

## MP1-7

### Microalbuminuria, proteinuria and renal function in children with cyanotic congenital heart disease

Rogińska N.(1), Kawalec W. (1)., Żuk M. (1)., Litwin M. (2)., Brzezińska-Rajszyś G. (1)  
Children's Memorial Health Institute Warszawa 1 - Dept. of Cardiology; 2 - Dept. of Nephrology, Kidney Transplantation and Arterial Hypertension

#### Introduction

Cyanotic congenital heart diseases (CCHDs) are recognized as a potential cause of cyanotic nephropathy. There have been few reports on changes in urinalysis (proteinuria, albuminuria) and renal function in patients with CCHD due to reduced concentration of oxygen in systemic arteries and tissues.

The aim of this study was to estimate the albuminuria, proteinuria and glomerular filtration rate (GFR) in patients with cyanotic congenital heart disease (CCHD) in comparison to patients with non-cyanotic congenital heart disease (non-CCHD).

#### Methods

126 children with congenital heart disease hospitalized in Cardiology Clinic were examined. The exclusion criteria were any known kidney disease and urinary tract pathology. Patients were divided into non-CCHD (SaO<sub>2</sub> above 90%, N=67, aged 5.3+/-4.8 yo) group and CCHD (SaO<sub>2</sub> below 90%, N=59, 3.9+/-2.9 yo) group. Total protein/creatinine ratio (PCR) and albumin/creatinine ratio (ACR) in morning spot urine was evaluated.

GFR (calculated using the Schwartz formula  $GFR = \text{height} \times k/Cr$ ) was estimated for each patient. The statistical significance of the differences in ACR, PCR and GFR was assessed by the U-Mann Whitney test. The frequency of significant proteinuria, albuminuria and GFR were evaluated by Chi-square test.

#### Results

In non-CCHD group 11 children had PCR above the norm (16.4%), and in CCHD group 29 children had PCR above the norm (45.7%) ( $p < 0.05$ ). Median ACR and PCR values were greater in CCHD group in comparison with non-CCHD group (both  $p < 0.05$ ).

Reduced GFR ( $< 90 \text{ ml/min/1.73m}^2$ ) was observed with similar frequency in both groups: in 7 children without CCHD, and 9 children with CCHD. However, patients with CCHD had significantly lower GFR values in comparison with non-CCHD patients ( $p < 0.05$ ).

#### Conclusion

1. Patients with CCHD had significantly greater ACR and PCR in comparison with non-CCHD patients.
2. 45% of CCHD patients had pathological levels of albuminuria and proteinuria in comparison with 16% among non-CCHD patients.
3. Although still in the normal range, GFR was significantly lower in CCHD than non-CCHD.

Table 1.

	Group	n	Me	IQR	Mean Rang	U	Z	p
ACR	CCHD	59	11.61	15.1	70.86	1598.5	-1.98479	0,047
	Non-CCHD	67	7.73	7.2	57.86			
PCR	CCHD	59	0.28	0.36	76.28	1273.5	-3.554	0,00038
	Non-CCHD	67	0.17	0.17	53.01			
GFR	Group II CCHD	59	102.34	24.1	57.82	1639.5	1.786	0,073
	Non-CCHD	67	108.79	26.6	64			