Background: Chronic kidney disease (CKD) is a serious problem and is associated with risk of end-stage renal failure development. Early recognition of renal dysfunction could help clinical management. Therefore, there might be a need for biomarkers in detecting renal tubular and glomerular dysfunctions at an early stage before a decline in glomerular filtration rate.

Objective: To evaluate the usefulness of enzymuria to predict renal dysfunction in children with stage I CKD.

Methods: We measured urinary biomarkers of tubular dysfunction (γ-glutamyltransferase (GGT), succinate dehydrogenase (SDG), alkaline phosphatase (AP), L-alanine aminopeptidase (L-AAP) and α-glucosidase (α-HD)), and glomerular dysfunction (cholinesterase) in 154 (78 males, 76 females, mean age 13.11±3.47 years old) patients with stage I nondiabetic (solitary kidney of different origin (agenesis, after nephrectomy, the only functioning kidney)) and diabetic (diabetes mellitus 1st type and duration more than 5 years with normoalbuminuria and microalbuminuria) CKD and 20 healthy children (12 males, 8 females; mean age 13.4±0.8 years old) - controls.

Results: In patients with stage I CKD, levels of all enzymes were dramatically increased, which were thought to be caused by the dysfunction of proximal tubule in addition to glomerular dysfuction. The high level of distinctions between groups by enzyme activities in urine was determined. The highest levels of enzymes were typical for patients with a solitary functioning kidney and diabetic nephropathy in the stage of microalbuminuria, which reflects a deeper expression of nephron damage.

Conclusions: Therefore, combinatorial measurement of these biomarkers may be a powerful tool for highly effective screening of renal dysfunction before a decline in glomerular filtration rate. These markers might extend the therapeutic window for timely and individualized patients’ management.
A Unique Presentation of Hydronephrosis with a Sentinel Loop

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Background: Hydronephrosis is the most common genitourinary abnormality diagnosed on antenatal ultrasonography. Despite advances in imaging a proportion of children still have a postnatal diagnosis.

We describe the case of the ten week old boy who after presenting with non-specific symptoms of pyrexia and intermittent crying developed macroscopic blood in his stools. Imaging demonstrated a left hydroureter and pyonephrosis with an x-ray finding of a large sentinel loop secondary to this hydronephrosis.

A subtype of sentinel loop is the colon cut off sign which is a radiological sign well documented in association with pancreatitis. No previous reports exist associating this with a hydronephrosis.

Objective: To report the case of ten week old with hydronephrosis and to discuss a hypothesis explaining the casuality between a sentinel loop secondary to hydronephrosis and gastrointestinal bleed.

Methods: A full case report following a retrospective study of case notes. We performed a literature search of hydronephrosis with bloody stools and/or sentinel loop secondary to hydronephrosis in children. We aim to explore the pathogenesis of blood in stools in relation to hydronephrosis/ intra-abdominal sepsis.

Results: No previous cases exist in medical literature with either feature of bloody stools or sentinel loop secondary to hydronephrosis.

We hypothesis that inflammatory exudate directly spreads from the uropathy to cause focal adynamic ileus. This occurs in pancreatitis when infiltration of the phrenicocolic ligament causes spasm/ stenosis of splenic flexure.

A sympathetic inflammatory process could explain the gastrointestinal bleed in the intestine.

Conclusions: As this is a very unusual presentation of hydronephrosis it is important for it to be reported. This highlights awareness of these rare presentations of hydronephrosis and allows further discussion regarding the causality between blood in stools and/or sentinel loop secondary to hydronephrosis.
Retrospective Analysis of 66 Children with Nephrotic Syndrome During 2000-2011

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Background: Nephrotic syndrome (NS) is characterized by massive proteinuria, hypoproteinemia (hypoalbuminemia) and edema.

Objective: The purpose of this study was to search for the clinical and biochemical parameters, the histopathological distribution of NS and corticosteroid response and relapse pattern in these patients.

Methods: This study was performed on 66 children with nephrotic syndrome (NS) during 2000–2011. We evaluated retrospectively the demographic features, clinical and laboratory findings, response to the corticosteroid therapy and relapse pattern in these patients.

Results: There were 46 (69,7%) males and 20 females (30,3%). Male : female ratio was 2,3. The mean age was 4,55±2,89 years. Swelling in the body was found in 47%, swelling in the eyes in 36,4% and swelling in the legs in 10,6% of patients. In 9 children who diagnosed with biopsy, focal segmental glomerulosclerosis was the most common pathologic finding in 3 patients. And we diagnosed in one patient HBV Membranous GN stage 2, in one patient Membranous GN, in one patient HSP nephritis, in one patient MPGN and finally in two patients CS resistance MCNS. At the time of hospital admission, infection were present in 43,9% and the other diseases in 18,2%. Among 66 children with NS, 5 (7,6%) were corticosteroid resistant, 61 (92,4%) were corticosteroid sensitive. No relaps were detected in 40,9% of the cases, 39,4% of them with rare relapses and 19,7% of them with frequent relapses. The relapses and corticosteroid resistance in cases with the other disease were detected higher than cases without the other diseases. Frequent relapse increased the hospitalization time.

Conclusions: For the accurate and effective treatment of childhood NS, factors affected that corticosteroid resistance and relapse should be investigated.
Microbiology of Paediatric Urinary Tract Infection – A Five Year Retrospective Study

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Background: Urinary tract infections (UTIs) are frequent in paediatric population. Timely diagnosis and initiation of appropriate treatment can help prevent sequelae such as kidney scarring with loss of renal function and hypertension. The antibiotic susceptibility pattern of the involved bacteria varies widely by geographic region so local surveillance data is essential.

Objective: To identify the most frequent uropathogens causing UTIs in our community and their antimicrobial resistance patterns.

Methods: We retrospectively examined positive urine cultures of paediatric patients examined at our hospital from January of 2008 to December of 2012. Microbiology data was collected from the Department of Clinical Pathology and assessed according to the patient’s clinical characteristics.

Results: A total of 1346 samples were included. The majority of the samples (67.8%) were from outpatients. Escherichia coli (E. coli) was the predominant pathogen (77.1%), followed by Proteus mirabilis (11%), Klebsiella pneumoniae (3.1%) and Pseudomonas aeruginosa (3%). The prevalence of E. coli was higher among females (68.2%) than males (p < 0.05, chi-square). The resistance patterns of E. coli and Proteus mirabilis isolates to amoxicillin-clavulanate and to cefuroxime were stable over time and remained under 10%. Resistance among E. coli and Proteus mirabilis isolates was higher to ampicillin (49.5% and 32.8%, respectively) and to trimethoprim-sulfamethoxazole (25.7% and 26.6%, respectively). No statistically significant association was found between history of nephrologic pathology and antimicrobial resistances.

Conclusion: The etiology of UTIs and the antibiotic susceptibility of the isolates in this study is consistent with published literature. The low rates of bacterial resistance to amoxicillin-clavulanate and to cefuroxime make them the empiric treatment of choice in our center. The high resistant rates to trimethoprim-sulfamethoxazole advise against its empirical use for paediatric ITUs. The empirical treatment of ITUs should be based on local data on pathogens and their antibiograms.