

Table: Patient characteristics and outcome after DRCA.

	Hypoxia group 51 (36%)	Normoxia group 60 (43%)	Hyperoxia group 29 (21%)	p value
<b>PATIENT CHARACTERISTICS</b>				
Age (years)	0.5 (0.1-2.6)	1.5 (0.4-3.8)	3.8 (0.4-13.2)	0.03
Sex (Male)	55 (85%)	53 (55%)	19 (66%)	0.43
Duration of cardiac arrest (mins)	37 (20-58)	37 (24-47)	41 (21-50)	0.71
Unresponsive pupils	27 (53%)	34 (57%)	19 (66%)	0.65
Probability of death (PIM 2)	0.90 (0.42-0.96)	0.85 (0.31-0.96)	0.86 (0.39-0.94)	0.71
<b>OUTCOME</b>				
Survival	19 (37%)	16 (27%)	4 (14%)	0.08

Number (percentages) or Median (inter-quartile ranges). PIM 2: Paediatric index of Mortality score.

**Conclusions** This study has observed a difference in survival related to oxygen tension status, with a trend to worsening survival from hypoxia through to hyperoxia. Confirmation of this preliminary finding is required in a larger cohort before embarking on a randomised controlled trial.

### 807 HYPOCORTISOLEMIA IN SICK CHILDREN ON PAEDIATRIC INTENSIVE CARE UNIT (PICU): TRANSIENT OR CAUSE FOR CONCERN

doi:10.1136/archdischild-2012-302724.0807

<sup>1</sup>H Bentur, <sup>1</sup>S Mahoney, <sup>2</sup>J Blair. <sup>1</sup>Paediatric Intensive Care; <sup>2</sup>Paediatric Endocrine, AlderHey Children's NHS Foundation Trust, Liverpool, UK

**Background and Aims** Cortisol insufficiency has been reported in sick children with severe sepsis, post-cardiac surgery, and may contribute to rapid cardiovascular collapse. Hypothalamic-pituitary-adrenal axis dysfunction may play a role in low-cardiac-output syndrome. We performed a review of PICU patients to describe cortisol levels in those with suspected adrenal insufficiency.

**Methods** Retrospective review of PICU patients (general and cardiac cases) over 6 months from April to September 2011, who had cortisol levels checked and/or received hydrocortisone.

**Results** Total PICU admissions were 519, of which 30(5.7%) patients had cortisol levels. Most common indication for cortisol assessment was refractory hypotension (73%) in cardiac and sepsis patients. 12/30(40%) had cortisol levels < 500nmol/L (suboptimal response to stress), and 2/12 had undetectable cortisol levels. Of 12 with low cortisol, 50% were post-operative cardiac neonates and 50% were mix of other post-operative and chronic illness, 75% were hypotensive on inotropes and one-third of these received hydrocortisone in PICU. Hydrocortisone dose used was variable. None of the septic children had low cortisol in our study group. 50% of hypocortisolemia patients were followed up by endocrine team and had normal cortisol levels on follow-up. 10/30(33%) patients with suspected adrenal insufficiency died (50% had hypocortisolemia).

**Conclusions** Our data shows that hypocortisolemia can be transient in sick PICU patients, and may play a role in low-cardiac-output syndrome. There is a need to identify these complex patients with high mortality, and have a uniform management policy jointly with advice and follow-up by the Endocrine team.

### 808 UNPLANNED READMISSION TO THE PAEDIATRIC INTENSIVE CARE UNIT (PICU). CAN IT BE PREVENTED?

doi:10.1136/archdischild-2012-302724.0808

D White, H Coscrato Bachmayr. Paediatric Intensive Care Unit, Cambridge University Hospitals NHS Foundation Trust, Cambridge, UK

**Background and Aims** It is known that patients readmitted to the PICU during the same hospitalization have significantly adverse outcomes<sup>1</sup>. Prevention of unplanned readmissions to the Paediatric

Intensive Care Unit (PICU) is a key factor when considering the quality of care received by our patients.

**Methods** All admissions to the PICU during 2011 were examined and all readmissions to the unit were identified. A readmission was defined as those requiring PICU < 48 hours following discharge. Patients who were readmitted for an elective procedure within the specified time were discounted.

**Results** During 2011, 511 children had 615 admissions to the PICU. 12 children were readmitted for acute care having deteriorated in the ward setting. 2 of the 12 children required 2 readmissions. 5 of the readmissions took place between April and September. The remaining 9 occurred during October to March.

**Conclusions** It remains a subject of debate as to whether or not any of the readmissions could have been avoided as hindsight is always easy. With nearly double the amount readmissions occurring during the winter months, it could be argued that the children were discharged prematurely due to bed pressures. This a serious concern and one which we will continue to monitor.

1. Odetola et al 2007 *Pediatr Crit Care Med*. Going back for More.

### 809 PROSPECTIVE STUDY OF PEDIATRIC CARDIAC ARREST IN EUROPEAN AND LATINOAMERICAN INTENSIVE CARE UNITS

doi:10.1136/archdischild-2012-302724.0809

<sup>1,2</sup>J del Castillo Peral, <sup>3</sup>J López-Herce, European Latinoamerican Study Group of Cardiac Arrest in Children. <sup>1</sup>Servicio de Cuidados Intensivos Pediátricos, Hospital General Universitario Gregorio Marañón; <sup>2</sup>Red Iberoamericana de Estudio de la Parada Cardíaca en la Infancia; <sup>3</sup>Hospital General Universitario Gregorio Marañón, Madrid, Spain

**Objective** To study the characteristics of cardiac arrest (CA) and the results of resuscitation in pediatric intensive care units (PICU).

**Patients and methods:** Prospective, international, multicentric study. Children between 1 month and 18 years who suffered CA in the PICU were included. Sustained return of spontaneous circulation (ROSC) and survival at hospital discharge were analyzed.

**Results** 304 CA episodes in 250 patients were registered, 96 (31.6%) in latinoamerican and 208 (68.4%) in European hospitals. Mean age was 47.9 months, mean weight 16.4 kg and 55.6% males. The most common causes of CA were cardiac (35.9%), respiratory (31.6%) and sepsis (15.3%). ROSC was attained in 68.1% of the cases but only 40.4% survived. ROSC was higher in European 75.9% than in Latinamerican 55.4% PICUs (p=0.001). Patients with good neurological scales before CA (PCPC <=2) had significantly higher ROSC rates (74.5% vs 33.3%; p=0.006). Patients who had suffered a previous CA had lower ROSC percentages (51.7% vs 71.1%; p=0.03). Respiratory and cardiac CA have higher survival rates (40% and 56.3%) than sepsis (13.5%), and neurologic and traumatic causes (31.7%) (p<0.001). Initial respiratory arrests achieved higher survival rates than primary CA (49% vs 35.1%; p=0.029). Patients previously receiving inotropic drugs survived less than those who received no medication (31.3% vs 58%; p<0.001).

**Conclusions** Although 68% of patients who suffered a CA attained ROSC only 40% of them survived. Etiology of CA, type of initial arrest and previous treatment with inotropics influence survival in PICU cardiac arrest.

### 810 MORBIDITY AND MORTALITY IN CRITICALLY ILL CHILDREN WITH SPONTANEOUS INTRACEREBRAL HEMORRHAGE

doi:10.1136/archdischild-2012-302724.0810

S Stabouli, A Violaki, E Volakli, S Kalamitsou, M Kotsiou, M Sdougka. PICU, Hippokraton Hospital, Thessaloniki, Greece

**Background and Aims** Spontaneous intracerebral hemorrhage (ICH) accounts for approximately half of stroke in childhood with

an incidence around 1/100 000/year. We studied the characteristics and outcome in PICU patients with ICH.

**Methods** Children with ICH admitted to PICU during 2000–2010, were retrospectively studied. Clinical information was abstracted via chart review.

**Results** 21 consecutive cases, aged  $5.6 \pm 4.5$  years, 12 girls, were analyzed. 70% of the children presented with vomiting, 55% with seizures, 38% with headache and 9.6% with focal neurological signs. Mean Glasgow Coma Scale (GCS) before intubation was  $7.33 \pm 2.45$ . In 66.6% emergent evacuation of hematoma or hydrocephalus at admission was performed. 23.5% had an arteriovenous malformation (AVM) and 15% of these children underwent embolization for AVM obliteration. Mortality was found 19%. Patients who died had lower GCS ( $4.75 \pm 2.06$  vs.  $7.9 \pm 2.16$ ),  $P < 0.05$ , higher PRISM III-12 (first 12 hours from admission), ( $21.5 \pm 8.1$  vs.  $7.8 \pm 7.7$ ),  $P < 0.005$ , higher PRISM III-24 (next 12 hours), ( $17.2 \pm 8.3$  vs.  $5.2 \pm 5.1$ ),  $P < 0.001$ , and longer  $\alpha$ PTT,  $P < 0.01$  than those who survived. Patients who needed inotropic support the 1st day of PICU stay had 12 times greater mortality than children who didn't need inotropic support. Among survivors 68.7% presented neurologic deficit at PICU discharge. Children with neurologic deficit had lower GCS ( $6.8 \pm 1.6$  vs.  $10 \pm 1.5$ ),  $P < 0.005$  than those without deficit.

**Conclusions** As outcome is dismal in children with ICH and critical illness at presentation, low GCS, high PRISM III and need for inotropic support, prompt diagnosis seems essential to improve prognosis in these children.

#### 811 USEFULNESS OF THE PRISM III SCORE TO PREDICT OUTCOME IN CRITICALLY ILL CHILDREN WITH VAP

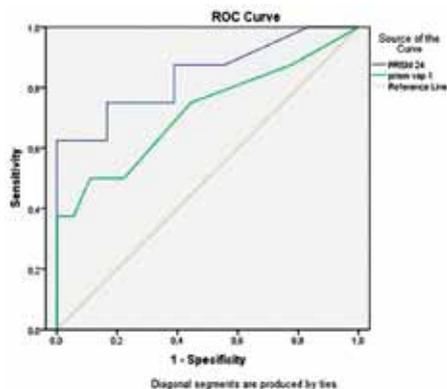
doi:10.1136/archdischild-2012-302724.0811

S Stabouli, E Volakli, A Violaki, A Tsolaki, M Dimitriadou, K Skoumis, M Sdoungka. *PICU, Hippokraton Hospital, Thessaloniki, Greece*

**Background and Aims** Ventilator-associated pneumonia (VAP) is associated with increased length of stay and adverse outcomes in PICU patients. In a retrospective study, we examined if PRISM III score at admission or at the day of VAP development could better predict the outcome in patients with VAP.

**Methods** The medical records of PICU patients admitted to a 8-Bed PICU of a tertiary-care hospital from January–December 2011 were reviewed. Clinical data, PRISM III score at admission or at the day of VAP development were recorded. VAP was diagnosed according to CDC criteria.

**Results** 27 patients, mean age  $4.40 \pm 4.23$  years, 59.3% boys, developed VAP. 4 patients presented 2 VAP episodes. Mean PRISM III score at admission was  $10.19 \pm 7.65$ , at the day of first VAP episode  $7.31 \pm 6.94$ , and at the day of 2nd VAP episode  $4.75 \pm 3.60$ . The receiver operator characteristic curve (ROC) analysis showed that PRISM III at admission could better predict mortality in PICU patients with VAP than PRISM III at the day of VAP episode. (Figure 1).



Abstract 811 Figure 1

The area under the curve was found 0.85 (asymptotic 95%CI 0.59 to 1,  $P < 0.01$ ) for PRISM III at admission and 0.72 (95%CI 0.48 to 0.95,  $P = 0.081$ ) for PRISM III at VAP episode.

**Conclusions** PRISM III at admission could better predict mortality in PICU patients with VAP than PRISM III at the day of VAP episode suggesting that VAP may not independently affect mortality.

#### 812 CARDIOPULMONARY ARREST IN PEDIATRIC EMERGENCY CARE AND INTENSIVE CARE: A MULTICENTER STUDY IN TURKEY

doi:10.1136/archdischild-2012-302724.0812

<sup>1</sup>T Kendirli, <sup>2</sup>N Erkek, <sup>3</sup>T Köroğlu, <sup>4</sup>B Bayrakçı, <sup>5</sup>A güzel, <sup>6</sup>A Çıtak, <sup>7</sup>D Demirkol, <sup>8</sup>H Ağın, <sup>9</sup>AE Arslanköylü, <sup>10</sup>NO Kutlu, <sup>11</sup>Ş Paksu, <sup>12</sup>AB Anıl, <sup>13</sup>G Kalkan, <sup>14</sup>D Yıldızdaş, <sup>15</sup>M Duman, <sup>16</sup>R Dündaröz, <sup>17</sup>N Aşlıoğlu, <sup>17A</sup> Yaman, <sup>18</sup>S Kesici, <sup>18D</sup> Tekin, <sup>19</sup>O Dursun, <sup>17Ç</sup> Ödek, <sup>20</sup>C Ateş, <sup>21</sup>HL Yılmaz, <sup>17E</sup> İnce, <sup>7M</sup> Karaböcücüoğlu. <sup>1</sup>Pediatric ICU, Ankara University; <sup>2</sup>Dr. Sami Ulus Hospital, Ankara; <sup>3</sup>Dokuz Eylül University, Izmir; <sup>4</sup>Pediatric ICU, Hacettepe University, Faculty of Medicine, Ankara; <sup>5</sup>Pediatric Emergency Care, Ondokuz Mayıs University, Samsun; <sup>6</sup>Pediatric ICU, Istanbul University Istanbul Medical Faculty; <sup>7</sup>Pediatric ICU, Bezmialem University, Istanbul; <sup>8</sup>Pediatric ICU, Behçet Uz Children's Hospital, Izmir; <sup>9</sup>Pediatric ICU, Mersin University, Mersin; <sup>10</sup>Pediatric ICU, Meram Faculty of Medicine, Konya; <sup>11</sup>Pediatric ICU, Ondokuz Mayıs University, Samsun; <sup>12</sup>Pediatric ICU, Tepecik Children's Hospital, Izmir; <sup>13</sup>Pediatric ICU, Gazi University Faculty of Medicine, Ankara; <sup>14</sup>Pediatric ICU, Çukurova Faculty of Medicine, Adana; <sup>15</sup>Pediatric emergency care, Dokuz Eylül University, Izmir; <sup>16</sup>Pediatric Emergency Care, Bezmialem University, Istanbul; <sup>17</sup>Pediatric ICU; <sup>18</sup>Pediatric Emergency Care, Ankara University, Faculty of Medicine, Ankara; <sup>19</sup>Pediatric ICU, Akdeniz University, Antalya; <sup>20</sup>Biostatistics, Ankara University, Faculty of Medicine, Ankara; <sup>21</sup>Pediatric Emergency Care, Çukurova University Faculty of Medicine, Adana, Turkey

**Background and Aim** The most cause of cardiopulmonary arrest (CPA) is respiratory system disorders. Usually the survive from CPA is 30% in hospital and under 10% in out of hospital. The aim of this study, the cause of CPA, applications and results of CPA in pediatric ICU and emergency care in Turkey.

**Methods** This study conducted between January 15 and July 15, 2011, multicenter, prospective, observational from Turkey.

**Results** We enrolled 239 children whose CPA developed. Fifty-four percent of all patients were boy and their mean age were  $42.4 \pm 58.1$  months. The causes of CPA were respiratory failure in 49.8%, sepsis in 30.1%, cardiac disease in 21.3% and rhythm disorders in 8.8%. The place of CPA occurred were PICU in 68.6%, services in 18%, out of hospital in 10% and emergency care in 3.3% of patients whose CPA developed. Adrenalin was performed in 221, defibrillation in 16 and automatic external defibrillation in patients. Mean resuscitation time was  $30.7 \pm 23.6$  minutes. Return percent after first resuscitation application was 44.8%. We check to mortality rate after first resuscitation 43.3% in PICU, 41.9% in services, 50% in Emergency Care, 41.7% at out of hospital ( $p = 0.539$ ). The 83% of them were unconsciousness, renal replacement therapy was applied in 16 patients. After first resuscitation, 54.2 patient survived and neurologic sequelae was in 32% of them.

**Conclusion** Mortality and morbidity are higher either hospital and out of hospital CPA, therefore prevention to CPA and well resuscitation applications are very important.

#### 813 PALLIETERBURGH: DEVELOPMENT OF A HIGH DEPENDENCE TRANSITIONAL CARE UNIT

doi:10.1136/archdischild-2012-302724.0813

<sup>1</sup>M Smit-van den Berg, <sup>1</sup>C Joosen, <sup>2</sup>D Tibboel, <sup>1</sup>E Ista, <sup>2</sup>S Gischler. <sup>1</sup>PICU; <sup>2</sup>PICU and Department of Pediatric Surgery, Erasmus MC - Sophia Children's Hospital, Rotterdam, The Netherlands

**Background** Ongoing advances in paediatric intensive care led to increased survival, with increased morbidity and long-lasting sequelae.