Methods: A retrospective chart review on hyperfiltration injury markers was performed in 232 children (117 with a congenital SFK, 115 with an acquired SFK), divided into six groups based on the SFK origin. A prediction model for estimated glomerular filtration rate (eGFR) by Schwartz-formula was developed for every diagnosis group using generalized estimated equation (GEE)-analysis. GEE-analysis utilizes all data available and is capable of handling irregular time intervals and corrects for the dependency of observations.

Results: Hyperfiltration injury, defined as the presence of hypertension, the use of antihypertensive agents and/or the presence of (micro-)albuminuria, was prevalent in 44.8% of the children with a SFK at a mean age of 9.6 yrs (SD 5.7). No differences in the prevalence of hyperfiltration injury were found between children with a congenital SFK and children with an acquired SFK. In all groups, GEE-analysis showed a decline in eGFR from the beginning of puberty onwards.

Conclusions: Glomerular hyperfiltration injury is present at a young age in children with a SFK, irrespective of the origin. In combination with our prediction model, these children are at increased risk to develop chronic kidney disease later in life. Therefore follow-up of children with a SFK is needed.

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THE INFLUENCE OF ERYTHROPOIETIN AND HYPOTHERMIA ON THE DAMAGED KIDNEYS OF RATS WITH PERINATAL ASPHYXIA

V. Stojanovic¹, S. Spasojevic¹, N. Barisic¹,
A. Doronjski¹, N. Vuckovic²

¹Institute for Child and Youth Health Care of Vojvodina, ²Clinical Centre of Vojvodina, Novi Sad, Serbia

Objectives: The aim of this research was to determine the effects of erythropoietin, hypothermia and a combination thereof on the damaged kidneys of rats with perinatal asphyxia.

Methods: Experimental animal population encompassed female and newborn Wistar rats. Perinatal asphyxia was induced by immersing the uterus containing fetuses into the water (38°C). The uterus was removed from the female rats by caesarean section, on the last day of gestation. The period of asphyxia until delivery of newborn rats has continued for 15 minutes. After birth, the newborn

rats were distributed into four groups of 15 animals: G1 - asphyxia; G2 - asphyxia + erythropoietin (2,5µg, intraperitoneally) + hypothermia (rectal temperature 32°C); G3 - asphyxia + hypothermia (rectal temperature 32°C); G4 - asphyxia + erythropoietin (2,5µg, intraperitoneally). The rats were sacrificed on day 7 of life and histo-pathological evaluation of kidney preparations was performed.

Results: The results revealed that damage of proximal tubules was significantly higher than that of the distal tubules ($p < 0.01$). Statistically significant differences were established with respect to damage of proximal tubules in group G1, which were significantly higher as compared to the group G2, as well as to groups G3 and group G4 ($p < 0.01$). The zone of immature glomeruli in group G4 was significantly wider than that of the groups G1, G2 and G3 ($p < 0.01$).

Conclusions: Erythropoietin and hypothermia, as well as the combination thereof have a protective effect on rat kidney damaged during perinatal asphyxia. Moreover, erythropoietin also enhances maturation of immature kidney glomeruli.

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CONTINUOUS RENAL REPLACEMENT THERAPY AFTER CARDIAC SURGERY IN CHILDREN

M.J. Santiago, J. López-Herce, J. del Castillo, A. Sánchez, J. Urbano, M. Botrán, A. Carrillo

Pediatric Intensive Care Unit, Hospital General Universitario Gregorio Marañón, Madrid, Spain

Objective: To study the evolution of children requiring continuous renal replacement therapy (CRRT) after cardiac surgery and to analyse factors associated with mortality.

Material and methods: Prospective observational study between 1996 and 2009 in children after cardiac surgery requiring CRRT. Univariate and multivariate analysis were performed to analyse the influence of each factor on mortality.

Results: Of the 1650 post-operative cardiac surgery patients admitted in the ICU between 1996 and 2009, 81(4,9%) required CRRT. 26% weighed less than 5 kg. Patients with CRRT after cardiac surgery had a mean arterial pressure, creatinine and urea at the beginning of the CRRT, significantly lower than other critically ill children with CRRT, and they needed mechanical ventilation more frequently.