(35%); cardiac (19%); non-cardiac anomaly (15%) and syndromal (12%). Of the 52 infants born alive, 20 (39%) survived to hospital discharge. Survival with idiopathic hydrops was 28%.

Conclusions Overall survival in infants born alive with hydrops was 39%. Idiopathic hydrops was the most common diagnosis and had one of the poorest survival rates.

**PS-232**

**DETERMINATION OF RENAL HYPOXIC INJURY IN LBW INFANTS WITH IVH USING NEW BIOMARKERS - KIDNEY INJURY MOLECULE 1 (KIM-1) AND URINARY NEUTROPHIL GELATINASE-ASSOCIATED LIPOCALIN (uNGAL)**

AA Akhundova, SSH Hasanov, NF Panahova, NN Hajeva. Neonatology, Azerbaijan Medical University, Baku, Azerbaijan

10.1136/archdischild-2014-307384.531

Background The brain tissue is very sensitive to hypoxia-ischaemia and all the changes occurring within it are well studied and easily diagnosed through laboratory and instrumental methods of examination. In contrast, there are few studies examining the influence of hypoxia-ischemia on kidneys in LBW newborns.

Aim To determine the degree of hypoxic-ischaemic renal injury in LBW infants with various grades of IVH using new biomarkers of renal injury such as KIM-1 and uNGAL.

Methods We studied 68/94 LBW infants (GA 28–36 weeks) with IVH (IVH grades I-II (N = 43) and III-IV (N = 25)) and conducted neurosonography and Doppler ultrasound tests of renal arteries. Urine samples were collected on days 1–3 and 7–10 after birth to determine KIM-1 and uNGAL levels.

Results The comparison of the IVH groups I-II and III-IV (Table 1) and the control group (N = 26) shows that the levels of biomarkers KIM-1 and uNGAL significantly increased in grades III–IV IVH infants (p < 0.05).

Conclusion This study finds that severity of renal damage depends on the grade of IVH and shows that KIM-1 and uNGAL are the most sensitive and early markers of hypoxic damage of tubular parts of a kidney.

**PS-233**

**ACTIGRAPHY IS NOT A RELIABLE METHOD FOR SLEEP STUDIES IN NEONATES**

1LA Lares-Assief Ismael, BGG Benitez Gashic Graciela, HJO Juárez-Olguín Hugo. 2Farmacogenómica, Instituto Politécnico Nacional CIIDIR-Unidad Durango México, Durango, Mexico; 3Neonatología, Hospital General de Durango México, Durango, Mexico; 4Farmacología Clínica, Instituto Politécnico Nacional CIIDIR-Unidad Durango México, Durango, Mexico

10.1136/archdischild-2014-307384.532

Background and aims The purpose of this study was to develop a population pharmacokinetics model (Pop PK) for ranitidine in newborns, and to determine the effect of nutritional status (NS) and gestational age (GA). The protocol was approved by the bioethics committee.

Methods Fifty newborns (20 females and 30 males) were included. Their (GA) was as follows: 36 weeks gestational age (term infants from 37 to 42 weeks) with 10.1136/archdischild-2014-307384.530

**Abstract PS-232 Table 1**

<table>
<thead>
<tr>
<th>Groups</th>
<th>Days</th>
<th>KIM-1 (ng/ml)</th>
<th>uNGAL (ng/ml)</th>
<th>Renal Artery RI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>1–3</td>
<td>0.3 ± 0.03</td>
<td>21.6 ± 5.9</td>
<td>0.5 ± 0.03</td>
</tr>
<tr>
<td>Group</td>
<td>7–10</td>
<td>0.24 ± 0.02</td>
<td>18.8 ± 3.1</td>
<td>0.7 ± 0.06</td>
</tr>
<tr>
<td>I–II (n = 43)</td>
<td>1–3</td>
<td>0.422 ± 0.04</td>
<td>40.1 ± 17.3</td>
<td>0.98 ± 0.01</td>
</tr>
<tr>
<td>III–IV (n = 25)</td>
<td>7–10</td>
<td>5.313 ± 0.089*</td>
<td>39.1 ± 16.3*</td>
<td>1.1 ± 0.03</td>
</tr>
<tr>
<td>IVH</td>
<td>1–3</td>
<td>0.8 ± 0.01**</td>
<td>45.9 ± 0.5</td>
<td>1.7 ± 0.05*</td>
</tr>
<tr>
<td>Groups (n = 25)</td>
<td>7–10</td>
<td>6.9 ± 0.2**</td>
<td>58.0 ± 0.2**</td>
<td>1.3 ± 0.01</td>
</tr>
</tbody>
</table>

*p < 0.05 – relative to the IVH I–II group

*p < 0.05 – relative to the control group
ACT and leg-ACT was 78% ± 12 [95% CI, 73–83] and group 2: 85% ± 10 [95% CI, 81–89]. ACT activity threshold setting did not have an impact on the results.

Conclusions ACT recording, a few days after birth, is not a reliable method for sleep pattern studies in preterm and term neonates.

Nephrology

PS-234 ADVANCED OXIDATION PROTEIN PRODUCTS IN CHILDREN WITH NEPHROTIC SYNDROME

N Revenco, 1A Ciuntu, 1I Beric. 1Pediatrics, State Medical and Pharmaceutical University "Niculae Testemițanu", Chișinău, Moldova; 2Pediatric Surgery, State Medical and Pharmaceutical University "Niculae Testemițanu", Chișinău, Moldova

Background and aims Advanced oxidation protein products (AOPP) represent an exquisite marker of oxidative stress, their role in the pathophysiology of chronic renal failure might be of great importance. The aim of the study was to determine serum and urinary levels of AOPP in children with nephrotic syndrome (NS).

Methods The study included 40 children, aged 12 to 18 years, of whom 25 were diagnosed with acute NS, 8 children with chronic NS and 7 children with chronic kidney disease (CKD) stage 3–5. The control group consisted of 20 healthy children. Assessment of the serum and urinary excretion of AOPP was based on spectrophotometric detection method (Kalousova M. et al., 2002).

Results Serum AOPP level in children with acute NS constituted 24,40 ± 4,27 mM/l compared to controls (36,91 ± 3,86 mM/l), however urinary excretion of AOPP was significantly higher (31,1 ± 4,6 mM/l vs. 12,14 ± 2,7 mM/l in controls; p < 0,05). In the group of children with chronic NS serum and urinary levels were higher but not significantly as compared to controls (54,70 ± 7,6 mM/l and 22,46 ± 3,2 mM/l, accordingly; p > 0,05). A remarkable increase of the serum excretion of AOPP in CKD stage 3–5 was noted (130,5 ± 22,83 mM/l; p < 0,05).

Conclusions The determination of AOPP in serum and urine is a reliable marker to estimate the degree of oxidant mediated protein damage in patients with nephrotic syndrome and to assess the progression of chronic kidney disease.

PS-235 THE EFFECTS OF RESPONSE GENE TO COMPLEMENT 32 AS A NEW BIOMARKER IN CHILDREN WITH ACUTE KIDNEY INJURY

L Liu, 1Y Shen, 1S Sun, 1XY Kuang, 1RF Zhang, 1H Zhang, 1XB Li, 1WX Huang, 1Nephrology and Rheumatology, Shanghai Children’s Hospital; Shanghai Jiaotong University, Shanghai, China; 2Cardiothoracic Surgery, Shanghai Children’s Hospital Shanghai Jiaotong University, Shanghai, China; 3Clinical Laboratories, Shanghai Children’s Hospital Shanghai Jiaotong University, Shanghai, China

Background and aims To investigate the new biomarkers of acute kidney injury, as well as to confirm the values of response gene to complement-32 (RGC-32) protein for early diagnosis of acute kidney injury in children who had undergone cardiopulmonary bypass (CPB).

Methods 67 patients accepted CPB assigned to acute kidneyinjury group (AKI group) or non-acute kidney injury group (non-AKI group). Serum samples were taken regularly after CPB 30 min, 2 h, 4 h, 24 h, 48 h and 72 h for serum RGC-32, creatinine (Scr) and Cystatin C (CysC) measurement.

Results The incidence of AKI was 34%, including 15 cases with Risk stage AKI, 4 cases with Injury stage AKI, 3 cases with Failure stage AKI, 1 cases with Loss stage AKI. The values for sensitivity of serum RGC-32 after CPB 30 min, 2 h and 4 h as 0.914, 0.824, 0.824 and the values for specificity of serum RGC-32 as 0.619, 0.667, 0.810, respectively.

Conclusion In this study, our results first identify that possibly the sensitivity of serum RGC-32 for detecting AKI are much higher than that of Scr and serum CysC in children who had accepted CPB, and that RGC-32 may be a new biomarker for early detection of AKI. However, the conclusion needs to be further elucidated.

PS-236 ADVANCED GLYcation END PRODUCTS AND CARDIOVASCULAR AND RENAL PARAMETERS IN CHILDREN WITH CHRONIC KIDNEY DISEASE

S Götheau, 5S Doyon, 6B Llanas, 5P Barat, 3J Harambat. 1Pédiatrie, Centre Hospitalier de Pau, Pau, France; 2Pédiatrie, Université d’Heidelberg, Heidelberg, Germany; 3Endocrinologie et Néphrologie Pédiatrique, Centre Hospitalier Universitaire, Bordeaux, France

Introduction Advanced glycation end products (AGE) are increased in many tissues during ageing. AGE are involved in cellular and endothelial damage in diabetes, chronic kidney disease (CKD) and cardiovascular disease. Increased levels, measured by skin autofluorescence (AF), are associated with the risk of cardiovascular events in adult patients with end-stage CKD. A high level of AF is a marker of progression of chronic kidney disease in adults with CKD at stage 3. We estimated the accumulation of tissue AGES and looked for correlations of skin AF with markers of cardiovascular risk and progression of renal disease in children with CKD over a 2 years period.

Methods A cross-sectional pilot study compared 14 children with stage 3–5 CKD with a control group of children with the same age. We analysed associations between skin AF and markers of cardiovascular function, and with the progression of CKD.

Results The skin AF values were significantly higher (p < 0.01) in CKD children than in controls. In CKD children, skin AF was significantly associated with intima-media thickness of the common carotid artery (p = 0.01) and showed a trend with ambulatory blood pressure over 24 h (p = 0.06). Finally, skin AF was associated with changes in the glomerular filtration rate after 2 years of follow-up (p = 0.03).

Conclusion Noninvasive measurement of tissue accumulation of AGE by skin AF could be, in a near future, a useful tool in the assessment of cardiovascular risk and progression of chronic kidney disease in children with renal impairment.

PS-237 CONTRAST-ENHANCED VOIDING UROSONOGRAPHY WITH A SECOND-GENERATION ULTRASOUND CONTRAST AGENT FOR DIAGNOSIS OF VESICOURETERIC REFLUX IN 1350 CHILDREN: THE EXPERIENCE OF A SINGLE CENTRE

F Papadopoulou, 1A Ntoulia, 2Darge. 1Ultrasound, Pediatric Ultrasound Center, Thessaloniki, Greece; 2Radiology, Children’s Hospital of Philadelphia, Philadelphia, USA

Background and aims The incidence of vesicoureteric reflux (VUR) in children is high. Contrast-enhanced voiding urosonography (CEVUS) is considered as the gold standard for the detection of VUR. The aim of this study was to assess the experience of a single centre with CEVUS.

Methods A retrospective analysis of patients who underwent CEVUS from January 2010 to December 2019 was performed. The diagnosis of VUR was based on the criteria established by the International Reflux Study Group.

Results A total of 1350 children (674 girls, 676 boys) underwent CEVUS. The mean age of the patients was 4.5 years (range, 0.5–18 years). The overall incidence of VUR was 27.6%. The sensitivity and specificity of CEVUS were 98.9% and 96.7%, respectively. The interobserver agreement was excellent (κ = 0.82).

Conclusion CEVUS is a safe and effective method for the diagnosis of VUR in children. It provides accurate results and has a high diagnostic yield. The study also demonstrated excellent interobserver agreement.

Acknowledgments This study was supported by the Children’s Hospital of Philadelphia Research Foundation.