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Pediatric Residency Training in Child Abuse and Neglect in the United States

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Background: Child abuse and neglect are leading public health problems with significant morbidity and mortality. Previous studies indicate that physicians often lack knowledge and confidence in addressing child abuse and neglect.

Objectives: Our goal was to assess the child abuse and neglect curricula in pediatric residency programs as reported by chief residents and to identify levels of preparedness of residents to address child abuse and neglect on graduation. We analyzed variables related to preparedness.

Methods: A 28-item survey was sent to chief residents of all 203 Accreditation Council for Graduate Medical Education-accredited pediatric residency programs in the United States from 2004–2005. We performed descriptive, bivariable, and multivariable analyses.

Results: The response rate was 71 %. Most programs taught didactics on physical and sexual abuse, but only 54 % included domestic violence. Ninety-three percent of respondents rated their didactics as useful or very useful. Forty-one percent of programs required mandatory clinical rotations in child abuse and neglect. 57 % offered elective rotations, an 25 % offered no rotations at all. Respondents rated the levels of preparedness of graduating residents to address child abuse and neglect as: very well (12 %), well (54 %), somewhat well (28 %), or not well (6 %). Preparedness was significantly associated with didactic usefulness, number of hours of didactics, total number of inpatient cases of child abuse and neglect seen, percent of residents completing mandatory rotations, number of sexual abuse cases during mandatory rotation, number of physical abuse cases

during mandatory rotation, and length of mandatory rotation.

Conclusions: Mandatory clinical experiences in child abuse and neglect improve the preparedness of graduating residents to identify and evaluate patients for child abuse and neglect. Perhaps residency training in child abuse and neglect should be a required subspecialty rotation with more explicit curricular content than in the current mandates.

Child Protection Training for Paediatricians

N. Shabde;
Arch. Dis. Child; 2006; 91; 639–641

Paediatricians have always played a key role in safeguarding children directly or indirectly. In the current climate of hostility and complaints culture, paediatricians feel demoralized and vulnerable working in Child Protection. Some paediatricians are reluctant to work as designated or named doctors and furthermore, there is a dearth of paediatricians willing to take on expert witness work. Clearly, this will leave children unprotected.

Training in isolation will not empower paediatricians to feel confident about Child Protection work. However, training must be seen as an initial step towards improving the current climate and to make Child Protection safer for children and paediatricians. Training must be reinforced by peer review, supervision, and support from designated and named professionals, senior managers, and the RCPCH.

The impact of Child Protection training must be evaluated in both the long and short term. Early outcome measures might include improvements in attitudes, knowledge, and levels of confidence.

Paediatricians play an essential role in Child Protection. Appropriate training will enable them to undertake this important work competently and with confidence.

Child Abuse Pediatrics: A new Pediatric Subspecialty

Robert W. Block, MD, and Vincent J. Palusci, MD, MS;
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711–712

Child abuse and neglect has been characterized as a «national emergency». In 2003, there were 2,9 million reports and an estimated 906,000 children who were victims of abuse and neglect, representing an incidence of 12.4 per 1000 children in the United States and including 1500 deaths. According to the 1993 National Research Council's report entitled Understanding Child Abuse and Neglect: «The consequences of maltreatment can be devastating. (They) affect the victims themselves and the society in which they live.»

In June 2005, the American Board of Pediatrics (ABP) accepted a petition to begin a new pediatric subspecialty, board certified by the ABP.

The 2 most compelling reasons for the development of a subspecialty in child abuse and neglect are the need for more and better research and the burgeoning core knowledge in the field. Currently, more than 16,000 citations are found on PubMed for child abuse and more than 15,000 for child neglect. There are about 30 published primary textbooks or monographs, and additional resources appear each year. Several journals are devoted to child abuse, and articles from the field now appear in all major pediatric journals. Yet many important research questions remain. While more than \$20 million in funded research in the field has been recently identified, this level of funding falls significantly behind other pediatric issues of similar magnitude.

A second reason for the establishment of the new subspecialty is the growing body of knowledge and expertise in the field, which are not routinely taught during medical school and residency. Surveys indicate pediatric residents receive insufficient training in the evaluation of child abuse and neglect. In 2005 we know that several hundred hours of training and experience are required to master the new knowledge and skills needed to provide expert care for children alleged to have been abused. Child sexual abuse evaluation in particular has

become a sophisticated area over the last 20 years, with new techniques (colposcopy) and new knowledge about anogenital anatomy and sexually transmitted infections. New insights into the presentation and differential diagnosis of physical abuse are also continually being developed. These include the biomechanics of fractures (type and location), the physiology and biomechanics of abusive head trauma, distinguishing abusive and inflicted burns from accidental trauma, recognizing patterns in skin injuries, identifying some poisonings as intentional, and differentiating the rare but important homicide appearing otherwise to be a sudden, unexpected «natural» death. A greater understanding, definition, and response to child neglect are also rapidly becoming an important focus of this developing subspecialty.

The presence of a child abuse subspecialty does not minimize the continuing role of the generalist pediatrician. It is certainly within the scope of practice for the generalist pediatrician to suspect, diagnose, and manage a case of child abuse, and it is important to the field of pediatrics that this new subspecialty will complement rather than detract from the value of generalist pediatricians. But when the going gets tough, especially with critical, challenging diagnoses and related court appearances, the availability of a subspecialist in the field for consultation or case referral is preferred by many. The child abuse subspecialty field should be able to serve the generalist pediatrician similarly to other subspecialists such as a pediatric cardiologist, endocrinologist, or gastroenterologist. Increasing the numbers of Child Abuse Pediatricians will undoubtedly enhance access to expert care for children for whom it was often previously unavailable while professionally supporting the generalist pediatricians who will continue to provide front-line assessments.

It is equally critical to train a cadre of physicians to serve as leaders in children's hospitals, as these hospitals and the National Association of Children's Hospitals and Related Institutions develop plans to incorporate the expertise of these services within their hospitals, and, in collaboration with communities, to prevent and manage cases of child maltreatment.

How many Child Abuse Pediatricians will be needed? It has been roughly estimated on

the basis of current experience that the U.S. needs at least 1 Child Abuse Pediatrician for every 1 million population. In Addition, there should be at least 1 in each medical school.

Kommentar

Interessanterweise häufen sich in den letzten Monaten in verschiedenen pädiatrischen Zeitschriften Artikel über die Weiter- und Fortbildung im Gebiet von Kindsmisshandlung und Kinderschutz. Die Aussagen sind widersprüchlich: Einerseits scheinen in den USA die meisten Weiterbildungsprogramme für AssistenzärztInnen das Thema Kindsmisshandlung/Kinderschutz abzudecken, andererseits wird im gleichen Journal einige Monate später moniert, dass die Pädiater schlecht auf den Umgang mit Kindsmisshandlungsfällen in der Praxis vorbereitet seien. Die Situation in England scheint vor allem dadurch gekennzeichnet zu sein, dass sich Pädiater in ihrer Kinderschutzarbeit isoliert und nicht unterstützt von Standesorganisationen fühlen.

Vor diesem Hintergrund ist die Forderung von Block und Palusci aus Detroit eine folgerichtige Konsequenz: Sie schlagen die Schaffung einer neuen pädiatrischen Subspezialität «Kindsmisshandlung» vor und berichten, dass diese Entwicklung bereits seit Juni 2005 beim American Board of Pediatrics im Gange ist. Der Bedarf an solchen «Kinderschutz-Spezialisten» wird auf 1 auf 1 Million Einwohner beziffert, das gibt 375 SpezialistInnen für die USA. Die Autoren betonen, dass durch die Schaffung dieser Subspezialität und das Vorhandensein von entsprechenden Spezialisten die Bedeutung des Allgemeinpädiaters im Zusammenhang mit Kindsmisshandlung und Kinderschutz keineswegs abnimmt. Im Gegenteil: Die Allgemeinpädiater sollen in Ihrer Tätigkeit durch die Spezialisten stimuliert und gefördert werden und bei ihnen rückfragen können. Daneben ist es die Aufgabe dieser Spezialisten, Weiter- und Fortbildung sowie Forschung im Gebiet Kindsmisshandlung/Kinderschutz zu leiten und zu fördern.

Was bedeutet das für die Schweiz? Die Erkenntnis, dass Kindsmisshandlung ein wichtiges pädiatrisches Krankheitsbild ist und Kinderschutz zur Aufgabe jeder pädiatrischen Institution gehört, ist bei uns seit langem anerkannt und in verschiedenen Dokumenten schriftlich festgehalten ([www.](http://www.swiss-paediatrics.org)

[swiss-paediatrics.org](http://www.swiss-paediatrics.org) → Paediatrica → vol. 11 n. 3; www.swiss-paediatrics.org/guidelines). Im Lichte der Mitteilungen aus den angelsächsischen Ländern wäre nun wohl ein weiterer Schritt fällig: Warum sollen wir in der Schweiz nicht einen Fähigkeitsausweis «Kinderschutz» schaffen, dessen Trägerinnen und Träger eine führende Rolle in Aus-, Weiter- und Fortbildung sowie in Forschung und Dienstleistung einnehmen würden?

Ulrich Lips, Zürich

Safety and efficacy of buccal midazolam versus rectal diazepam for emergency treatment of seizures in children: a randomized controlled trial.

McIntyre J, Robertson S, Norris E et al.

Background: Rectal diazepam and buccal midazolam are used for emergency treatment of acute febrile and afebrile (epileptic) seizures in children. We aimed to compare the safety and efficacy of these drugs.

Methods: A multicentre, randomised controlled trial was undertaken to compare buccal midazolam with rectal diazepam for emergency-room treatment of children aged 6 months and older presenting to hospital with active seizures and without intravenous access. The dose varied according to age from 2.5 to 10 mg. The primary endpoint was therapeutic success: cessation of seizures within 10 min and for at least 1 hour, without respiratory depression requiring intervention. Analysis was per protocol.

Findings: Consent was obtained for 219 separate episodes involving 177 patients, who had a median age of 3 years (IQR 1–5) at initial episode. Therapeutic success was 56% (61 of 109) for buccal midazolam and 27% (30 of 110) for rectal diazepam (percentage difference 29%, 95% CI 16–41). Analysing only initial episodes revealed a similar result. The rate of respiratory depression did not differ between groups. When centre, age, known diagnosis of epilepsy, use of antiepileptic drugs, prior treatment, and length of seizure before treatment were adjusted for with logistic regression, buccal midazolam was more effective than rectal diazepam.

Interpretation: Buccal midazolam was more effective than rectal diazepam for children presenting to hospital with acute seizures and was not associated with an increased incidence of respiratory depression.

Lancet 2005; 366(9481): 205–10

Commentaire

Midazolam per os, une alternative plus efficace et sûre en cas de convulsion

177 enfants s'étant présentés avec une convulsion (au total 219 épisodes) ont été traités pour la moitié avec diazepam par voie rectale, l'autre moitié avec la solution injectable de midazolam (Dormicum®) par voie buccale (0,5 mg /kg pour les nourrissons de 6 à 12 mois, 5 mg pour les enfants de 1 à 4 ans, 7,5 mg pour les enfants de 5 à 9 ans et 10 mg pour les plus âgés).

Le but thérapeutique, arrêt de la convulsion dans les 10 minutes, pas de rechute dans l'heure suivante et pas de dépression respiratoire nécessitant une intervention, a été atteint nettement plus souvent avec midazolam (61/109) qu'avec le diazepam (30/110). Plus en détail, on peut relever que les convulsions ont cédé plus vite avec midazolam (après 8 minutes en moyenne contre 15), que les rechutes ont été moins fréquentes (14% contre 33%), que moins d'enfants ont donc nécessité un traitement intraveineux (33% contre 57%) et qu'une intervention en raison d'une dépression respiratoire n'a été nécessaire que dans 4% (midazolam) respectivement 7% (diazepam) des cas.

Rudolf Schlaepfer, La Chaux-de-Fonds

Kommentar

Midazolam per os: eine wirksamere und sichere Alternative bei Krampfanfällen

177 Kinder wurden wegen eines Krampfanfalles (insgesamt 217 Episoden) zur Hälfte mit Diazepam rektal und zur Hälfte per os mit einer injizierbaren Midazolamlösung (Dormicum®) behandelt (0,5 mg/kg für 6–12-monatige Säuglinge, 5 mg für 1–4-jährige, 7,5 mg für 5–9-jährige und 10 mg für ältere Kinder).

Das therapeutische Ziel, Unterbruch des Krampfanfalles innerhalb 10 Minuten, kein Rückfall im Verlaufe der folgenden Stunde und keine therapiebedürftige Atemdepression wurde mit Midazolam (61/109) deutlich häufiger erreicht als mit Diazepam (30/110).

Insbesondere kann hervorgehoben werden, dass die Krampfanfälle mit Midazolam schneller sistierten (im Mittel 8 Minuten vs. 15 mit Diazepam), dass Rückfälle seltener waren (14% vs. 33%), dass deshalb weniger Kinder eine intravenöse Zweitbehandlung brauchten (33% vs. 57%) und dass nur in 4% (Midazolam) bzw. 7% (Diazepam) der Fälle eine therapiebedürftige Atemdepression auftrat.

Rudolf Schlaepfer, La Chaux-de-Fonds

Multiple serotonergic brain-stem abnormalities in sudden infant death syndrome.

Paterson DS, Trachtenberg FL, Thompson EG et al. JAMA. 2006 Nov 1; 296(17): 2124–32.

Context: The serotonergic (5-hydroxytryptamine [5-HT]) neurons in the medulla oblongata project extensively to autonomic and respiratory nuclei in the brainstem and spinal cord and help regulate homeostatic function. Previously, abnormalities in 5-HT receptor binding in the medullae of infants dying from sudden infant death syndrome (SIDS) were identified, suggesting that medullary 5-HT dysfunction may be responsible for a subset of SIDS cases.

Objective: To investigate cellular defects associated with altered 5-HT receptor binding in the 5-HT pathways of the medulla in SIDS cases.

Design, setting, and participants: Frozen medullae from infants dying from SIDS (cases) or from causes other than SIDS (controls) were obtained from the San Diego Medical Examiner's office between 1997 and 2005. Markers of 5-HT function were compared between SIDS cases and controls, adjusted for postconceptional age and postmortem interval. The number of samples available for each analysis ranged from 16 to 31 for SIDS cases and 6 to 10 for controls. An exploratory analysis of the correlation between markers and 6 recognized risk factors for SIDS was performed.

Main outcome measures: 5-HT neuron count and density, 5-HT(1A) receptor binding

density, and 5-HT transporter (5-HTT) binding density in the medullary 5-HT system; correlation between these markers and 6 recognized risk factors for SIDS.

Results: Compared with controls, SIDS cases had a significantly higher 5-HT neuron count (mean [SD], 148.04 [51.96] vs 72.56 [52.36] cells, respectively; $P < .001$) and 5-HT neuron density ($P < .001$), as well as a significantly lower density of 5-HT(1A) receptor binding sites ($P < .01$ for all 9 nuclei) in regions of the medulla involved in homeostatic function. The ratio of 5-HTT binding density to 5-HT neuron count in the medulla was significantly lower in SIDS cases compared with controls (mean [SD], 0.70 [0.33] vs 1.93 [1.25] fmol/mg, respectively; $P = .001$). Male SIDS cases had significantly lower 5-HT(1A) binding density in the raphe obscurus compared with female cases (mean [SD], 16.2 [2.0] vs 29.6 [16.5] fmol/mg, respectively; $P = .04$) or with male and female controls combined (mean [SD], 53.9 [19.8] fmol/mg; $P = .005$). No association was found between 5-HT neuron count or density, 5-HT(1A) receptor binding density, or 5-HTT receptor binding density and other risk factors.

Conclusions: Medullary 5-HT pathology in SIDS is more extensive than previously delineated, potentially including abnormal 5-HT neuron firing, synthesis, release, and clearance. This study also provides preliminary neurochemical evidence that may help explain the increased vulnerability of boys to SIDS.

Commentaire

La mort subite du nourrisson: nouvelles perspectives étiologiques

Au cours de ces dernières années, plusieurs chercheurs se sont efforcés d'élucider la cause de ce dramatique événement que l'on décrit sous le vocable de «mort subite du nourrisson» (MSN). Il se manifeste par le décès soudain et sans cause apparente d'un enfant de moins d'un an et très souvent de sexe masculin. L'analyse des circonstances qui entourent ces MSN a mis en évidence plusieurs facteurs récurrents à savoir la position ventrale du bébé, une hyperthermie ambiante, un tabagisme passif dû à la fumée de tabac de l'un ou l'autre des parents. Plusieurs recherches suggèrent des anomalies et des dysfonctionnements chez l'enfant

lui-même. On a ainsi suspecté un seuil de réactivité immunitaire perturbé avec des taux anormaux de certaines cytokines cérébrales¹⁾ et occasionnellement une aberration chromosomique familiale.

On insiste actuellement sur l'aspect plurifactoriel de l'accident mortel. Très récemment des neuropédiatres du Children's Hospital de Boston ont examiné les cerveaux de 31 bébés décédés de MSN²⁾. Ils ont voulu vérifier si ces enfants étaient porteurs d'anomalies dans le système de production et d'utilisation de la sérotonine au niveau du bulbe rachidien, telles que l'avaient déjà suspecté antérieurement d'autres chercheurs. Leurs constatations confirment cette suspicion et mettent en évidence de nettes anomalies au niveau de la synthèse, de la libération et de la clearance de la sérotonine de certains neurones. Ces dysfonctionnements peuvent affecter certains réflexes cardio-respiratoires et expliquer une mort subite lorsque ces enfants sont soumis à des facteurs environnementaux délétères: la fumée de tabac en est un et non des moindres! C'est là un argument supplémentaire pour recommander impérativement à tous ceux qui ont la charge d'un enfant en bas âge de lui garantir un microclimat domestique optimal et exempt de toute substance toxique.

Quant aux anomalies et dysfonctionnements découverts jusqu'ici, il faudra encore les valider par d'autres recherches et en déduire, si possible, des interventions préventives efficaces.

Hubert S. Varonier, Crans-Montana

Kommentar

Der plötzliche Tod des Säuglings: neue etiologische Perspektiven

Im Verlauf der letzten Jahre haben mehrere Forscher versucht, die Ursachen dieses dramatischen Todes, im deutschen Sprachbereich als «sudden infant death» (SID) bezeichnet, zu erklären. SID erscheint uns als plötzlicher und unbegründeter Tod eines weniger als ein Jahr alten, meist männlichen Säuglings. Mehrere Risikofaktoren sind genannt worden: Bauchlage des Kindes, Ueberhitzung des Raumes, Passivrauchen. Gewisse Arbeiten weisen auf funktionelle Störungen oder Anomalien beim Kind selbst hin. Man hat ebenfalls eine gestörte Immuntoleranz mit auffälligen

zerebralen Zytokinspiegeln¹⁾ und seltener auch eine familiäre chromosomale Anomalie vermutet. Heutzutage glaubt man eine multifaktorielle Ursache des SID. Vor kurzem untersuchte das «Children's Hospital» in Boston Gehirne von 31, an SID gestorbenen Säuglingen²⁾. Es wurde nach Störungen im System der Serotoninsynthese und -Wirkung im Hirnstamm gesucht. Das Ergebnis bestätigt die Vermutung früherer Forscher, indem eindeutige Störungen der Serotoninsynthese, -Freisetzung und -Clearance in gewissen Neuronen nachgewiesen wurden. Solche Störungen können Reflexe des Herz-Lungensystems beeinflussen und einen plötzlichen Tod erklären, wenn diese Kinder schädlichen Umweltfaktoren ausgesetzt sind: und Tabakrauch ist nicht der mindeste! Diese Erkenntnis ist ein zusätzliches Argument, Kleinkindern ein angepasstes, von toxischen Substanzen freies, häusliches Mikroklima zu garantieren. Die bisher entdeckten Störungen müssen durch weitere Forschungen bestätigt werden, um daraus, wenn möglich, wertvolle Vorbeugungsmassnahmen ableiten zu können.

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