974 PICU OUTREACH EDUCATION IMPROVES LOCAL MANAGEMENT OF STATUS EPILEPTICUS (SE)

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Background and Aims In september 2011 results of an audit on the acute management of SE in referring hospitals highlighting safety and feasibility of extubation in some children avoiding transfer to PICU were presented. We re-audited practice to determine whether education had an effect on local extubation rates.

Methods Audit of referral forms with a diagnosis of "seizures", "SE", "fit/fitting," "convulsion" and "epilepsy" from 1 September 2011 till 1 April 2012. Review of discharge summaries and notes of patients transferred to PICU.

Results 56 referrals for seizures (48 patients) in the 7 month period. At referral, 49 patients were intubated. 30 of 49 intubated patients were transferred to PICU, 19 extubated locally. 15 of 30 retrieved and 6 of 15 extubated patients had epilepsy.

Reasons for not attempting extubation included: ongoing seizures (2), Petechial rash (2), transfer for expert opinion (1), previous failed extubation (2) and refusal to assess (2).

All patients managed locally extubated within 6 hours. Extubation in PICU was after < 6 (4), < 12 (7), < 24 (11) or >24 hours (3), data unavailable in 4.

1 patient was re-intubated locally because of further seizures.

Conclusions We found an increase in safe extubations: 18.9% prior and 38.7% after. This re-audit indicates that outreach education by PICU retrieval teams can achieve change in practice. It reconfirms that patients with SE transferred to PICU have a short duration of intubation. Refusal to assess feasibility of extubation by the local hospital can no longer be considered good medical practice.

975 PERIPHERAL TISSUE NIRS OXIMETRY: REPRODUCIBILITY AND DYNAMIC RANGE OF INVOS 5100C, NONIN EQUANOX, AND FORE-SIGHT

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Background and Aims Near infrared spectroscopy (NIRS) could be a valuable tool in the NICU, but implementation into standard clinical care has yet to been seen. Different absolute values and dynamics of different devices and poor reproducibility could be the cause. Present study is a comparison between the adult sensors of INVOS 5100C, FORE-SIGHT and NONIN EQUANOX 7600.

Methods 10 repositionings on the same spot and 10 repostionings on slightly differing spots during steady state on the adult forearm followed by 6 cuff inflations to 250 mmHg and subsequent tissue deoxygenation. Reproducibility was estimated by the within-subject standard deviation, S_w, and dynamic range by the difference between the pre- and post-cuff inflation $rStO_2$, $\Delta rStO_2$.

Results 10 adults participated. All with double skinfold less than 10 mm.

Mean $rStO_2$ was 71.1% (CI 68.4–73.9%), 68.1% (CI 65.2–71.0%), and 65.1% (95% CI 63.3–67.0%) with INVOS, NONIN, and FORE-SIGHT, respectively. INVOS gave significantly higher values than FORE-SIGHT (p=0.003). All other differences were insignificant.

Reproducibility of FORE-SIGHT was best, while the reproducibility of NONIN was worst (table 1). Same-site reproducibility and various-site reproducibility was equal.

In pairwise comparisons $\Delta rStO_2$ of NONIN, INVOS and FORE-SIGHT were significantly different (all p<0.0001)(table 2).

The signal-to-noise ratio, i.e., $\Delta rStO_2/S_w$ was 17.6, 14.5, and 12.5 for FORE-SIGHT, INVOS and NONIN, respectively.

Conclusion The different absolute values and dynamic ranges will make comparison of data collected with different devices difficult.

Table 1. Reproducibility of the NIRS devices

	Same site		Various sites		Overall	
	S_w(%)	CI (%)	S_w(%)	CI (%)	S_w(%)	CI (%)
INVOS	2.9	2.4-3.3	3.6	3.0-4.1	3.2	2.9-3.6
NONIN	4.6	3.9-5.3	3.8	3.3-4.4	4.2	3.8-4.7
FORE-SIGHT	2.0	1.7-2.3	2.4	2.0-2.7	2.2	2.0-2.4

Table 2. Dynamic range of the NIRS devices

	$\Delta rStO_2$ (%)	CI (%)
INVOS	46.6	44.9-48.2
NONIN	52.7	49.9-55.4

976 CYCLOSPORINE-ASSOCIATED THROMBOTIC MICROANGIOPATHY AND THROMBOCYTOPENIA-ASSOCIATED MULTIPLE ORGAN FAILURE: A CASE SUCCESSFULLY TREATED WITH THERAPEUTIC PLASMA EXCHANGE

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Introduction Thrombotic microangiopathy (TMA) is characterized by microvascular thrombosis, thrombocytopenia, and microangiopathic hemolytic anemia. Thrombotic thrombocytopenic purpura (TTP), hemolytic-uremic syndrome (HUS), and disseminated intravascular coagulation (DIC) are responsible from most of these cases. Secondary TMA syndromes are associated with sepsis/infection, cancer, transplantation, autoimmune diseases, and drugs. Studies showed that cyclosporine (CSA) is associated with TMA but the number of reported cases are very small.

Case Report A 13-year-old girl was adimitted to the pediatric intensive care unit (PICU) with multiple organ failure. She was diagnosed with polyglandular deficiency syndrome at an outside facility and had a history of celiac disease, autoimmune thyroiditis, and diabetes mellitus type I. CSA was started seven months before our PICU admission for persistent diarrhea. In PICU admission the patient was thrombocytopenic, anemic and she had multiple organ failure (renal, cardiovascular, hepatic, respiratory, and hematologic). Laboratory and clinical findings were consistent with TMA and TAMOF. TTP, HUS, DIC, and sepsis ruled out. We thought that CSA was the cause of TMA and TAMOF. CSA was stopped and five days of therapeutic plasma exchange (TPE) procedure performed. With TPE the patient improved clinically. Laboratory findings were normalized and after five days of TPE, TMA and MOF dissolved.

Conclusion CSA can be associated with TMA and TAMOF. The most commonly used strategy in treatment is the discontinuation of CSA. The experience in this case indicates that TPE may be effective in treatment of CSA-associated TMA and TAMOF especially in the presence of systemic TMA and MOF.

977 THE CLINICAL CHARACTERISTICS AND MICROSURGERY FOR TUMORS IN THE FOURTH VENTRICLE TUMORS IN CHILDREN

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Background and Aims We investigate the clinical characteristics and the microsurgery for tumors in the fourth ventricle tumors in children.
Methods The clinical data of 18 cases of pediatric fourth ventricular tumor were prospectively analyzed. The main clinical manifestations were headache (16 cases), vomiting (6 cases), visual impairment and positive Romberg sign. The imagination examination showed the tumor was in fourth ventricle, diametered from 2.5cm to 7cm. On CT or MRI, all the patients manifested with hydrocephalus.
Results Operation was carried out under microsurgical conditions. According to the size and the position the tumor, different operation approach was performed. Median suboccipital approach was adopted for 6 cases, and cerebellomedullary fissure approach for 12 cases. The bone window was 4cm×3cm. Total removal of the tumor was made for 16 cases, subtotal removal for 2 cases. Eight patients had external ventricular drainage during operations. The postoperative pathology finding were as follows. There were 13 cases of medulloblastoma, 2 cases of hemangioblastomas, 2 cases of ependymomas, and I case of pilocytic astrocytoma. Postoperative radiotherapy was achieved for 11 patients. The main symptoms were all improved for all patients. There were no complications and recurrence of tumors after follow-up of 2 years.
Conclusions According the size, the position and the pathological findings, the combined therapy is essential, and microsurgery is effective for tumors in the fourth ventricle tumors in children.

978 WITCH DRUGS CHOOSE FOR SEDATION FOR COMPUTED TOMOGRAPHY IMAGING IN PEDIATRIC PATIENTS, MIDAZOLAM OR PROPOFOL?

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Objective To compare safety and efficacy between propofol and midazolam as sedative agents for computed tomography Imaging (CT) in children.
Material and Methods Clinical trial prospective which included 149 children who are sedated either with propofol or midazolam over 6 months period. All children below 6 years were sedated and had I-III ASA. The level of sedation, induction time, efficacy and adverse events were recorded.
Results 66 children are sedated with midazolam (mean age: 1.8years. sex ratio 0.8) and 83 children were sedated with propofol (mean age was 1.9 years; sex ratio O,6). of the 149 procedures, 76% brain, 18.1 chests, and 4.7% abdomen were scanned with mean duration for midazolam 6.8min and for propofol 7.3min and with the mean dose for midazolam 0.31mg/kg and for propofol 1.66 mg/kg. the Ramsay sedation scale for midazolam was 2–4 and for propofol was 4–5 (p<0,001). The induction time with midazolam was 3.2±3.8min and 2.9±2.5min with propofol. The completion of CT was 80% for midazolam and 95% for propofol (p<0,001). Desaturation was similar between these two drugs. The intervention needed is just the administration of supplemental oxygen. The mean duration of sedation and recovery were also similar.
Conclusion Midazolam and propofol have similar efficacy and safety for computed tomography imaging imaging in children.

979 TRANSCRANIAL DOPPLER (TCD) IN SEVERE TRAUMA BRAIN INJURIES (TBI) IN PEDIATRIC INTENSIVE CARE UNIT (PICU) IN ALGERIA. PRELIMINARY RESULTS

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Background and Aims TCD is a non invasive cerebral circulation monitoring tool by evaluation of cerebral blood flow velocities in the circle of Willis.
The Aim is to show what extent the TCD allows to detect the intracranial hypertension and test the hypothesis that in children with severe TBI, there is a correlation between intracranial pressure (ICP) and TCD values.
Methods Data were prospectively collected from consecutive TCD studies in children with severe TBI undergoing ICP monitoring. For each examination of the TCD we measured the systolic, diastolic and mean velocities respectively, and we calculated the pulsatility index (PI). Middle cerebral artery through the temporal window was used for examinations of the TCD. For each patient 2–4 Doppler examinations have been recorded systematically and at ICP peaks.
Results 58 children underwent 232 TCD. There was a weak relationship between mean values of ICP and PI. Any increase in ICP above 20 mmHg was accompanied by a PI > 1.4 with a diastolic velocity < 30 cm/s. The CPP is comparable to the figures estimated by CPP with TCD.
Conclusion TCD has become an essential tool in the management of children for diagnosis of intracranial hypertension. Its use as in particular following traumatic brain injury, and confirmation of a clinical diagnosis of brain death by documentation of cerebral circulatory arrest. Pulsativity index (PI) and diastolic velocity (Vd) give sufficient information to evaluate the resistance status of small downstream arteries and an indicator cerebral hypoperfusion.

980 TRANSCRANIAL DOPPLER MONITORING IN TRAUMATIC BRAIN INJURY IN CHILDREN

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Background and Aims Intracranial hypertension is a serious complication of traumatic brain injury (TBI) in children and adversely affects outcome. Monitoring intracranial pressure (ICP) requires an invasive procedure. The aim of this study was to evaluate the accuracy of a noninvasive method of estimating ICP - transcranial Doppler (TCD) derived Pulsatility Index (PI) - when compared to invasive ICP measurements.
Methods Children admitted to our pediatric intensive care unit with severe TBI and ICP invasive monitoring during the study period (Aug 2008 to Mar 2012) were included in the study. TCD was done in all children and PI calculated.
Results Eighteen children met the inclusion criteria. Male:female ratio was 2.6:1. Mean age at admission was 8.7 years (14 months-17 years). Mortality rate was 11% (2/18). Mean PRISM score was 19 with a predicted mortality rate of 28%. All patients except one had ICP>20 mmHg, with a mean highest ICP of 37 mmHg (16–50). The first measurement of PI had a mean of 1.23 (0.55–2.95). There was a significant correlation between the first PI and corresponding ICP (Pearson correlation coefficient of 0.78; p<0.0001). When all PI were considered (41 measurements) the correlation was not significant. After excluding TCD with signs of vasospasm the correlation was again significant (r=0.67, p<0.001).
Conclusions PI is a non invasive method of evaluating ICP with a strong correlation with invasive ICP measurements at admission. After a few days other factors like vasospasm must be taken into consideration when interpreting PI values.