Background and aims  B-type natriuretic peptide (BNP) and N-terminal-pro-BNP (NTproBNP) have been shown to correlate with the size of patent ductus arterious (PDA) in preterm infants. We investigated whether BNP or NTproBNP is more accurate for assessment of a PDA.

Methods  Prospective observational study. Preterm infants born.

Results 60 infants were recruited, 58 had complete datasets. The cohort’s mean (SD) gestational age was 27.3 (2.2) weeks and had a mean (SD) birth weight of 1032 (315) grams. 46 (79.3%) infants had a PDA with a mean (SD) PDA diameter of 3.2 (0.9) mm. Median (IQR) BNP levels: 486.5 (219–799) pg/ml for infants with PDA, 190 (95.5–421) pg/ml for infants without PDA. Median (IQR) NTproBNP levels: 10858.5 (6319–42108) pg/ml for infants with PDA, and 7488 (3363–14227.5) pg/ml for infants without PDA. Both BNP and NTproBNP showed a significant correlation with PDA size in this cohort: BNP R=0.35 (p = 0.0066); NTproBNP R = 0.31 (p = 0.018).

Conclusion BNP and NTproBNP were closely correlated to PDA size. Both markers were useful for assessment of PDA size in this cohort of very preterm infants.

O-032  SEROTONIN IS A SELECTIVE VASOCONSTRICTOR OF CHICKEN EMBRYO DUCTUS ARTERIOSUS

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Introduction  Decreased platelet number and/or function have been related to patent ductus arterious (DA). Activated platelets release vasoactive products, including serotonin (5-HT) that might be relevant for DA homeostasis DA. The chicken embryo has emerged as a suitable model for the study of DA vascular biology. In the present study, we investigated the possible vasoactive role of 5-HT in the chicken DA.

Methods  Rings of the DA of 15- to 20-day-old chicken embryos (total incubation time 21-d) were studied in a wire myograph. The response to 5-HT was investigated under different O2 tensions (3, 7, and 74 kPa). The responses to the 5-HT1D, receptor agonist sumatriptan, the 5-HT2A/C receptor agonist DOI and the selective serotonin reuptake inhibitors fluoxetine and sertraline were also investigated.

Results 5-HT (10 nM-0.3 mM) contracted the pulmonary side of the DA (PulmDA) in a concentration-dependent manner. By contrast, 5-HT induced negligible contractions in the vessels that surround the PulmDA (i.e., the pre- and post-ductal pulmonary arteries, and the aortic side of the DA). 5-HT-induced contraction increased with development (15-d >17-d >19-d>20-d). O2 tension did not affect 5-HT-induced contraction but elimination of extracellular calcium completely abolished it. Sumatriptan and DOI also contracted the PulmDA in a concentration-dependent manner. By contrast, fluoxetine and sertraline evoked contractions at very high concentrations (>0.1 mM).

Conclusions  Our data indicate that 5-HT receptors are functionally present in the chicken DA and suggest that platelet-derived 5-HT may play a pivotal role in the postnatal closure of the DA.

Abstract O-033 Table 1  Clinical outcomes

<table>
<thead>
<tr>
<th></th>
<th>P1</th>
<th>P2</th>
<th>Rate (%)</th>
<th>p-value*</th>
<th>OR (CI95%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survival-without-morbidity</td>
<td>33</td>
<td>46</td>
<td>53.4</td>
<td>NS</td>
<td>1.34(0.70–2.57)</td>
</tr>
<tr>
<td>Mortality</td>
<td>17</td>
<td>46</td>
<td>18.2</td>
<td>NS</td>
<td>1.05(0.45–2.45)</td>
</tr>
<tr>
<td>Chronic lung disease</td>
<td>20</td>
<td>26</td>
<td>12.5</td>
<td>&lt;0.05</td>
<td>0.39(0.15–0.98)</td>
</tr>
<tr>
<td>Retinopathy (≥3)</td>
<td>10</td>
<td>17</td>
<td>12</td>
<td>NS</td>
<td>1.31(0.41–4.15)</td>
</tr>
<tr>
<td>Necrotizing enterocolitis</td>
<td>14</td>
<td>17</td>
<td>12</td>
<td>&lt;0.05</td>
<td>0.28(0.08–0.96)</td>
</tr>
<tr>
<td>Intraventricular haemorrhage (≥3)</td>
<td>18</td>
<td>26</td>
<td>25</td>
<td>NS</td>
<td>0.90(0.43–1.88)</td>
</tr>
</tbody>
</table>

P1 agressive, P2 conservative
*Chi-square
†Adjusted for gestational age, sepsis and days on mechanical ventilation (logistic regression).

O-033  CONSERVATIVE APPROACH TO PATENT DUCTUS ARTERIOSUS IN VERY LOW BIRTH WEIGHT INFANTS

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Background and aims  Management of patent ductus arterious (PDA) is still a dilemma. We aimed to prove that a more conservative approach of PDA is equally effective without increasing morbidity-mortality in preterm infants.

Methods  From January 2009 to December 2013 clinical charts of preterm <31 weeks admitted into two NICUs with clinical/echocardiographic PDA were analysed. In January 2011 management was changed. In the first period (P1), patients who failed medical treatment underwent surgical ligation; in the second (P2), only those with cardiopulmonary compromise (mainly those that could not be weaned from ventilator). We compared survival-without-morbidity, defined as patients discharged without chronic lung disease, severe retinopathy, necrotizing enterocolitis or severe intraventricular haemorrhage.

Results  Patients in P1 (n = 63) and P2 (n = 88) had similar clinical characteristics. Significant lower rates of medical (85.7% vs 56.8%) and surgical treatment (33.9% vs 14.3%) were observed in P2. No differences in survival-without-morbidity were observed in Table 1. In P2, 19.4% patients showed PDA at discharge. 56.8%) and surgical treatment (33.9% vs 14.3%) were observed in P2. No differences in survival-without-morbidity were observed in P2. No differences in survival-without-morbidity were observed in P2. No differences in survival-without-morbidity were observed in P2.

Conclusion  A conservative approach in preterm with PDA can avoid medical/surgical treatment and its side effects, without changes in survival-without-morbidity.

O-034  HALF SYSTOLIC DECAY TIME (½SDT) OF DUCTAL FLOW MEASURED BY ECHOCARDIOGRAPHY WOULD PREDICT NEED FOR TREATMENT OF PATENT DUCTUS ARTERIOSUS (PDA) IN EXTREMELY PREMATURE NEONATE

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Background and aims  Between 2010 and 2013, 104 extremely premature neonates (EPN) were born at 25–26 weeks. We evaluated the clinical characteristics of EPN that needed drug treatment for patent ductus arterious (PDA).

Methods  Prospective observational study. Preterm infants born.

Results 60 infants were recruited, 58 had complete datasets. The cohort’s mean (SD) gestational age was 27.3 (2.2) weeks and had a mean (SD) birth weight of 1032 (315) grams. 46 (79.3%) infants had a PDA with a mean (SD) PDA diameter of 3.2 (0.9) mm. Median (IQR) BNP levels: 486.5 (219–799) pg/ml for infants with PDA, 190 (95.5–421) pg/ml for infants without PDA. Median (IQR) NTproBNP levels: 10858.5 (6319–42108) pg/ml for infants with PDA, and 7488 (3363–14227.5) pg/ml for infants without PDA. Both BNP and NTproBNP showed a significant correlation with PDA size in this cohort: BNP R=0.35 (p = 0.0066); NTproBNP R = 0.31 (p = 0.018).

Conclusion BNP and NTproBNP were closely correlated to PDA size. Both markers were useful for assessment of PDA size in this cohort of very preterm infants.
Aim To evaluate the utility of half systolic decay time (½SDT) of ductal flow measured by Doppler echocardiography in predicting PDA treatment in extremely premature babies.

Methods We prospectively recruited babies ≤30 weeks gestation. We performed serial echocardiograms (<48 hr of life [scan1], day 7 [scan2], week 2 [scan3], week 3 [scan4], week 4 [scan5]). In babies with PDA, we measured the time needed to halve peak systolic velocity (½SDT) across the duct using continuous wave Doppler. The clinical team was blinded to the research assessment.

Results A total of 48 babies were recruited to the study over a one-year period. Median gestational age was 26 weeks (range 23–29) and mean birth weight (±SD) was 909g (±295). Seven babies (14%) were treated for PDA, including two needing surgical ligation. The ½SDT measured on scan2, was significantly shorter in the treated babies (p = 0.0172). In this study population ½SDT <90 ms measured on day 7 (scan2) was 100% specific in predicting need for PDA treatment. The parameter had a positive predictive value of 100% with sensitivity of 62.5%. The negative predictive value was 88% with diagnostic accuracy of 90%.

Conclusion In this population at our centre, all babies <30 weeks gestation with ½SDT <90 ms on day 7 of life were treated for PDA by clinicians blinded to this assessment. We believe that ½SDT warrants further investigation as an early marker for targeting PDA treatment in extremely preterm babies.

Developmental Neurology

Background and aims A protocol was developed to screen 7,951 children 6–11 years for Autism Spectrum Disorders (ASDs) enrolled at national schools in three regions (Galway, Waterford and Cork) in the Republic of Ireland.

Methods A study booklet completed by parents of eligible children, including: demographics, developmental history, and a screening instrument, Social Communication Questionnaire – Lifetime Form (SCQ: Rutter et al., 2003).

Results Study booklets were primarily completed by children’s mothers 4,474, 86%. Thirteen percent 694 of primary caregivers reported developmental disorders. Of these 411, 59% had been diagnosed, 245, 35% undiagnosed 38, 5% or on a waiting list for assessment. Sixty six percent, 234 of these children’s parents expressed developmental concerns on or before the child’s fourth birthday.

Awareness of developmental difficulties during early childhood was highest among the parents of children with a diagnosis of: ASD 48, 89%; Dyspraxia 48, 77%; ADHD 30, 71%. Significant differences in parental awareness were not observed for study children’s gender or age group. Neither was maternal awareness of difficulties in their child’s development and behaviour related to their level of education, social class, ethnic or cultural background or nationality.

Conclusions Excluding developmental difficulties diagnosed at birth maternal concerns relating to children’s development was highest for children with a diagnosis of Autism Spectrum Disorders on or before the child’s fourth birthday. This is an important finding given that almost ½ of SCQ questions relate to children’s development at 4–5 years of age.