Session 2

Chairs: Leonid Roshal; Arthur Cooper; J. Peper

Experience of Anesthesiology Team in Disaster Medicine

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Objective: The aim of this study was to analyze the experience of an anesthesiology team working in disaster sites for use in increasing the efficiency of the provision medical aid.
Methods: During 1999–2006, a mobile, pediatric trauma-to-surgical team was sent to Turkey, India, Algeria, Pakistan, and Indonesia within 3–5 days after the onset of these disasters. The team provided specialized aid to children in these regions for 7–25 days. Ninety percent of the patients were children aged 2–17 years. The team worked in multi-profile hospitals equipped with necessary tools and personnel.
Results: Of the total treatments provided, 83% were intubation narcoses: 92% inhalation narcoses, and 8% intravenous. The remaining 7% were mask breathing with an oxygen and oxygen-nitrogen mixture—of these, 7% had spinal anesthesia. The range of surgical pathology was the following: (1) 80% were traumatological interventions; (2) 15% were combined (traumato-surgical); and (3) 5% were neurotrauma. Two periods of anesthesiologic needs were identified: (1) 2–10 days after the event; and (2) >10 days after the event.
Conclusions: For disaster medicine, early, specialized traumato-surgical help is a priority. A mobile, pediatric traumato-surgical team must be invited to the disaster site within the first 1–3 days. This period is a critical time to improve the outcomes of the treatments provided. The specificity of anesthesiologic supply is in the following: patients within the first 14 days after the trauma must have anti-shock treatment and general multi-component anesthesia. All extended dressings in children must be conducted under short-time mask anesthesia.

Keywords: anesthesiology; disaster response; pediatrics; supply; timing
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Closing the Gap: An Audit of Medical Management in Severe Pediatric Trauma

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Background: Severe pediatric trauma is uncommon and complex, which places hospitals and emergency personnel at risk of being poorly prepared for such events. A considerable variability in trauma care has been reported.
Methods: An audit of current practices in Flanders, Belgium was performed. The PENTA network prospectively collected detailed data on pediatric trauma patients in a representative sample of Flemish emergency departments in 2005. A total of 95 cases with an Injury Severity Scale Score of ≥13 were withheld for further evaluation. Two trained experts reviewed all cases for audit filters, based on the available literature. Filters only were withheld if there was 100% consensus. A total of 25% of the already studied cases were reviewed again at random by two other experts in order to assess inter-observer variability.
Results: In the 95 cases studied, 129 filters were identified as being 'suboptimal care", and 135 were classified as "definitely inadequate" care. A total of 25% of all identified filters were thought to have a direct impact on the patient. Specific difficulties were observed with cervical spine management (18/82 relevant cases), pCO2 and global respiratory management (38/95), fluid management (29/95), and analgesia (27/95). The agreement between the two panels was excellent for filters identified, yet only fair for the level of adequacy (suboptimal vs. definitely inadequate).
Conclusions: An audit was performed on medical care of pediatric trauma victims in Flemish emergency departments. Several problem areas were identified. Defining the barriers to "optimal" care and more performance-based teaching might have positive impact on the results.

Keywords: audit; Belgium; emergency department; medical care; pediatric trauma
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Pediatric Trauma Mortality by Type of Designated Hospital in a Mature Integrated Trauma System

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Introduction: The objective of the study is to compare in-hospital mortality for pediatric patients (age < 16 years) treated in four levels of trauma centers: pediatric trauma centers (PTC), regional secondary trauma centers (RSTC), secondary trauma centers (STC), and primary trauma centers (PRTC).
Methods: A retrospective analysis included 10,722 injured children treated between 1998 and 2005 in 59 trauma-designated hospitals. The Quebec Trauma Registry supplied sociodemographics, clinical data, and outcome. Multiple imputation was applied to handle missing physiological data. Logistic regression was used to compare mortality by type of trauma center, adjusting for age, Glasgow Coma Scale, systolic blood pressure, respiratory rhythm, and New Injury Severity Score.
Results: Pediatric trauma centers treated 53.8% of the children. Patients treated at this type of center were more often transferred from another hospital (73%) and were more severely injured. Primary trauma centers treated 4.4%, 16.7%, and 25.1 % of the children respectively. Using a logistic regression model, the risk of mortality was substantially higher for children treated at PRTC (odds ratio = 13.3; $p = 0.0036$), STC (odds ratio = 9.3; $p < 0.0001$), and RSTC (odds ratio = 2.5; $p = 0.012$) as compared with children treated at PTC. Except for RSTC, better outcomes at PTC were also observed among the sub-group of children who were more severely injured and those with traumatic brain injuries.

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Conclusions: The improved outcome for children treated at PTC suggests that the most seriously injured pediatric trauma patients should be rapidly transferred to PTC.

Keywords: hospital; mortality; pediatric; trauma
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Transportation of Critically Ill Neonates: Experience, Training, and Participation

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Objective: The objective of this study was to survey the experience, training, and confidence in the transportation of critically ill neonates among nurses, interns, residents, and fellows in three main pediatric training centers in Tehran, Iran.
Methods: Questionnaires consisting of eight questions regarding the transportation and resuscitation of critically ill neonates were completed by nurses from the emergency ward, pediatric ward, neonatal intensive care unit, and pediatric intensive care unit. Surveys also were completed by pediatric ward interns, residents, and fellows of the three main pediatric training centers of Tehran between 2005 and 2006. Additional questions obtained participant demographics.
Results: Between 63% and 69% of the survey participants were involved in the transport of neonates. Approximately half of the survey participants reported passing the resuscitation functional training course. Only 50% of participants received training in neonatal and pediatric emergencies. The majority of the study participants assessed their ability to transport ill neonates and children and resuscitate children in cardiopulmonary arrest and pediatric emergencies as good or very good. Pediatric ward interns had the least self-confidence in their abilities. Of the interns surveyed, 53.3% evaluated their skills in transporting and handling critically ill neonates and children as unsuitable or very unsuitable.
Conclusions: Training in emergency transport and management of critically ill neonates and children with emergency issues is necessary for all medical personnel involved in their care.

Keywords: children; education; neonates; training; transportation
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Pediatrics and Persons with Disabilities Emergency Preparedness Guidelines and Recommendations: Findings from an Evidenced-Based Consensus Process

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A cadre of experts and stakeholders from government agencies, professional organizations, emergency medicine and response, pediatrics, mental health, and disaster preparedness were gathered to review and summarize the existing data on emergency preparedness. Specifically, they looked into the needs of two vulnerable populations, children and persons with disabilities, in the planning, preparation, and response to disasters, public health emergencies, and terrorism. This review was followed by the development of evidence-based consensus guidelines and recommendations.

An evidence-based consensus process was used in conjunction with a modified Delphi approach for selection of topic areas and discussion points. These recommendations and guidelines represent the first national, evidence-based standards for emergency preparedness for these two vulnerable populations. There were four goals of this process: (1) To build a collaboration among individuals with expertise in pediatrics, pediatric emergency medicine, pediatric critical care, pediatric surgery, and emergency management (including disaster planning, management, and response) and collaboration among individuals with expertise in person with disabilities and emergency management; (2) To review and summarize the existing data on the needs of these two populations in emergency planning, preparation, and response; (3) To develop evidence-based guidelines and recommendations, as well as an evidenced-based consensus guidelines for dealing with gaps in the evidence on the needs of these two populations; and (4) To create a research agenda to address knowledge gaps based on the limited data that exist on the needs of these two populations.

The final recommendations developed focused on eight major areas.

Keywords: collaboration; evidence-based guidelines; pediatrics; persons with disabilities; planning
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Poster Presentations—Theme 11: Pediatrics

(165) Iraqi Children and Trauma

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In recent decades, Iraqi children have experienced multiple traumatic events. These traumatic experiences can have terrifying effects on mental health. Children have experienced emotional, physical, and sexual abuse, neglect, separation and loss, and serious illnesses. They have witnessed extreme violence, and the illnesses and deaths of their loved ones. In spite of the difficult situation, a non-governmental organization called the Iraqi Association for Child and Adolescent Mental Health was established.

Keywords: children; Iraq; mental health; psychosocial; trauma
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(166) Deciding Factors for Mortality in Children with Gastroschisis and Omphalocele, Underlying Transportation

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Children with gastroschisis and omphalocele are delivered to the Regional Children's Hospital by first-aid aircraft from very remote villages, and by ambulance from the city

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