

Results 1487 successful LPs were performed from 1996 to 2010. Of these 646 procedures were performed from 1996 to 2000 and 463 samples obtained from 2001 to 2005. Only 378 LPs were performed from 2006 to 2010. Of those with CSF analysed, 967 (65%) were 2 years or younger. 53% of LPs were performed at night time. Only 18 patients had bacterial meningitis confirmed on CSF (1.2%) from 2001 to 2010 and 60% were infants. LP was performed before the use of antibiotics in 15% of cases. *Nisseria meningitidis* B and *Streptococcus pneumoniae* were the leading causes of meningitis (38% & 27% respectively). Among those with confirmed meningitis on CSF, serum PCR was positive in 77% while CSF PCR was positive in 100% of cases.

Conclusion Incidence of bacterial meningitis is decreasing mainly due to effective vaccination programmes. LP, even in the post vaccination era with early use of empirical antibiotics, still has a role in the diagnosis of meningitis.

1576 EFFECT OF DEXAMETHASONE THERAPY ON THE EXPRESSION OF MACROPHAGE MIGRATION INHIBITORY FACTOR IN CRITICALLY ILL CHILDREN WITH SEPTIC SHOCK

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Background and objectives Macrophage migration inhibitory factor (MIF) is a proinflammatory cytokine that plays a major role in the pathogenesis of sepsis. The goal of this study was to determine the effect of exogenous glucocorticoid treatment on MIF expression.

Design and setting: Prospective, randomized, double-blinded, interventional single-center study.

Methods Thirty patients with septic shock were prospectively randomized to receive 3 doses of 0.2 mg/kg of dexamethasone (Intervention group) or equal doses of saline (Placebo group). Sequential Organ Failure Assessment (SOFA) and Pediatric Logistic Organ Dysfunction (PELOD) scores were recorded daily in both groups. Seven and 28-day Mortality were recorded as early and late endpoints of the study. Baseline and follow-up levels of MIF were measured by ELISA for all enrolled subjects.

Results Mean baseline MIF values were 86 ± 17 , 82 ± 21 , 10.8 ± 5 ng/mL for Intervention, Placebo and control subjects respectively; $p < 0.001$. Follow up MIF showed significant reduction in both patients groups compared to baseline levels, with more significant reduction in Intervention group (23% reduction) compared to Placebo group (13% reduction); $p < 0.01$. SOFA score showed significant worsening in Placebo group; compared to Intervention group. PELOD score showed significant increase in Intervention group compared to highly significant worsening in Placebo group. Seven-day mortality was significantly higher in Placebo group (53.3%) compared to Intervention group (20%); while 28-day mortality showed insignificant change.

Conclusions Early treatment with dexamethasone lead to more significant reduction in MIF levels than placebo, with less worsening of organ dysfunction and improved seven-day mortality with no effect on 28-day mortality.

1577 HDL AND LDL BLOOD LEVELS ARE OPPOSED TO TRIGLYCERIDES AND GLUCOSE IN SEVERE SEPSIS

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Introduction Lipoproteins were shown to neutralize LPS and to exert direct anti-inflammatory actions. Neutrophil CD64-expression (nCD64) was shown to be an early inflammatory sign.

Objectives To examine whether plasma concentrations of high (HDL)- or low (LDL)-density lipoproteins are related to nCD64, triglycerides, glucose, severity of illness (PRISM, PELOD), length of stay (LOS) or mechanical ventilation (LOMV), and mortality in children with sepsis (S) and severe sepsis/septic shock (SS) compared to those with trauma (T) or healthy controls (C).

Methods 48 children were classified into 4 groups of SS, S, T, and C (12 each). Blood samples were collected on 3 consecutive days following admission.

Results On day 1 HDL, LDL, and cholesterol were found to be significantly lower in SS and S compared to C (29.5 ± 2.7 and 27.3 ± 4.2 , vs. 58.8 ± 5.8 mg/dl, $p < 0.001$, 33.4 ± 5.8 and 66.2 ± 9 , vs. 98.1 ± 6.5 mg/dl, $p < 0.001$, 100.6 ± 9 and 125.2 ± 16 , vs. 171.3 ± 7 mg/dl, $p < 0.001$ respectively). Opposite trends followed triglycerides (209 ± 61 and 151.7 ± 25 , vs. 71.8 ± 10 mg/dl, $p = 0.007$) and glucose (117 ± 8 and 115 ± 12 , vs. 83 ± 3 mg/dl, $p = 0.002$). HDL and triglycerides differed between S or SS and T ($p < 0.04$). Cholesterol, HDL, and LDL were negatively related with nCD64, procalcitonin, CRP, glucose, LOS, and LOMV ($p < 0.05$), but not with severity of illness. Glucose was positively related to the LOS and PELOD ($p < 0.05$) and triglycerides with CRP ($p < 0.05$).

Conclusions Lipoproteins and cholesterol are markedly reduced in severe sepsis, but not in trauma, and are inversely related to nCD64-expression, acute phase proteins, glucose, LOS, and LOMV.

1578 THE CORRELATION BETWEEN C-REACTIVE PROTEIN AND SERIOUS BACTERIAL INFECTION IN A TERTIARY PAEDIATRIC EMERGENCY DEPARTMENT: AN OBSERVATIONAL CASE-CONTROLLED COHORT STUDY

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Background and Aims C-Reactive Protein (CRP) is a common component of the blood panel in children being investigated for the considered diagnosis of serious bacterial infection (SBI). We aimed to correlate CRP values to SBI in a paediatric population.

Methods This is a retrospective study from 2007–2009 of all patients with CRP greater than 100mg/L. Controls were randomly selected age-matched patients with a CRP less than 100mg/L. SBI was defined as bacterial meningitis, bacteraemia, urinary tract infection, pneumonia, osteomyelitis, septic arthritis, appendicitis or abscess formation confirmed by microbiological investigations and/or supporting radiology and ultimate clinical diagnosis.

Results 570/10,191 patients had a CRP > 100mg/L. 496 patients were controls 424 patients had SBI. A significant difference between the non-SBI group ($n = 642$), 35 ± 68 mg/L (median \pm standard deviation), compared to the SBI group ($n = 424$), 141 ± 87 mg/L, existed. The absolute and ratio risk of SBI increased consistently with rising CRP values (Table 1).

Abstract 1578 Table 1 Incidence, Absolute & Ratio Risks for SBI

CRP Range	Incidence of SBI	Total cases	Absolute Risk	Ratio Risk
0–20	20	248	8%	0.08
21–100	39	181	21%	0.27
101–150	174	365	48%	0.92
151–200	83	134	62%	1.63
201–250	43	64	67%	2.03
251–300	44	52	84%	5.25
301+	21	22	95%	21.2

Conclusion This multi-layered risk evaluation should aid the future management of children attending the PED being investigated for SBI.

1579 **PROCALCITONIN IN PEDIATRIC EMERGENCY DEPARTMENTS FOR THE DIAGNOSIS OF INVASIVE INFECTIONS**

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Background Procalcitonin is used in pediatric emergency departments for the early diagnosis of invasive bacterial infections, especially for febrile children.

Aim of the Study To evaluate the usefulness of a rapid semiquantitative test of procalcitonin for the diagnoses of invasive diseases at children.

Methods We have prospectively evaluated 25 patients divided into two groups: 1) group A with 6 patients having viral infections and 2) group B with bacterial infections comprised of 19 patients. For this group we had a score made of leucocytes over 16000/mm³, granulocytes over 12000/mm³, erythrocyte sedimentation rate (ESR) > 50 mm/h and C reactive protein (CRP) > 2.4 mg/dl, procalcitonin (CPT) >0.5ng/ml.

Results The analysis of ROC curves shows the degree in which inflammatory tests may distinguish between the two groups. This suggests that the quality of separation between the two groups was 0.86 for CPT, 0.85 for CRP, 0.67 for leucocytes, 0.62 for granulocytes and 0.82 for ESR (p<0.001).

Conclusion Procalcitonin has a higher specificity and sensitivity compared to the other acute phase reactants (leucocyte number, neutrophil number, ESR and CRP respectively). Procalcitonin may be considered in the emergency department as a valuable diagnostic tool in order to distinguish between viral and bacterial infections at children.

1580 **LUMBAR PUNCTURE(LP) IN INFANTS AND CHILDREN WITH SUSPECTED MENINGITIS-DIAGNOSTIC YIELD OVER 15 YEARS**

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Background Bacterial meningitis is a serious disease that leads to much anxiety among the medical profession and parents.LP has long been a key tool for the diagnosis of meningitis.

Objectives To determine the diagnostic yield from LP over 15 years in Mid Western region of Ireland.

Methods A retrospective cohort analysis of laboratory data of all lumbar punctures performed from July 1996 to December 2010 in Paediatric department Mid Western Regional Hospital and maternity Hospital-Limerick-Ireland.

Results 1487 LPs were performed from July 1996 to December 2010.646 samples were obtained from July 1996 to December 2000 and 463 samples obtained from January 2001 to December 2005. 378 LPs were performed from 2006 to 2010.967 patients (65%) were 2 years or younger.18/1487(1.2%) patients had bacterial meningitis from 2001 to 2010, 15/18 (83%) were infants. CSF leucocytosis was noted in 17/18 patients(94%). Nisseria meningitidis B and Strypt. Pneumoniae were isolated in 38% &27% of cases respectively. Serum PCR was positive in 77% of cases. CSF PCR was positive in 100% of cases. Both CSF and blood culture were positive in 44% of cases.

Conclusion The incidence of bacterial meningitis is decreasing due to effective vaccination(18/1487 patients (1.2%),83% infants. The

role of LP in the diagnosis of meningitis is crucial. Nisseria meningitidis type B is the leading cause of bacterial meningitis over the last decade. CSF leucocytes are better indicators of disease than white blood cells.CSF PCR testing is more sensitive than serum PCR in the diagnosis of disease and should be requested in all cases with suspected meningitis.

1581 **ASSOCIATION OF TACHYCARDIA WITH SERIOUS BACTERIAL INFECTION IN YOUNG CHILDREN**

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Background and Aim Diagnosis of a serious bacterial infection (SBI) in young children can be challenging. Clinical features at presentation are used to guide investigation and management. We aimed to determine whether tachycardia is associated with a higher risk of SBI.

Methods Prospective cohort study of children < 6 years old referred to a children's acute assessment unit with documented or reported temperature (July 2011 - February 2012). We examined the association between maximum heart rate during admission (Heart rate: ≥90th percentile for age corrected for temperature) and confirmed SBI (defined as per NICE guidelines).

Results 120 children participated. 37 children were tachycardic. 21 children had a confirmed SBI.

Abstract 1581 Table 1 Sensitivity/specificity data

	Disease +ve	Disease -ve	Total	
Test positive	14	23	37	Sensitivity 0.66
Test negative	7	76	83	Specificity 0.79
Positive predictive value	0.37			
Negative predictive value		0.95		

Conclusions In this cohort of young children referred to an acute assessment unit with fever, the presence of tachycardia did not predict reliably SBI, but absence of tachycardia excluded SBI in 95% of children.

1582 **OUR EXPERIENCE IN FUNCTIONAL ENDOSCOPIC SURGERY OF PARANASAL SINUSES IN CHILDREN**

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Background Functional endoscopic paranasal sinuses surgery actually serves as a method of election in surgical treatment of pediatric sinusitis.

The Aim of our research was to analyze some results of different types of functional endoscopic sinus surgery in children.

Subjects In study were included 420 of children (275 boys and 145 girls) of age between 7 and 14 years old with chronic and recurrent paranasal sinusitis.

Methods We analyzed duration of hospitalization and the percentage of complete functional recovery in 3 groups of patients: I group (84 children) received the standard method, II group (131 children) - the minim invasive method, III group (250 children) - minim invasive method in a proper modification, which provides partial vertical resection of the hamulus and the limited resection of anatomical structures of the osteomeatal complex. Before surgery nasal endoscopy, computer tomography of paranasal sinuses, acoustic rhinometry, the respiratory function of nose, olfaction function, motor activity of the transitory epithelium were studied.