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PAEDIATRIC NEPHROLOGY

SP912 ASSESSMENT OF RENAL TUBULAR FUNCTION AND EARLY KIDNEY INJURY BIOMARKERS IN CHILDHOOD ASTHMA

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Introduction and Aims: Asthma is a chronic inflammatory disorder of the airways in which many cells and cellular elements play a role. The chronic inflammation is associated with airway hyper-responsiveness. Patients with asthma use many and varied medications for the treatment of their attacks and for the control of the disease. The aim of this study was to investigate asthmatic children as to their renal tubular function and excretion of early kidney injury molecules such as N-acetyl glucosaminidase (NAG) and the kidney injury molecule-1 (KIM-1).
Methods: In this study were enrolled 73 children diagnosed with asthma (mean age 11.4±2.3 years) and 65 healthy age- and gender-matched controls (mean age 10.9±2.6). The asthmatic children were grouped as mild and moderate asthma. Urine pH, sodium, phosphorus, potassium, microalbumin, creatinin, NAG, KIM-1 and serum creatinine, sodium, and phosphorus of all participants were evaluated.
Results: Between the control and study groups, blood sodium, phosphorus, creatinine, and urinary microalbumin were within normal limits, and urinary pH, sodium, potasium, phosphorus, microalbumin, FeNa, and KIM-1 excretions were similar. The two groups' tubular phosphorus reabsorption was statistically different but within normal limits. Urine NAG, a sensitive indicator of renal tubular injury, was elevated in the study group ($p=0.001$). Urinary KIM-1 and NAG levels were well correlated ($r=0.837$; $p=0.001$). When asthmatic children with mild and moderate asthma were compared, all of the parameters were similar, including blood creatinine, sodium, phosphorus and urine potasium, sodium, microalbumin NAG/creatinine, and KIM1/creatinine ($p>0.05$) (Table 2).
Conclusions: This is the first study to evaluate the renal functions of children with asthma. Although renal tubular functions of the study group were within normal limits, their urinary NAG was elevated. This finding leads to the recommendation that renal tubular functions of asthmatic patients should be periodically checked.

SP912 Laboratory results of study and control subjects

		Asthma (Mean±SD)	Control (Mean±SD)	p
Urine	pH	5.61±0.91	5.49±0.76	0.644
	Microalbumin (mg/g creatinine)	10.80±17.62	11.22±8.92	0.880
	Sodium/kreatinin	1.48±1.14	1.32±1.00	0.389
	KIM-1 (ng/mg creatinine)	0.71±0.79	0.57±0.30	0.373
	NAG (U/g creatinine)	91.71±183.23	12.05±6.04	0.001
	Tubuler Phosphorus Reabsorbsion (TPR)	95.40±2.21	93.80±4.13	0.014
	FENA	0.45±0.31	0.49±0.37	0.905