EXPERIENCES FROM MONITORING PAEDIATRIC PATIENTS WITH A SINGLE FUNCTIONAL KIDNEY IN CALI, COLOMBIA

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Introduction

A single functional kidney represents a diagnostic and clinical challenge due to the physiological implications, which, in the long term, can lead to the development of kidney damage. In Colombia, there is data describing renal function in children with unilateral renal agenesis, but there are not any studies regarding other causes of singe kidney, nor records of the factors associated with their deterioration. We describe the experience of monitoring a group of paediatric patients, in whom some early markers of renal impairment were found.

Methods

Retrospective descriptive study of 229 patients under 20 years of age, with a diagnosis of single kidney functioning evaluated between the years 2000 and 2016. For the entire population of 229 patients, demographics, clinical markers and the behaviour of the glomerular filtration rate (GFR) over time were analysed. For a subgroup of 148 patients with recent data (2015-2016), the presence of arterial hypertension, deterioration of GFR, proteinuria and compensatory renal hypertrophy were evaluated.

Results

The median age at the time of diagnosis was 11.4 months (RIC: 3.6-44.4). Congenital aetiology was found in 205 patients, 57% of these with prenatal detection. The main cause of acquired single functional kidney was nephrectomy due to Wilms' tumour (66.6%). The GFR presented a stable behaviour over time. In the subgroup of 148 patients, arterial hypertension was found in 8.7%, proteinuria in 2.7%, compensatory renal hypertrophy in 30.4%, and GFR <60ml/min/1.73m in 6% of the patients. For these outcomes, there were no statistically significant differences between the groups according to the aetiology.

Clinical findings during the ambulatory consultation (n=148)

	Total n=148 % (n)	Congenital n=131 % (n)	Acquired n=17 % (n)
Kidney length according to SD			
Below 2 SD	3.3 (5)	3.8 (5)	0 (0)
Between -2 y 2 SD	43.9 (65)	41.9 (55)	58.8 (10)
Above 2 SD	30.4 (45)	32.8 (43)	11.7 (2)
No data	22.2 (33)	21.3 (28)	29.4 (5)
Stage of renal function			
G1	39.1 (58)	37.4 (49)	52.9 (9)
G2	43.9 (65)	45 (59)	35.3 (6)
G3a	4.7 (7)	4.5 (6)	5.8 (1)
G3b	0.67 (1)	0 (0)	5.8 (1)
G4	0.67 (1)	0.76 (1)	0 (0)
No data	10.8 (16)	12.2 (16)	0 (0)
Arterial hypertension	8.7 (13)	7.6 (10)	17.6 (3)
Proteinuria			
Yes	2.7 (4)	2.3 (3)	5.8 (1)
No	87.1 (129)	86.2 (113)	94.1 (16)
No data	10.1 (15)	11.4 (15)	0 (0)
Patients who required renal replacement therapy			
In dialysis	1 (1)	1 (1)	0 (0)
Kidney transplant	0.67 (1)	0.76 (1)	0 (0)

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Conclusions

We found, in our population, a lower prevalence of hypertension and proteinuria with respect to findings reported from other countries. There were no statistically significant differences in compensatory renal hypertrophy between patients with a congenital single functional kidney or an acquired single functional kidney. It is necessary to ensure the standardization of this classification for future studies. No major changes were documented in the median of the GFR in the group of adolescents. The findings from this study demonstrate the need to continue monitoring these patients due to the risk of deterioration of renal function.