CONGENITAL ANOMALIES OF KIDNEY AND URINARY TRACT

SO005 LOW BIRTHWEIGHT AND LATER RENAL FUNCTION - THE ROLE OF ADULTHOOD OBESITY. RESULTS FROM THE 1946 BRITISH BIRTH COHORT STUDY

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Introduction and Aims: Low birth weight has been shown to be associated with later renal function, but it is unclear to what extent this is explained by other established kidney disease risk factors. We investigated the roles of diabetes, hypertension and obesity.

Methods: The Medical Research Council National Survey of Health and Development is a socially stratified sample of 5362 singleton children born in one week in March 1946 in England, Scotland and Wales, and followed up since. At age 60-64 years 2192 study members with complete data were analysed. A multiple imputation analysis expanded the analysis sample to 4584. Birth weight was related to three markers of renal function at age 60-64 (estimated glomerular filtration rate (eGFR) calculated using cystatin C, eGFR calculated using creatinine and cystatin C, and urine album-creatinine ratio (uACR)) using linear regression.

Results: Each 1 kg lower birth weight was associated with 2.11 (95% confidence interval (CI) 0.67, 3.55) ml/min/1.73m2 lower cystatin C-based eGFR, 2.18 (95% CI 0.85, 3.51) ml/min/1.73m2 lower creatinine and cystatin C-based eGFR, and 0.064 (95% CI -0.009, 0.137) log-mg/mmol higher log-uACR. These associations were not confounded by socioeconomic position and were not explained by diabetes or hypertension. There was some evidence that the birth weight-eGFR association was stronger in study members who were overweight in adulthood.

Conclusions: Our findings highlight the role of lower birth weight in renal disease and suggest that in those born with lower birth weight particular emphasis should be placed on avoiding the deleterious effects of becoming overweight in adulthood.

SO006 RENAL ABNORMALITIES IN FAMILY MEMBERS OF INDIVIDUALS WITH CAKUT

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Introduction and Aims: Congenital abnormalities of the kidney and urinary tract anatomy (CAKUT) are common in children and occur in 1 out of 500 newborns Most cases of CAKUT are sporadic and limited to the urinary tract, but some of them are associated with positive family history. The genetic causes for the nonsyndromic forms of CAKUT are unknown. The objectives of this study are to determine whether CAKUT occur in familial patterns and to identify if phenotypical variability of renal malformations exists in affected families.

Methods: The medical files of CAKUT patients were retrospectively reviewed, and renal and urinary tract abnormalities were recorded for all affected relatives.

Results: We reviewed 1166 patients with CAKUT. Out of these patients, 103 (47 males, 56 females) (8.8 %) patients with the mean age of 3.1±3.7 years had relatives with kidney or urinary tract abnormalities of whom 54 (52.4 %) were the first degree relatives. The most common abnormalities were vesicoureteral reflux in 46 (44.7 %) patients followed by ureteropelvic junction stenosis in 20 (19.4 %), ectopic kidney in 18 (17.5 %), unilateral renal agenesis/hypoplasia-dysplasia in 6 (5.8 %) and multicystic dysplastic kidneys in 5 (4.9 %). Thirteen patients were diagnosed prenatally. Consanguinity was present in 26 (25.2 %) families. The most common abnormalities in relatives were vesicoureteral reflux in 30 (29.1 %), unilateral renal agenesis in 25 (24.3 %) and ureteropelvic junction stenosis in 15 (14.6 %). Same urological abnormality was observed in 32 patients and relatives of which the most common was vesicoureteral reflux.

Conclusions: Some forms of congenital abnormalities of the kidney and urinary tract abnormalities have a familial pattern, involving incomplete and variable penetrance. Molecular genetic studies will give important details of urinary tract morphogenesis in the near future. Family members of CAKUT should be informed and followed carefully for the possible urinary tract abnormalities.