting communication skills training courses is one of the most essential educational needs of nurses, which requires special attention from nursing managers. At the same time, it seems necessary to create enough opportunities for nurses to establish this communication.

Conclusion: teaching communication skills to nurses, who are the main members of health care providers, makes them use better knowledge, skills, and conditions in their interactions with patients.

Abstract: art, communication, hospitalized child, nurse

The Impact of Pulmonary Rehabilitation on the Quality of Life in Schoolchildren with Cystic Fibrosis

“Pulmonary Rehabilitation and Quality of Life in CF”

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Background: Cystic fibrosis is the most common type of severe chromosomal disease among white people. The disease affects several systems, mainly impacting the lungs. The children with cystic fibrosis have a poor quality of life. Self-management programs such as pulmonary rehabilitation can improve the quality of life.

Objectives: The aim of this study was to investigate the impact of pulmonary rehabilitation on the quality of life in the schoolchildren with cystic fibrosis referring to Tehran Children's Medical Center.

Methods: The present study is a clinical trial in which the samples were randomly placed in two groups of 35, the intervention and the control group. The child demographic information and the Revised Cystic Fibrosis Questionnaire (CFQ-R) were used. In this study, the parent's version was used for 6 to 11-year-old children and the child's version for 11 to 13-year-old children as a self-report. In the intervention group, pulmonary rehabilitation, which included training (CF definition, symptom and sign of CF, acute attack managing, nutrition in CF child, oxygen usage, stress controlling, and drugs in CF, public hygiene in CF patients, exercise and moving importance) for mothers and breathing exercises and moving guidance for children during 6 weeks, 12 sessions, 2 sessions in a week, were held. Then, the CFQ-R was filled out, immediately and 8 weeks after the intervention. The results were analyzed using SPSS V25, considering a significant level.

Results: According to ANOVA, a significant difference was observed in the mean total scores of the quality of life between the two groups, immediately

and 8 weeks after the intervention (P-value < 0.001). In addition, intra-group comparisons show that the impact of time was significant in the intervention group (P-value < 0.001).

Conclusions: Since the difference prior to the intervention and after it was significant, this method can improve the quality of life.

Trial registration number: IRCT20161024030474N4

Key words: pulmonary rehabilitation, quality of life, schoolchildren, cystic fibrosis

Investigating the effect of psychological variables on postoperative pain in children

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Background: Despite the development of pain management in children, the prevalence of postoperative pain remains a caring challenge. Given the multidimensional nature of pain and the effect of various factors on pain, the need to identify risk factors in preventing postoperative pain and coping strategies for pain is felt.

Objectives: The purpose of this study was therefore to investigate the effect of psychological variables on postoperative pain in children.

Methods: This study was conducted following a descriptive-correlational study design. The samples of the study were 171 children aged 6-13 years who were conveniently selected from the selected children's hospital in Tehran according to the inclusion criteria. Data were collected using the "demographic questionnaire", "Child Pain Anxiety Symptoms Scale (CPASS)", the Spielberger's State-Trait Anxiety Inventory (STAI), and "Coping Strategies Questionnaire (CSQ)" and analyzed using SPSS21 software.

Results: Most of the 171 children participated were boys (65.5%) with a mean age of 9.58 years. The most common type of surgery was abdominal (53.2%), with an average surgery duration of 134.29 minutes. The results of regression analysis showed that postoperative pain was positively affected by child and parent anxiety and negatively affected by coping strategies. The postoperative pain increased 0.31 and 0.30 per unit increase in child and parent anxiety, respectively, and decreased 0.14 per unit increase in coping strategies.

Conclusion: According to the results of the research, most children experience moderate to severe postoperative pain, and the variables of child anxiety and parental anxiety are positive predictors of postoperative pain, and the variable of coping strategies is a negative predictor of postoperative pain.

Therefore, identifying children at risk and providing psychological interventions can be an effective step in managing postoperative pain in children and improving child comfort.

Key words: anxiety, coping, postoperative pain, children, parents

Pediatric Safety in Inpatient Departments

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Objective: Maintaining patient safety is the main challenge of the health system. Its purpose is to reduce the rate of death and the occurrence of errors and damage to the patient. In children's surgery departments, the rate of error is higher than other children's departments. This study was conducted with the aim of evaluating the safety of sick children in the internal and surgical departments of one of the southern provinces of Iran.

Method: This is a descriptive-comparative one. The research environment includes all pediatric internal and surgical departments. Sampling has been done using time sampling and event sampling. The checklist of "Principles of Patient Safety" was used in checking the child's safety level. To check the reliability of the checklist, the method of calculating the coefficient of agreement between observers was used. SPSS-16 was used for data analysis.

findings: The level of child safety in the internal and surgical departments is at an optimal level. There was no difference between the level of patient safety compliance between internal and surgical departments (p -value=0.65). "Hands washing" and "Pharmaceutical accuracy in the transfer process of providing services" were among the most important factors that were evaluated at a low level in the surgical and internal departments, respectively (p -value=0.05).

Discussion and conclusion: Identifying risks as quickly as possible, especially latent risks, plays an important role in preventing errors, and the errors made can lead to prolonging the child's stay in the hospital, causing disability at the time of discharge, or both. Considering the vulnerable the presence of children, the training and ability of child nurses to maintain safety tips will play an important role in preventing risks.

Key Words: Patient Safety, Pediatrics, Hospital, Nurse

The role of the school nurse in management children's asthma

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Background: Asthma is the most common chronic disease of childhood. Affected children may experience disability, emotional problems, and poor academic outcomes due to increased absenteeism from school, decreased participation in physical activity, and increased time and money spent on medications, emergency room, and hospital visits. Therefore, it is necessary to prioritize self-management strategies. Despite significant changes in school health programs in the last 4 decades, it has been reported that school staff do not have sufficient knowledge in the field of asthma management. School nursing is defined as a specialized field of public health nursing that protects and promotes student health, enables natural growth, increases academic success, and enables continuity of care. Nurses play a key role in asthma management; Because they spend more time with children than other health care professionals, allowing them to gain a thorough knowledge of each child's condition. In addition, their supportive role puts them in an ideal position to identify high-risk children with asthma, plan for interventions and evaluate the effectiveness of programs.

Methods: The present research is a review and using the keywords "asthma", "children" and "school nurse" in the databases "Pubmed", "google scholar" and "Science Direct" with the aim of finding English texts related to the present study. In the last 5 years, relevant articles were selected and reviewed.

Results: The results showed that asthma complications inappropriately affect children from low-income communities and racial/ethnic minorities. School-supervised asthma treatment improves asthma outcomes by up to 15 months for minority children, potentially reducing racial/ethnic and socioeconomic disparities. School-based asthma programs have brought positive results such as performing behaviors that reduce asthma symptoms, increasing asthma knowledge and improving quality of life, improving asthma management

self-efficacy, better compliance with medication, reducing emergency department visits and school absences. The amount of positive outcomes of using health care among children with asthma less than 18 years old is higher, which shows the importance of preventive care in the early stages of life. Things that facilitate the management of asthma by school nurses, including the ease of integrating treatment under supervision, the presence of positive outcomes for families with limited resources and satisfaction with participation in preventive care, and obstacles such as communication challenges with families and providers, limited nursing staff in schools and An increase in the turnover of school nurses was detected. Also, education of school staff (to minimize the exposure of students to avoidable asthma triggers with the aim of preventing asthma exacerbations at school) and parents and children by the school nurse has positive consequences.

Conclusions: School management of asthma is complex and requires group actions. Preventive measures and preparation for emergencies require the efforts of all school personnel. Promoting the health, safety, academic success and presence in the community of students with asthma is one of the primary goals so that they flourish in school and reach their potential. Therefore, the presence of a nurse in every school is mandatory. It should be noted that school nursing services are not available all over the world and it is necessary to take measures in this field.

The effect of health-oriented education to caregivers on the health outcomes of toddlers

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Background: Children, as vulnerable groups in society, need special attention. One of the health problems of every country, which is an indicator of the growth and development of that country, is the health and development of children. Despite the improvement in the mortality of children under five years of age in Iran, it is still far from global statistics. In recent decades, due to the desire of women to participate in society, the responsibility of taking care of children, especially children under the age of five, has been entrusted to kindergartens. Infectious diseases are more common among children who are kept in kindergartens. It is necessary to carry out periodic evaluations to determine the state of knowledge and awareness of educators regarding how to recognize and diagnose diseases. The results of the studies show that the training of childcare center personnel is one of the most successful methods for reducing the incidence and control of diseases in children. Simple and effective educational tips for controlling infectious diseases are washing hands regularly with soap or using alcohol-based disinfectants.

Objectives: This study was designed and implemented to investigate the impact of a health-oriented education intervention for caregivers of toddlers to improve health outcomes in children who are kept in kindergartens. The health outcomes in this study include the incidence of respiratory, and digestive diseases, diaper-related dermatitis, and visits to the doctor.

Methods: The present study is semi-experimental four kindergartens were non-randomly selected from among four districts in Semnan city and then were randomly and equally divided into intervention and control groups. Children aged 1–3 years old were selected based on the research criteria and census (30 in the intervention, and 32 in the control group). The researcher's

data collection tools included a demographic information questionnaire and a checklist to check the health status of toddlers. The study was conducted in two stages over two months. The first step was to determine the current situation, using the checklist of diseases that needed to be assessed for one month. The second step, based on the needs assessment, was the educational program for mothers and teachers was held separately in three sessions of 45–60 minutes in the kindergarten and groups. After the intervention, the health results in the test and control groups were compared and analyzed by SPSS 21 software.

Results: The chi-square statistical test showed that the two groups are the same in terms of demographic variables such as age, education, marital status, etc. ($P > 0.05$). The chi-square statistical test showed a significant difference between intervention and control groups before and after intervention in terms of health outcomes (digestive $P=0.007$, respiratory $P=0.003$, skin $P=0.001$).

Conclusions: The provision of health-oriented educational packages was accompanied by an increase in the level of awareness and knowledge of children's caregivers, which improves their academic performance and better recognition and diagnosis of children's problems.

Investigating the Effects of picture book on Reducing Distress Caused by Intravenous Catheterization among School-aged Children (randomized clinical trial)

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Background: Hospitalized pediatric patients experience pain, fear, and distress during intravenous catheterization.

Objectives: This study investigates the effects of a picture book on reducing distress caused by intravenous (IV) catheterization among school-aged children.

Methods: seventy four Pediatric emergency room patients age 6-12 years old requiring Iv Infusion were enrolled in this randomized clinical trial. The intervention, providing a description of the IV catheterization procedure using a picture book, was compared to the same description of the procedure without a picture book (standard of care). Subject distress was measured using the Observation Scale of Behavior Distress Revised (OSBD_R) which assigns a score to eight observable behaviors. Before, during, and after the procedure at 15-second intervals (measured using a timer). a trained observer assigned an OSBD_R score of distress. A total score of 22 is considered maximum distress. The primary endpoint for the study was OBSD_R score difference in Phase 3 (Performing catheterization procedure, attaching and infusion therapy). Chi-square, Mann-Whitney and Wilcoxon tests were used for data analysis.

Results: The mean distress score in third phases for the intervention group (0.667 ± 0.610) was significantly less than that of the control group (3.218 ± 1.799). A significant difference in distress score was observed before and after the intervention ($p < 0.001$).

Conclusions: Children's distress due to IV catheterization can be reduced with a simple, nonpharmacological picture book intervention. The children's

orientation on the IV catheterization plays a significant role in controlling and reducing their distress during and after the intervention. We suggested using the picture book to reduce the children distress before Intravenous Catheterization.

Key words: anxiety, pediatric, Intravenous Catheterization, education, picture book

Effectiveness of Telenursing for Postoperative Complications in Adolescents with Cancer

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Introduction: Cancer is one of the chronic diseases, which occurs in adolescents between the ages of 12 and 18. According to the condition of the patient different treatments are used for cancer, among them which surgery is used as one of the main treatments. If patients are not properly monitored after discharge, they are at risk for morbidity, readmission, and even death. The role of telenursing is to provide comprehensive care and information to patients, as well as resources for promoting health, helping to change health behaviors, and working in collaboration with other health professionals. The aim of this study was to investigate effectiveness of telenursing for postoperative complications in adolescents with cancer.

Material & Method: This review article was conducted in 2023. In order to review the articles, the keywords Telenursing, Postoperative, Complications, Adolescents, Cancer were searched in PubMed, Scopus, ISI, Google Scholar databases during 2019-2023 in English sources. 41 English articles related to the research were found that 7 articles were reviewed due to the topic similarity with the present study.

Results: Complications after surgery impair physical and psychology function in adolescents with cancer, leading to a lower quality of life (QOL). To reduce these complications, such patients are therefore required to follow-up. The following up of cancer patients is the responsibility of nurses. Telenursing is the most modern method that can provide quality care to patients after discharge to reduce complications after operative.

Conclusion: Early detection and intervention by telenursing essential for better outcomes and to prevent more complications. Telenursing can help to identify deterioration in patients, even in rural areas so this can help to ensure that timely action is taken and the patients get the necessary care. Telenursing has the potential to further reduce hospitalization and prevent unnecessary readmissions, reduce emergency refer to hospital, and help mitigate increasing nursing staff shortages and overall health care costs.

Keywords: Telenursing, Postoperative, Complications, Adolescents, Cancer

Readiness for neonatal resuscitation

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Background: Neonatal resuscitation is a complex procedure that requires the use of specialized knowledge and skills in an emotionally charged and stressful situation. Knowledge about neonatal resuscitation, frequent performance of skills, and comfort level with skill performance are dimensions of quality implementation of neonatal resuscitation.

Methods: This review study was conducted through systematic and focused searching out for literature published between 2000 and 2023 in database/search engines Google Scholar, Web of Science, PubMed, and Scopus by the selected keywords Readiness, resuscitation, and neonatal intensive care unit.

Results: Today's NRP was designed to teach an evidence-based approach to the resuscitation of newborns. The causes, prevention, and management of mild-to-severe neonatal asphyxia are carefully explained to facilitate the development of optimal knowledge on and skills in resuscitation. The first minute of life is crucial to assisting a newborn in the transition to extra uterine life. Hypothermia and the inability to establish a patent airway within 60 seconds of life can lead to labored breathing, persistent cyanosis, oxygen desaturation, apnea, and bradycardia. There are many methods to decrease hypothermia in the newborn such as drying the baby, covering the head with a cap, use of an incubator, and skin-to-skin maternal contact. Part of this process is the preparation of equipment. Even with NRP guidelines available errors in preparation for neonatal resuscitation continue to plague many neonatal units. There were inconsistencies in the set-up of each delivery room. At times, the NPs or HPs may be required to attend high-risk deliveries without a second person due to staffing and flow of the NICU. There may not be time for the NICU team member to check the appropriateness, availability, or functionality of the equipment needed for neonatal resuscitation. It is imperative that the radiant warmer is prepared appropriately to prevent delays in resuscitation due to equipment issues. The NICU team had noticed a trend in the lack of appropriate set-up for neonatal resuscitation. The lack of

appropriate neonatal resuscitation readiness can lead to a delay in neonatal resuscitation and can change the course of a good to a poor outcome which may require the transfer of the infant for more advanced neonatal care.

Conclusions: Readiness for neonatal resuscitation requires assessment of perinatal risk, a system to assemble the appropriate personnel based on that risk, an organized method for ensuring immediate access to supplies and equipment, and standardization of behavioral skills that help assure effective teamwork and communication.

Key words: Readiness, resuscitation, neonatal intensive care unit

وضعیت فرهنگ ایمنی از دیدگاه کارکنان در بخش های NICU

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مقدمه و هدف: بررسی فرهنگ ایمنی به عنوان یک مؤلفه حیاتی در بهبود کیفیت ایمنی و مراقبت سلامت در نوزادان امری ضروری است. هدف این مطالعه، بررسی وضعیت فرهنگ ایمنی از دیدگاه کارکنان شاغل در NICU بوده است.

روش کار: در این مطالعه توصیفی- مقطعی، ۳۶۰ نفر واجد شرایط، بر اساس نمونه گیری در دسترس با استفاده از پرسشنامه HSOPSC مورد بررسی قرار گرفتند. داده های به دست آمده با استفاده از آمار توصیفی و استنباطی در نرم افزار SPSS تجزیه و تحلیل شدند.

یافته ها: در این مطالعه، مشارکت کنندگان بین سنین ۲۳ تا ۵۴ سال بودند. میانگین درصد پاسخ های مثبت پرستاران و پزشکان شاغل در بخش های مراقبت ویژه نوزادان،

۶۱/۶۱ درصد بود و ابعاد درک کلی از ایمنی بیمار (۸۵/۱۵ درصد) و فراوانی گزارش خطاها (۴۸/۲۲ درصد) به ترتیب، بیشترین و کمترین پاسخ مثبت را دریافت کرده‌اند. در طی ۱۲ ماه گذشته ۳۵/۴ درصد از افراد، حداقل ۱ یا ۲ خطای اتفاق افتاده در بخش را گزارش کرده‌اند و ۴۲/۴ درصد، وضعیت فرهنگ ایمنی را در حد متوسط دانسته‌اند.

نتیجه‌گیری: نتایج این مطالعه می‌تواند جهت درک وضعیت فرهنگ ایمنی، شناسایی عوامل تسهیل کننده و استفاده از ابعاد آن، به مدیران سیستم سلامت کمک کند تا با بررسی نقاط قوت و ضعف و شناخت بیشتر فرصت‌های موجود، در جهت مداخلات ارتقاء دهنده برای بهبود وضعیت فرهنگ ایمنی، در جهت سلامت و ایمنی نوزادان پرخطر تلاش نمایند.

کلیدواژه‌ها: فرهنگ ایمنی بیمار، کارکنان، بخش‌های NICU

RBC Transfusion in premature neonates in Mofid Children Hospital

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Background and Objectives: Premature neonates are extremely vulnerable in the neonatal period, as is attested to by the high rates of infant mortality. Infants that are hospitalized are likely to have at least one blood transfusion. Anemia is one of the most common side effects. The purpose of this cross-sectional descriptive study was outcome of red blood cell injection in preterm infants admitted to the NICU of the Mofid Hospital at 2016.

Materials and Methods: For this descriptive cross-sectional study, 116 preterm infants weighing ≤ 1500 grams and gestational age ≤ 35 weeks who had no history of surgical and congenital anomalies were admitted to NICU. The data were analyzed by SPSS 20 and dependent t-test.

Results: Data were collected, apnea 79.31%, 19.82%, tachycardia 80.17%, 48.27% and residue 55.73%, 21.34% before and after blood transfusion respectively according to nursing reports. Before and after transfusion mean of hemoglobin was 9.1 mg/dl and 11.8 mg/dl and hematocrit were 25.6% and 32.5%, respectively.

Conclusions: Finding show apnea ($p = 0.001$), tachycardia ($p = 0.004$), residue ($p = 0.005$), hemoglobin ($p = 0.001$) and hematocrit ($p = 0.001$). For prescription, Considering Clinical manifestations and laboratory findings, improves laboratory, clinical and ventilator conditions in premature infants.

Key words: Anemia, Blood Transfusion, Red blood.

Trauma-Informed Care in the NICU: Implications for Early Childhood Development

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Background: I found 2,090 articles on the topic " Trauma-Informed Care in the NICU " in Google Scholar. Both babies and their parents may experience a stay in the newborn intensive care unit (NICU) as a traumatic or a 'toxic stress,' which can lead to dysregulation of the hypothalamic–pituitary–adrenal axis and ultimately to poorly controlled cortisol secretion. Toxic stresses in neonate are strongly linked to poor health outcomes across the lifespan and trauma-informed care is an approach to caregiving based on the recognition of this relationship. Trauma-Informed Care is a foundation for Practice in the NICU. Because I wanted to investigate the effects of this type of care on the developmental outcome of the brain of neonates, I focused on related articles. The 'Early childhood development' means the formation of brain foundations to provide the ideal capacities of human development in dimensions of speech, sensory motor, behavior and personality.

Objectives: The polyvagal theory describes an autonomic nervous system that is influenced by the central nervous system, sensitive to afferent influences, characterized by an adaptive reactivity dependent on the phylogeny of the neural circuits, and interactive with source nuclei in the brainstem regulating the striated muscles of the face and head. Polyvagal Theory gives us a scientific framework that supports the integration of physiological ("bottom-up") therapies with cognitive ("top-down") approaches to help change and improve how we feel, think and connect with others.

Methods: Review article

Results: The stresses a mother experiences during pregnancy may affect both her baby's brain and behavior. The neural correlates of consciousness are capable of integrating inputs with emotions, and memories as early as 24 weeks gestation. In the cortical level, a neonate's somatosensory sharpness of peripheral stimulation is intact at approximately 24 weeks gestation. How this relates to the infant's perception of trauma involves the role of the

amygdala or temporal subcortex, that is functionally competent by the second trimester with continued pruning of regional connections influenced by adolescent experience. So, they threat underlie learning of fear and are associated with reduced hippocampal volume and function in adulthood, elevated amygdala reactivity to threats, attention bias or hypervigilance, reduced prefrontal cortex volume, and compromised attachment and interpersonal relationships as infant behavior is shaped to match the environment and his or her experiences.

Conclusion: NICU care is an adverse early-life experience of high threat and high deprivation. Potentially toxic stressors for hospitalized preterm or otherwise ill infants include long periods of separation from their parents, inconsistent caregivers, repeated painful procedures without environmental supports and a sensory environment that overwhelms the immature brain. Adherence to a safe documented program that provides the basic needs of the nervous system for development, for example for NIDCAP, for all neonatal intensive departments is recommended.

Breaking bad news

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Breaking bad news is one of the most difficult tasks of health care workers. However, learning how to break bad news will make this task less difficult. Without proper training, the distress and uncertainty associated with breaking bad news may cause caregivers to become emotionally detached from patients. The SPIKES model was first published in 2000 in *The Oncologist* as a protocol for delivering bad news to cancer patients. It has since become more widely used and is used by health care providers in a variety of settings to communicate difficult news to patients in a clear and compassionate way. This model has 6 steps:

- Set up
- Perception
- Invitation
- Knowledge
- Empathy
- Strategy and summary

Delivering bad news is an important clinical skill that can be used repeatedly and in a variety of contexts. Practicing using the mentioned model can facilitate communication by creating empathy and improve interaction between the patient, family and health care providers.

Training on how to breaking bad news should be included in the students' curriculum and efforts should be made to teach I correctly.

Trauma informed care in adverse childhood events

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Background & Objective: Traumatic stress and adverse childhood experiences are associated with short- and long-term negative physical and mental health outcomes among children. Recent decades of studies on traumatic stress and its impact have emphasized the importance of trauma prevention and treatment in all service systems using global systems approaches. Trauma-informed care includes validating and recognizing the effects of traumatic events, familiar coping strategies, and effective treatments. The present study aims to review the importance of trauma-informed care in toxic stressful events in children and intervention methods for prevention.

Methods: In this review study, data was gathered through the literature review and articles and the targeted search in Persian and English databases, between the years 2013 and 2023. The keywords Trauma-informed care, adverse childhood events, and healthcare system were used for searching. The results are below.

Results: The most common adversities that children may experience include domestic dysfunction (domestic violence, substance abuse, mental illness or criminal activity, or parental absence), child abuse (emotional, physical, or sexual), and child neglect (emotional or physical). Chronic stressors in the absence of a supportive environment lead to toxic stress. Children who are victims of chronic abuse undergo remodeling in the amygdala. The amygdala, part of the limbic system, is activated in response to stress and has been shown to produce impulsive behaviors. These regional brain changes can ultimately transform a person's physiological stress responses into toxic stress responses, whereby the person perceives benign experiences as life-threatening events. These behaviors are referred to as a "trauma-organized" lifestyle and make people susceptible to mental and physical illnesses throughout their lives. Adverse events predict higher rates of negative health outcomes. These consequences can be divided into risky health behaviors,

poor mental health, leading causes of death, and other chronic health problems.

Conclusion: Trauma-informed care is motivated by the realization that systems of care serving children are often unaware of their clients' traumatic experiences, which may lead to re-traumatization and failure to provide appropriate referrals. Transforming healthcare organizations into trauma-informed systems requires organizational changes and the development of culturally sensitive infrastructures that respond to the needs of traumatized individuals and their safety.

Key words: trauma-informed care, adverse childhood events, healthcare system.

Pediatric wound care: Recent Clinical Advances and Practical Methods in Guidelines

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Wound care practices in neonatal and pediatric patients have created more than 4000 evidence-based standardized guidelines for treatments in clinical practice. Unfortunately, these large published clinical guidelines for the assessment and management of pediatric wounds are still limited and Currently, there are no published systematic reviews for pediatric wound care. These needs developing methods such as platelet rich plasma (PRP), suitable Ozon based methods, etc. to improve clinical guidelines that identify key aspects of health care quality, especially appropriate indications for interventions. The purpose of this study is to reconsider the pediatric wound care methods and present the optimal methods.

This goal needs to recruit a multidisciplinary team of pediatric wound care managers, surgeons, and active research experts in the international pediatric wound Care field. This needs to assess eligibility criteria, sources of information, systematic search strategy in the review databases, select research criteria, and so on. Advanced new methods will collect based on the clinical consensus group's experience in developing clinical guidelines and other clinically significant areas where evidence needs to be evaluated. Important areas identified as to consider include: Product/treatment cost, treatment duration, ease of product use/treatment administration, product accessibility, warranty product management, product application time/ treatment implementation.

The areas of agreement in our study are consistent with previously published studies. Then it would be possible to introduce several areas for future improvements in pediatric wound care managements.

Key words: Pediatric wound care, evidence-based standardized guidelines, developing methods, wound care guidelines.

Empowerment and application of nursing ethics in relation to dealing with a child with a chronic disease

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Introduction: Professional nurse should have various skills including creativity, patience, and sense of responsibility, communication skills and empathy. In addition, pediatric nurses should be familiar with medical care for children with chronic illnesses. They should have sufficient knowledge about the disease to recognize the symptoms and complications and to be able to deal with them appropriately, such as pain control, respiratory management, skin care, etc. Better and efficient adjustments will increase the quality of life of the patient as well as the rest of family.

Methods: A review of scientific articles available on SID-GOOGLE CHROME-PUB MED- and ISC sites

Results: When a child enters a healthcare center, patient and the care provider team face moral issues required for the treatment such as treatment plan, obtaining written and informed consent for treatment in different conditions. In some situations, therapy team reaches conflicts in treatment decision-making, so both the child's independence and the parents' full sense of authority must be considered. Factors such as age of the child, the type of disease and the importance of treatment are very important in decision making. In all medical interventions except, emergency cases, there is a need for written consent from the child or his parents. In case of refusal, the treatment team will use the opinion of the legal authorities and their interventions will inform the guardian of the child and in cases where there is a serious risk, immediate interventions will be done with doctor's opinion. It is an inalienable right for a child to start treatment. Nursing team due to continuous presence in medical centers, face children's problems more than any other group, knowing that physical and mental problems of the child can cause serious harm to the patient. By establishing proper communication and supporting the patient, he gains self-confidence and strengthen sense of

security in patient. Improving inter-professional communication between doctors and nurses, while increasing patient care, reducing medical errors and patients' waiting time will lead to job satisfaction. Communication is one of the most important characteristics required in people working in healthcare systems.

Conclusion: Therefore, when facing a pediatric patient, serious intervention and decision of the nurse is very important. The duty of the nurse is to attract cooperation of parents and to ensure the health and well-being of the child. The important duty of the nurse in dealing with a sick child is to establish communication to develop self-confidence and reduce dependence. Full awareness of patient's physical condition and health-disrupting factors and establishing a loving relationship can lead to patient's cooperation and interest in his care plan. When dealing with a child who has been abused, nurses should have a very supportive behavioral role. Regular training courses and courses teaching palliative care of newborns and family-centered care principals can help nurses become more sensitive towards their supportive behavioral role.

Key words: nursing ethics-pediatric patients-chronic disease

Effects of newborn resuscitation training of nurses on the maintaining of the quality of medical services

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Introduction: About 10% of newborn babies need intervention to start breathing, and less than 1% require extensive resuscitation measures. Training of medical staff on newborn resuscitation techniques can prevent deaths during childbirth and reduce the amount of disability in babies suffering from asphyxia at birth. NRP (Neonatal Resuscitation Program) is a training course, and its purpose is to create mentality and establish the basic skills of newborn resuscitation in trainees. Completing the internet test and scenarios are the prerequisite for attending skill and simulation sessions based on improving skills in a controlled and simulated environment, can improve the scientific and practical level of personnel.

Methods: This study is a review of the articles and publications available in scientific websites, IRAN DOC, Google chrome and SID.

Results: In recent years, teaching methods of infant's cardiopulmonary resuscitation for nurses has changed from reading textbooks and reviewing slides to simultaneous practical training on moll age; and upgraded from practicing step by step resuscitation methods at each stage, to a simulation based on creating conditions similar to a real newborn to decide and perform the correct method of cardiopulmonary resuscitation which can be performed even by mobile phone software. For more than two decades, the NRP has been set as an international standard and example for training newborn resuscitation and its purpose is to develop the knowledge and skill of resuscitation in personnel by training the resuscitation program. There are common educational methods in this field, including the Ajokar method, traditional methods, and the use of classes and lecture-based workshops.

Conclusions: In the study of Samii Rad et al., 2012, with the tile of comparison of the effect of two different methods of neonatal resuscitation training on the knowledge and performance of clinical staff, the difference

between the average of the pre-test and post-test scores in the workshop method was more obvious than the method of teaching with textbooks and self-study. The difference between the average scores of the intervention group was very high. This difference was due to the intervention in the educational method. The study shows the effectiveness of the workshop method in improving the knowledge and performance level of clinical staff. In the study of Norris et al., 2012, under the title of the influence of human factors in the training of newborn resuscitation, one of the key factors that affect the quality of resuscitation is management, communication and leadership, which in training using the Ajokar method, in addition to the role of the team leader in the training workshop, coordination and teamwork were emphasized and in the scenarios, people were asked to do it practically and by introducing the team leader, divide the tasks between the team members and perform the scenarios' teamwork. According to the results obtained in Ms. Haghigi's study in 2016, the longer the time interval between training and evaluation increases the level of knowledge and performance of people decreases. In Ms. Eskandari's review study in 2018, titled resuscitation training in nurses, she showed that educating methods which not only improve the knowledge but also improve the skills of applying the knowledge have a greater impact.

Key words: Newborn resuscitation-nursing personnel-education



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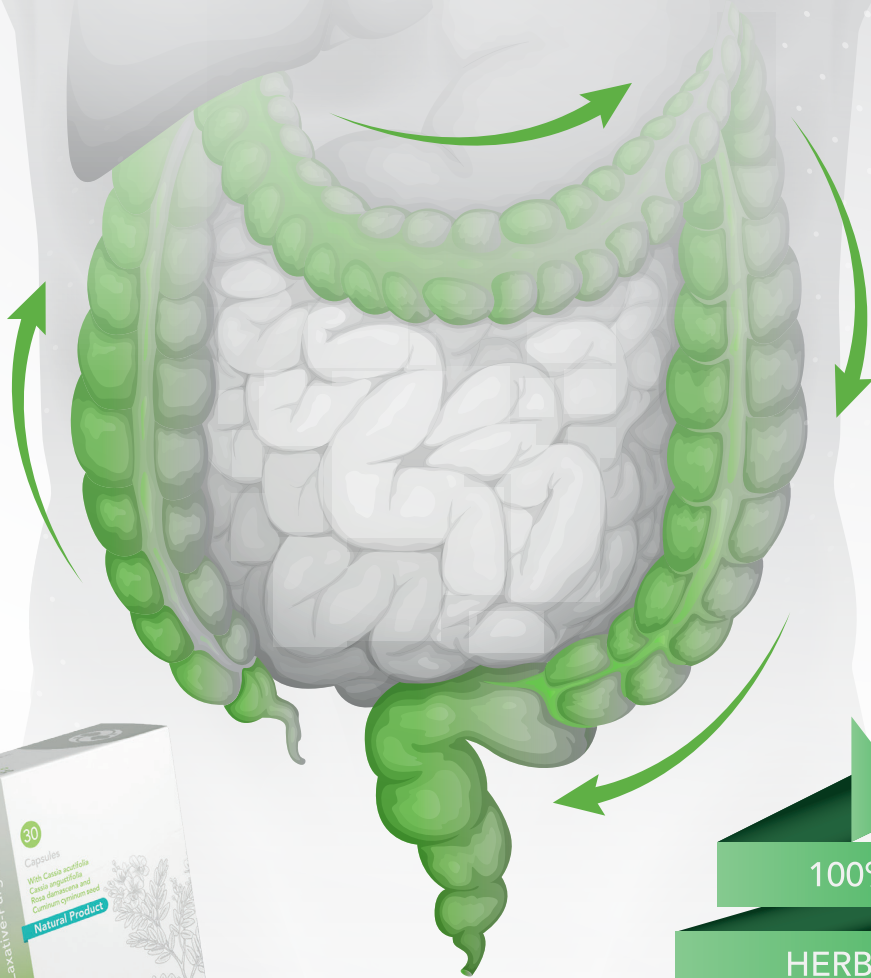
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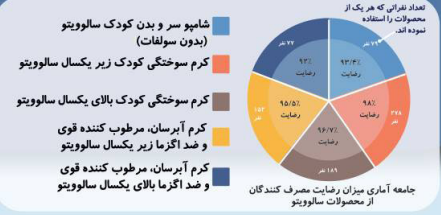
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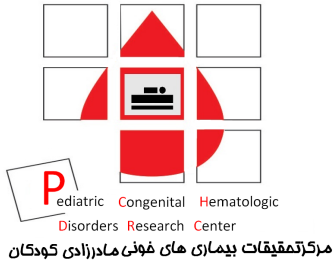
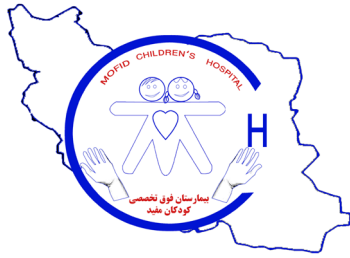
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