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THE CLINICAL SIGNIFICANCE OF TESTING FOR ADHERENCE IN COAGULASE- NEGATIVE STAPHYLOCOCCI

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Adherent strains of coagulase negative staphylococci (C-NS) were reported to be more pathogenic and resistant to antibiotics and to appear later during hospitalisation than non-adherent ones. Aim of this prospective study was to correlate adherence of C-NS with clinical sepsis and antibiotic resistance and to correlate the time of appearance of adherent with non-adherent strains. Sixty-one C-NS strains isolated from blood cultures in 55 newborns between 1991 and 1993 were included in the study. Adherence was determined according to the qualitative method of Christensen (1982).
Of 61 episodes of positive blood cultures 38 (62%) strains had adherence test positive, 41/61 (67%) of episodes were associated with clinical and laboratory signs of sepsis. Of C-NS with positive adherence 28/38 were associated with sepsis, whereas in C-NS with negative adherence 13/23 were associated with sepsis (differences NS, p=0.27). Of C-NS with positive adherence 31/38 were resistant to at least three antibiotics (methicillin, gentamycin and chloramphenicol), whereas in C-NS with negative adherence 13/23 were resistant to antibiotics (differences NS, p=0.069). No difference was found in the median day of appearance between adherent and non-adherent strains (6th vs. 13.5 th day, p=0.415). In this study we did not find significant differences between adherent and non-adherent strains of C-NS.

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Assessing performance of paediatric intensive care.

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Performance of a 10 bed paediatric intensive care unit (PICU) in a university children's hospital was assessed in a prospective cohort study of unselected, consequtive admissions. Collected data included primary clinical specialty, PRISM score derived mortality risk, administration of PICU-dependent therapy and vital status at discharge. Effectiveness of care was determined by comparing severity of illness based predicted mortality with vital status at discharge. Efficiency was determined by the administration of at least one PICU-dependent therapy *or* mortality risk exceeding 1%. 593 patients were included, PICU mortality was 8.4%. The overall performance of the PRISM score based predictive model was found to be well (goodness-of-fit test $X^2(5)=5.49$, $p=0.33$; area under ROC-curve 0.92), indicating good effectiveness of care. Overall 489 of 593 (82.5%) admissions were efficient, as were 2393 of 3130 (76.5%) PICU days. In cardiovascular surgery patients 800 of 927 (86.3%) PICU days were efficient, in non-surgical patients 1421/1855 (76.6%), and in other surgery patients 172/347 (49.6%).
In conclusion, performance of paediatric intensive care could be determined using objective criteria (mortality risk and administration of PICU-dependent therapy), allowing inter-institutional comparative assessment of quality of care in the future.

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PROSPECTIVE SURVEY OF ARDS IN CHILDREN

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In order to identify the incidence and natural history of ARDS in children, a prospective survey was conducted in German paediatric intensive care units by questionnaire in 1993. So far, 39 patients beyond the neonatal period have been reported who fulfilled the predetermined criteria of ARDS. Median age was 23 months, range 1 month to 20 years. ARDS was associated with a primary pulmonary disease (predominantly infectious pneumonia) in 17, with an extrapulmonary disease in 12 and with a mixed pulmonary / extrapulmonary lesion in 9 patients. 5 Patients had aquired immunodeficiency. The predominent ventilatory mode applied was pressure controlled ventilation. ECMO was used in 5, HFOV in 2 and nitrous oxide in 2 patients. The mortality rate of 54% (21/39) corresponded to published data. Multiple organ system failure was a major complication of ARDS the number of affected systems being correlated to outcome. The data of this survey can be used as a basis for prospective multicenter trials of new treatment modalities which are urgently needed to improve the poor prognosis of ARDS in children.

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SPECTROPHOTOMETRIC MEASUREMENT OF FETAL HEMOGLOBIN(HbF) IN TERM AND PRETERM NEWBORNS: NORMAL VALUES AND RELATION TO INTRA-AND EXTRAUTERINE VARIABLES (DISEASES, DIAGNOSTICS, GESTATIONAL AGE)

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OJECTIVE: Spectrophotometric analysis of HbF can now be obtained from 30µl blood with the OSM 3 (Radiometer). No normal values of HbF in larger groups of preterm and term infants, the influence of HbF on pulse-oximetry readings,and the relation of HbF to the practice of intensive care as to diseases as BPD, maternal smoking etc. have been determined yet (1).
METHODS: In 239 neonates (26th to 42 week GA) we measured HbF on day 1 (cross sectional study), in 162 neonates (32nd to 42nd week GA) we measured HbF at least once a week until discharge (longitudinal study) to look for influences of the extrauterine life on the course of HbF decrease. In 103 preterm infants we looked for the influence of HbF on pulse oximetry readings comparing pulse oximetric and cooximetric readings.In individual patients with BPD, gest.diabetes, growth retardation, and maternal smoking we followed HbF consecutively for at least 4 weeks to detect influences on the decrease of HbF
RESULTS: 1. No statistical difference (total overlapping of SEM) between our cross sectional and longitudinal study could be observed. 2. Upto the 35 th week HbF is 100%, decreasing quickly between 38th and 42nd week to 80%, extrauterine life and procedures have no influence 3.pulse oximetry in patients with 100%HbF reads 1.8%(mean) higher then cooximetry 4. BPD,maternal smoking, growth retardation, and diabetes seem to diminish the decrease of HbF.
CONCLUSION: The amount of fetal hemoglobin in preterm infants is higher then older literatur data show. It has to be measured and considered for careful evaluation of oxygenation status in these children and for the interpretation of pulse oximetry readings.
REF: 1. Netzel and Möller, PerinatalMedizin 5:126,1993

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CONTINUOUS O_2 SATURATION MONITORING IN THE INFERIOR CAVAL VEIN FOR POSTOPERATIVE MANAGEMENT OF PATIENTS WITH A "BIDIRECTIONAL CAVOPULMONARY ANASTOMOSIS".

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The complexity of cardiac anomalies and the mismatch between size of the catheter and patient has limited the use of continous O_2 saturation monitoring in infants and children undergoing surgery for complex congenital heart disease (CCHD). Therefore, we evaluated the feasibility of continuous intravascular fibroptic SvO_2 measurement (Opticath®, size 4F catheter and Oximetrix®3 SO_2/CO computer) in 6 patients (mean age 13.0mth; mean weight 8.3kg) with CCHD palliated by a "bidirectional cavopulmonary anastomosis" (end to side superior vena cava to right pulmonary anastomosis and closure of the superior vena caval-right atrial junction). The aim of the study was to evaluate the method of insertion and the reliablity of the measurement. After performing the anastomosis, the fibroptic catheter is transthoracally introduced and inserted through the right atrium into inferior caval vein. The placement of the catheter is crucial. This can be a problem due to its migration into liver venes or entanglement into the atrial wall and should be verified with an X-ray. A "in vitro" and "in vivo" calibration should be performed in the OR followed by a "in vivo" calibration in the IC unit. This resulted in a reliable trend, electively used upto 72hrs (SO_2 ranging from 35-80%), reacting rapidly with every event and therapy. However, the merit of the "absolute value" has to be evaluated further.
Conclusion: In patients with CCHD with rapidly changing hemodynamic's the fiberoptic catheter for continuous SO_2 measurement could be an useful tool in tailoring the postoperative management.

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CARBAMATE (C) POISONING AND OXIME THERAPY

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C compounds [acetylcholinesterase(AChE) inhibitors], are widely used pesticides.Their toxic effects are similar to organophosphate poisoning(OPP),but they are considered less toxic and without CNS effect;information on infants is limited.Oximes,the mainstay of OPP therapy are not recommended in C poisoning. During the years 89-92 we studied 26 children (1-8 yrs;med-26 mos) with severe C poisoning:methomyl (n=17) and aldicarb (n=9).All required PICU for severe CNS depression. All were flaccid and 80% had miosis. All were treated with atropine sulphate and obidoxime chloride and recovered within 24h. Since our observation contradicts animal studies that oximes enhance C cholinergic activity, we studied the effect of the oximes obidoxime chloride and pralidoxime on human red blood cells (RBC's) pretreated either with C (methomyl or aldicarb) or an OPP (paraoxone) by measuring AChE activity. AChE was depressed both by OPP and C. The addition of oximes reactivated AChE of RBC's pretreated with OPP,but had no effect on RBC's pretreated with C. We conclude that in infants and children C poisoning resembles clinically that of OPP with mainly CNS effect. Oximes have no deleterious effect on C poisoning and AChE both *in vivo* and *in vitro*.