WHAT'S HOT WHAT'S NEW - AN UPDATE FROM THE IPNA 2016 MEETING

CAKUT

1) Using retrospective data, this abstract compare the outcome of infants with LUTO stratified by severity (stage I to III) using a prenatal classification according to the amount of amniotic fluid and fetal urinary indexes. This staging was clinically useful and strongly associated with both neonatal survival and the need of neonatal dialysis.

FP-S04-3 - Outcomes of infants with lower urinary tract obstruction (LUTO) based on prenatal risk stratification

J. Angelo, R. Ruano, S. Welty, C. Koh, M. Belfort, M. Braun

Texas Children's Hospital, Houston, United States

Objectives: To compare outcomes of patients (pts) with LUTO stratified by severity using a prenatal classification system.

Methods: Retrospective chart review of LUTO cases evaluated at the Texas Children's Hospital Fetal Center from 2012-2015. LUTO classification: Stage I: normal amniotic fluid level (>18wks gestation), favorable fetal urinary indices*, absence of renal cysts or dysplasia; Stage II: oligohydramnios (>18wks), severe bilateral hydronephrosis, favorable urinary indices, absence of renal cysts or dysplasia; Stage III: oligohydramnios (>18wks), severe bilateral hydronephrosis, unfavorable urinary indices, presence of renal cysts or dysplasia.

*Favorable fetal urinary indices: Na <100mEq/L, Chloride <90 mEq/L, Osm <200 mOsm/L, β2-microglobulin <6mg/L

Results: 42 total LUTO cases were seen in the study period. Five underwent termination of pregnancy and 1 had intrauterine fetal demise. Therefore, 36 pts were evaluated: 6 stage I, 18 stage II and 12 stage 3. No pts with stage I LUTO had fetal intervention, while 100% of stage II and 25% of stage III underwent vesicoamniotic shunting. Gestational age at delivery and birth weight were similar between the groups. A greater percentage of neonatal deaths occurred in the stage III group (67%) compared with stage II (17%) or stage I (0%). 75% of surviving stage III pts required dialysis as neonates, and 100% were dialysis dependent by 1yr of age. Overall, 64% of pts were alive at 1 yr. Five pts underwent neonatal dialysis with 80% 1 yr survival. For non-dialysis pts estimated GFR at 1 yr was not significantly different between Stage I and II.

Conclusions: Prenatal LUTO staging is clinically useful as it is strongly associated with both neonatal survival and the need for neonatal dialysis. In addition, LUTO pts who survive the neonatal period, regardless of the need for dialysis, are likely to be alive at 1 yr of age.

2) This study proposed a predictive model in chidren with CAKUT to know which ones will need surgery. In a Cohort study of 696 chidren, 23% had surgery. The predictor factors associated with the need of surgery were glomerular filtration rate, initatial renal pelvic dilatation diameter, the assocation with other anomalies and thepresence of scrars on DMSA.

PO-069 - Development and validation of a Predictive Model for Children with Congenital Anomalies of the Kidnet and Urinary Tract who will need surgery

M.A.Vasconcelos[1],E.A. Olivieira[1], A.C. Simoes E Silva[1], C.C. Fonseca[1], I.R. Gomes[1], A.P.M. Campos[1], Y. Vergouwe[2], E.W. Steyerberg[2]

[1]UFMG Brazil, Belo Horizonte, Brazil
[2]Erasmus University Medical Center, Rotterdam, Netherlands

Obectives: The aim of this study is to develop and validate a prognostic model for the need of surgery in patients with congenital anomalies of kidney and urinary tract (CAKUT).

Methods: This is a cohort study of 694 children with CAKUT admitted at the pediatric nephrology unit of our institution that were followed up from 1987 to 2013. The median age at admission was 2 months and 65% were male. The variables studied were: gender, age at admission, renal pelvic dilatation (unilateral vs bilateral), renal pelvic diameter, other urinary tract anomalies associated with hydronephrosis, presence of oligohydramnios during the gestation in ^{99m}Tc-DMSA scan. The outcome of interest was the need for surgery. A predictive model was developed using Cox proportional hazard analysis and backward selection with $p < 0,20$. The internal validation was studied in 100 bootstrap samples.

Results: A total of 164 (23%) patients were submitted to surgery. The predictors associated to surgery were estimated glomerular filtration rate at admission, initial renal pelvic diameter, occurrence of other anomalies associated with hydronephrosis and presence of lesions on ^{99m}Tc-DMSA scan. The C statistic was 0.84.

Conclusions: Our predictive model for the need of surgery may contribute to identify CAKUT patients at high risk for surcigal intervention. Further studies are neccessary to validate our model in independent CAKUT samples.

3) This study points to the need for guidelines and to follow-up children born prematurely and therefore presenting with a reduced renal mass. 103 children aged form 10-13 years old and born with very low birth weight were found to have an increase risk of present hypertension, proteinuria and albuminuria.

PO-113 – Early detection of first signs for kidnet damage in children born very low birth weight at the age of 10-13 years

Y. Borovitz[1], R. Tshernichovski[2], N. Sokolover[1], E. Davidovich[3], M. Davidovits[1]

[1]Schneider children medical center, Petah-Tikva, Israel
[2]Sakler Faculty of Medicine, Tel Aviv University, Tel Aviv, Israel
[3]Hadassah School of Dental Medicine, Hebreq University, Jerusalem, Israel

Objectives: A multitude of studies during the last years have demonstrated the correlation between low birth weight and severe prematurity causing reduced renal mass, and the risk for kidney disease, including glomerulopathies, and hypertensiion during later life. It is known than by the third decade of life the kidney disease can be already profound.
There are no guidelines concerning the need for nephrology surveillance in children who were born very low birth weight.

Methods: A single center prospective study was conducted in order to define if by the age of 10-13 years, first signs of kidney damage can be diagnosed. 103 children who were born very low birth weight (VLBW) (<1500gr) between 2002-2004 were examined at the Neprology Institute. The exmanination included weight, height, blood pressure, blood creatinine, and a urine sample for protein, albumin and creatinine.

Results: Elevated blood pressure was found in 22.7 of study group population-hypertension (B,P ≥ 95%) in 15.8% and pre-hypertension (B,P 90%-95%) in 6.9%. Higher blood pressure was correlated with lower birth weight. Proteinuria (protein/creatitinine ratio >0.2) was found in 7.9% and albuminuria (albumin/creatinine ratio >30 meg/mg) in 14.3% of the study group population. Albuminuria was correlated to higher eGFR.

Conclusions: Prevalence of hypertension, proteinuria and albuminuria is high in children born VLBW. Increased blood pressure is related to lower birth weight and albuminuria is related to higher eGFR most probably due to hyper filtration. Premature infants born VLBW should be under close nephrology follow up at least from the age of 10 years. Early detection of kidney damage and appropriate treatment may improve the long term outcome of children born with reduced renal mass. Follow up studies are warranted in adolescents born VLBW.