and severity of NEC were found to be significantly higher in premature infants born to preeclamptic mothers. Also, NEC developed significantly earlier in preeclamptic mother infants and duration of NEC was also found to be significantly longer in these infants.

283 THE ROLE OF PERITONEAL DRAINAGE IN BELL'S STAGE 2 OF NECROTIZINF ENTEROCOLITIS

doi:10.1136/archdischild-2012-302724.0283

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Introduction Necrotizing enterocolitis (NEC) has become the most common perinatal gastrointestinal emergency.

In literature there is an ongoing discussion on which surgical approach is the most efficient to maximise patients' survival: laparotomy or percutaneous drainage in case of intestinal perforation.

The aim of this study is to identify the preventive role of the peritoneal drain.

Materials and Methods Between September 2007 and September 2011 a prospective study was carried out at our Hospital.

Informed consent were obtained by parents before treatment;
Inclusion criteria were created.
Group A: placement of abdominal drainage in stage 2;
Group B: surgical treatment only with perforation.

Efficacy of early treatment (absence of subsequent intestinal perforation) was the primary end point; Survival at one month after drainage placement, Hospitalization, Mortality and Morbidity were considered for analysis.

Results 43 infants with stage II NEC were observed. At the end of the study the results shows that: 16 patients were treated with preventive peritoneal drain; 4 of these patients (25%) underwent surgery for advanced NEC (intestinal perforation). Of the other 27 patients, 10 patients (37%) developed advanced NEC, with intestinal perforation. ($p<0.05$) in each group Patients with advanced NEC showed longer time of meconium evacuation if compared to the others (mean 5 vs. 2 days, $p<0.05$).

Only 25% of patients treated with PPD underwent laparotomy for bowel perforation ($p<0.05$).

Conclusions The use of peritoneal drain in stage II NEC seems to be a safe alternative and treatment for these patients.

284 OPIATE ADMINISTRATION TO PRETERM INFANTS - A RISK FACTOR FOR NECROTISING ENTEROCOLITIS?

doi:10.1136/archdischild-2012-302724.0284

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Background and Aims Opiates like morphine and fentanyl are commonly used for sedation in the NICU. There are reports implicating early opiate exposure as a risk factor for NEC in preterm infants. We aimed to investigate if exposure to opiates in the first week of life was a risk factor for subsequent NEC in preterm infants in our NICU.

Methods Cases of NEC (Bell Stage ≥2) in infants < 32 weeks gestation age (GA) over a 3-year period (Jan 2008-Dec 2010) were identified from the NICU database. A case-control study was performed by pairing each infant with NEC to a random control, matched for year of birth, GA (±1 week) and birthweight (BW ± 20%).

Total exposure to opiates (morphine and fentanyl) between days 1 and 7 was tabulated from medical records and the database. Two-tailed Fisher's exact test was used to calculate the risk.

Results 27 infants with definite NEC were identified with mean GA (±SD) of 27.2(±2.1) weeks and BW of 998 (±348) g. 54 controls were matched with mean (±SD) GA 0f 27.3 (±2.2) weeks and BW of 972(±346) g. Exposure to opiates was not different between NEC and controls ($P = 0.63$; Odds Ratio (95% CI) of 0.73 (0.28–1.91). Median (range) daily opiate over the first week in NEC infants (morphine dose equivalent) was 14.3 (0–259) μg/kg/day or approx. 0.6 (0–11) μg/kg/hour.

Conclusions Early opiate exposure did not appear to be a significant risk factor for NEC in our population.

285 CAN MEASUREMENT OF INTRAVESICAL PRESSURE BE USED FOR THE DIAGNOSIS AND FOLLOW UP OF NECROTIZING ENTEROCOLITIS?

doi:10.1136/archdischild-2012-302724.0285

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Background and Aims Abdominal compartment syndrome refers to multiorgan failure secondary to increased intraabdominal pressure and circulatory failure. Early diagnosis and treatment of this clinical syndrome resulting with high mortality in children is possible via intravesical pressure (IVP)measurements. Data on IVP is limited in newborns with increased abdominal pressure due to diseases like necrotizing enterocolitis (NEC). We aimed to investigate the predictive value of consecutive IVP measurements for diagnosis and outcome of NEC.

Methods IVP was measured twice daily for 10 days in 61 premature infants below 1500 grams. Measurements of infants with and without NEC were compared.

Results Infants were grouped as;

Group 1: without NEC,
Group 2: NEC medically treated,
Group 3: operated for NEC.

Group 1 had lower IVP values compared to infants with NEC ($p=0.001$). Group 2 and 3 had similiar IVP values ($p=0.155$). A 10% increase in the consecutive IVP measurements was valuable for predicting NEC. Infants who died due to NEC had higher IVP values compared to surviving infants with NEC ($p=0.043$).

Conclusion IVP measurements may be helpful for the diagnosis of NEC. Mortality due to NEC in premature infants may also be predicted with high IVP values.

286 LOW HAEMATOCRIT LEVELS IS COMMON IN PREMATURE INFANTS THAT DEVELOP NECROTISING ENTEROCOLITIS

doi:10.1136/archdischild-2012-302724.0286

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Introduction Necrotising enterocolitis (NEC) remains a serious complication of prematurity. NEC is associated with multiple factors. Recently concerns have been raised that transfusion related gut injury (TRAGI) may lead to NEC development.

Aim To identify if blood transfusion is implicated in the development of NEC in our population.

Methods Data collection from infants treated for definite NEC in two tertiary surgical neonatal units.

Results 49 infants developed NEC. GA: ≤24 wks 16%, 25–26 wks 16%, 27–29 wks 37%, 30–32 wks 19%, 33–36 wks 12%. Age of NEC: ≤7d: 7%,d8–14: 19%, >14d: 74%. The lowest hematocrit (HCT) within 72 hours preceding NEC diagnosis was < 24 8%, 24–29 in 28% of cases, 30–35 in 36%, 36–42 in 11%, 17% had Hct >42. 6%

received a blood transfusion in the 48 hrs preceding diagnosis. No cases of TRAGI were identified.

Conclusion In our population 83% of infants diagnosed with NEC had PCV < 42. Anaemia was associated with increased risk for developing NEC, we did not identify any increased risk relating to blood transfusion. Considering the possible causes for anaemia and refining transfusion thresholds in selected cases may be indicated. Further prospective studies may be helpful to identify potential critical Hct levels.

287 CRP VALUES CAN DIFFERENTIATE BETWEEN A NORMAL POST-OPERATIVE RESPONSE AND SURGICAL COMPLICATIONS

doi:10.1136/archdischild-2012-302724.0287

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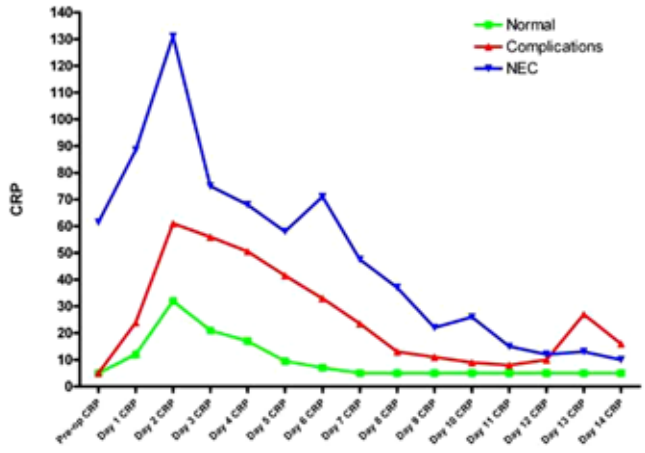
Aims A raised post-operative CRP is a source of great anxiety for surgeons and neonatologists. This study aims to assess the post-operative CRP response in neonates who undergo surgery in order to describe a normal physiological response to surgical trauma. This is compared to post-operative changes in neonates undergoing surgery specifically for NEC and neonates who develop surgical complications.

Methods A retrospective study was performed over a one year period (2010) analyzing consecutive neonates undergoing surgery. Daily WCC, platelet count and C-reactive protein measurements were analyzed on consecutive post-operative days in three distinct subgroups: control, surgical complications group and NEC.

Results There was a total of 81 patients (see Table 1).

Abstract 287 Table 1

	No. of Patients	Median gestational age	Median time to surgery (days)	Median birth weight (grams)
Control	53	37	4	2270
Complications	11	35	2	2500
NEC	17	25+2	23	785



Abstract 287 Graph 1

As shown in Graph 1 the post-operative CRP values for the control group and complications group were significantly different throughout the 12 day time period (p=0.01, Mann-Whitney U test). The CRP values for the control group were also significantly lower than the NEC group (p=0.0001, Mann-Whitney U test).

Conclusion The post-operative CRP trend was more important than a single result. This study quantified a physiological CRP change in response to surgery in neonates. In particular, there was a significantly different CRP response in neonates who developed a post-operative complication.

288 CLASSIFICATION OF BRAIN INJURY ASSOCIATED WITH NEONATAL ECMO. NATIONAL REVIEW OF 2 DECADES IN THE NETHERLANDS

doi:10.1136/archdischild-2012-302724.0288

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Background and Aims Brain injury is an important complication of neonatal Extra Corporeal Membrane Oxygenation (ECMO). Unilateral carotid artery and jugular vein cannulation (often with ligation), in combination with systemic heparinisation, increases the risk of brain injury in an already vulnerable group of patient. The reported prevalence of brain injury ranges from 10–52% of patients treated with neonatal ECMO. Monitoring of intracranial lesions during the ECMO procedure is therefore important for treatment and prediction of outcome.

Our objective is to study incidence and classification of ultrasound proven brain injury during neonatal ECMO in the Netherlands.

Methods Retrospective, nationwide study (Rotterdam and Nijmegen), spanning two decades. Cranial ultrasound images were reviewed by two independent investigators, without knowledge of primary diagnosis, outcome or type of ECMO.

Results 676 neonates with neonatal ECMO were studied. ECMO type was V-A in 88%. Brain abnormalities were detected in 17.3% of patients: primary hemorrhage was diagnosed most frequent (8.8%). A noticeable result was found in stroke patients (5% of the total group), where there was a significant predominance of lesions in the left hemisphere. Lobar haematoma (prevalence 2.2%) was also significantly left sided predominant.

Conclusion Our study shows an incidence of ECMO-associated neonatal brain injury in the Netherlands in 17.3%. Left hemisphere lesion preference suggests that shift of brain perfusion from right to left is more important than large vessel ligation in the neck. Prevention has to focus on embolism and on management of this perfusion shift.

289 THE EFFECT OF PERINATAL INFECTION ON NEURODEVELOPMENTAL OUTCOME IN NEWBORNS WITH HYPOXIC-ISCHEMIC ENCEPHALOPATHY

doi:10.1136/archdischild-2012-302724.0289

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Studies of preterm neonates suggest that infection may potentiate hypoxic-ischemic (HI) brain injury. In term neonates, infection is a risk factor for encephalopathy and cerebral palsy. Whether it potentiates the risk of brain injury and adverse outcome in the setting of hypoxic-ischemic encephalopathy (HIE) is not clear.

The charts of 257 term newborns with HIE were reviewed for signs of maternal and infant infection, including chorioamnionitis and proven or suspected sepsis. Multivariate logistic regression was used to assess the effect of infection on severity of brain injury as seen on a neonatal MRI (normal-mild vs. moderate-severe), and on risk of adverse neurodevelopment at 30 months in a subset of