(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-231 EFFECT OF NUTRITIONAL STATUS AND GESTATIONAL AGE ON THE PHARMACOKINETICS OF RANITIDINE IN NEWBORN CHILDREN

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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 state (NS) and gestational age (GA). The protocol was approved by the bioethics committee.
Methods Fifty newborn (20 females and 30 males) were included. Their (GA) was as follows: 6 pre-term, small (SGA); 20 pre-term, appropriate (AGA); 4 pre-term, large (LGA); 7 SGA of full term; and 13 AGA of full term. Children received 3 mg/kg/day IV bolus of ranitidine; two blood samples were collected at each of the following times obtained randomly to: 0, 0.5, 0.75, 1, 2, 4, and 8 h from every newborn. The ranitidine levels were determined using HPLC technique. For the population pharmacokinetics (Pop PK) of ranitidine was used with MONOLIX MLXTRANS 4.2.2® program; data were fitted to bicompartimental model with first-order kinetics.
Results The population values without effect of covariates were obtained clearance (CL) = 0.267 mL/min (CV = 0.685); volume of distribution (Vd_1) = 0.860 L (CV = 0.0642); Vd_2 = 0.260 L (CV = 0.47; intercompartmental clearance (Q) = 1.35 (0.279 mL/min. The covariables that influences clearance of ranitidine are gestational age (term infants from 37 to 42 weeks) with decreased CL = 0.241 mL/min, p = 0.008. The BW increase the Vd_1 = 1.03 L and reduces the value of Q = 0.556 mL/min (CV = 0.049).
Conclusions Pharmacokinetics of ranitidine depend on (GA) and (NS) of the newborns. This should be considered to determine an adequate dosage treatment, based on respective Pop PK characteristics.

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)

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Background The brain tissue is very sensitive to hypoxia-ischemia 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.

Abstract PS-232 Table 1

	Grades	Days	KIM-1 (ng/ml)	uNGAL (ng/ml)	Renal Artery RI
Control		1–3	0.3 ± 0.03	21.6 ± 5.9	0.5 ± 0.03
Group		7–10	0.24 ± 0.02	18.8 ± 3.1	0.7 ± 0.06
	I-II	1–3	0.422 ± 0.04	40.1 ± 17.3	0.98 ± 0.01
	(n = 43)	7–10	5.313 ± 0.089*	39.1 ± 16.3*	1.1 ± 0.03
IVH	III-IV	1–3	0.8 ± 0.01*^	45.9 ± 0.5	1.7 ± 0.05*
Groups	(n = 25)	7–10	6.95 ± 0.2^	58.0 ± 0.2*^	1.3 ± 0.01

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

PS-233 ACTIGRAPHY IS NOT A RELIABLE METHOD FOR SLEEP STUDIES IN NEONATES

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Background and aims Sleep is an essential physiological function in newborn development. Polysomnography is the gold standard for sleep analysis. Extended recordings are difficult with this method. To evaluate actigraphy's reliability to determine sleep-wake patterns in newborns in comparison with polysomnography.
Methods Prospective, monocentric study. 48 infants sleep patterns were recorded and assigned into two groups: group 1: 24 preterm neonates at 34–36 weeks gestational age (GA); group 2: 24 term neonates. Polysomnography (PSG) and 2 actigraphs (ACT) Actiwatch Mini® [on arm (arm-ACT), on leg (leg-ACT)] were used during a 3-hour period. Primary endpoint: agreement rate (AR) PSG and leg-ACT with Medium activity threshold setting. Secondary endpoint: AR arm-ACT and leg-ACT. AR's threshold was set at 85% for validation purposes. Effect of ACT activity threshold setting on a sample of 11 newborns was evaluated.
Results GA, birth weight and age at the recording: 34.5 weeks ± 0.5 and 39.2 ± 1.1, 2368 g ± 336 and 3393 ± 439, 6.4 days ± 2.8 and 2.54 ± 0.72 respectively for group 1 and 2. Group 1: AR PSG and leg-ACT was 67% ± 17 [95% CI, 60–74] and group 2: 58% ± 17 [95% CI, 51–65]. Group 1: AR arm-

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

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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

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Background and aims To investigate the new biomarkers of acute kidney injury, as well as to conform 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 serumRGC-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

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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

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