Out patient clinic of Pediatric Nephrology. 2,537 referrals from 1988 to 1991

C. D. García, A. Ulhmann, P. A. J. Pires, A. C. Ribeiro, S. M. Meira, A. Rocha, C. Renk, M. Ortiz, R. Salles y V. D. García

Serviço de Nefrologia da Irmandade de Santa Casa de Misericórdia. Porto Alegre. Rio Grande do Sul (Brasil).

Introduction

There are only 6 centers of Pediatric Nephrology (PN) in our state RS which has a population of 9 million. All of these centers are localized in Porto Alegre. Irmandade da Santa Casa de Misericórdia de Porto Alegre (ISCMPA) is one of them.

We conducted this survey for evaluation of characteristics, reasons for patient referral to our PN program and renal disorders of these population.

Patients and methods

All children seen by the pediatric nephrology service of the ISCMPA as outpatient from June 16, 1988 to December 31, 1991, were entered into the study. Over this 42 months, only 1 diagnosis was entered per patient. The patients in the end-stage renal disease (ESRD) included were with creatinine clearance less than 50 ml/min/1.73 m^2 in pre dialysis and transplantation, treatment.

Results

As shown in table I, 2,537 patients were referred to outpatient pediatric nephrology clinic consultation over these 42 months, with an average of 60 new patients/month, or about 3 new patients/day of consultation.

The age distribution of these patients is shown in table II. Infants under the age of 2, comprised the largest group. From children referred, 61 % were female.

The most common reason for referral was urinary tract infection, 1,446 (57.0 %) cases. But 465 (32.3 %) were not confirmed. From 426 (29,5 %) children that completed the investigation protocol conduct in UTI (ultrassound scan, DMSA scan, voiding cystouretrography), 20.6 % of them had vesicoureteral reflux, 6.1 % urological anomalies, 2.8 % lithiasis and 70 % had normal urinary tract. Recurrent hematuria, isolated proteinuria and leucocituria were 5 % of the reasons for referral. Glomerulonephritis and nephrotic syndrome comprised 5.9 % of the total number of patients seen (table I). Hipercalciuria (25.8 %) was the most frequent cause of hematuria.

During this period, 42 patients with ESRD were followed in out patient clinic. The children varied in age range from 4 months to 15 years old, 20 (47.6 %) were male and 22 (52.4 %) female. The primary renal disease are summarized in table III; 50.0 % of children with ESRD had urinary tract anomalies (reflux nephropathy, neurogenic bladler and obstructive uropathy, renal displasia) leading to their renal disease. The incidence of glomerular diseases leading to ESRD was 23.9 % and 14.3 % had hereditary familial nephropathy.

From 2,537 referral children, 297 (11.7 %) drop-out without final diagnosis and 642 (25 %) didn't confirm renal diseases. The frequent clinical diagnosis obtained during 42 months period were urinary tract infection, urological anomalies and glomerulonephritis (table IV).

Discussion

In 42 months survey of the clinical profile of a pediatric out patient clinica, it is possible to conclude that UTI was the most frequent reason of referrals. Only 68 % of them confirmed this diagnosis, and 30 % complete the investi-

Table I. Reasons for children referral

	Number	%
Urinary tract infection	1,446	56.9
Enurese/miccional disorder	175	6.9
Glomerulonephritis	147	5.9
Abnormal urinalysis/hematuria	122	4.9
Lithiasis/hypercalciuria	52	2.0
Chronic renal failure	42	1.0
Vesicoureteral Reflux	86	3.4
Urological Anomalies	83	3.2
Hypertensión	20	0.8
Miscelaneous	364	14.3
Total	2,537	100.0

Correspondencia: Clotilde Druck García.
Rua Hipólito da Costa, 442.
Cep. 90830 Porto Alegre, RS, Brasil.

Table II. Age distribution from children referrals

Age (years)	Number	%
0-2	1,028	40.5
3-6	804	31.7
7-11	500	19.7
12-15	205	8.1
Total	2,537	100.0

Table III. Causes of end-stage renal disease in referrals children during 42 months

		Number	%
Glomerulonephritis		10	23.9
– Idiopatic crescentic glomerulonephritis	1		
– Focal-segmental glomerulosclerosis	4		
– Membranoproliferative	2		
– Diffuse mesangial sclerosis	1		
– Unclassified	2		
Pyelonephritis/urological anomalies		21	50.0
– Renal displasia	1		
– Neurogenic bladder	5		
– Obstructive uropathy	8		
– Vesicoureteric reflux	6		
– Interstitial nephritis	1		
Hereditary familial nephropathy		6	14.3
– Nephronophthesis	1		
– Alport's syndrome	2		
– Polycystic kidneys (necessive)	3		
Miscellaneous		3	7.1
– Hemolytic uremic syndrome	1		
– Henoch Schoenlein purpura	1		
– Hypertension	1		
Unknown		2	4.7
Total		42	100.0

Tabla IV. Final clinical diagnosis * obtained during 42 months period

		Number	%
Urinary Tract Infection		716	44.8
– With normal urinary tract	301		
– Without complete radiological investigation	415		
Urological Anomalies		267	16.7
– Vesicoureteral reflux	182		
– Neurogenic bladder	37		
– Miscellaneous	48		
Voiding Disfunction		72	4.5
Poststreptococcal Glomerulonephritis		97	6.0
Nephrotic Syndrome		45	2.8
Hematuria (glomerular, undetermined)		58	3.6
Hypercalciuria		67	4.2
Lithiasis		35	2.1
Hypertensión		20	1.4
End-Stage Renal Disease		42	2.6
Miscellaneous		179	11.2
Total		1,598	100.00

* Dropout: 297 (11.7).
* Not confirmed renal diseases 642 (25.3 %).
* Only the primary diagnosis is counted per patient.

gation protocol. These referral children with UTI that complete the investigation protocol, 30 % had urinary tract abnormalities. It's important to emphazised that urinary tract abnormalities acounted for 50.0 % of impaired renal function in these referrals children. We observed in these group that causes of ESRD were similar to other studies[1,2]. The annual acceptance rate of new pediatric patient in renal replacement therapy in the state of Rio Grande do Sul was 6.5 patients per million child population in the period of 1986-1988[3]. The causes of high incidence of dropout (11.7 %) should be analysed. We have some hypothesis as severe social and economic problems and discredit of renal diseases.

Comparing our data with other published[4] we can conclude that we have less eletrolites abnormalities disorders and more urinary tract abnormalities and acute glomerulonephritis.

References

1. Habid R, Broyer M y Benmaig H: Chronic renal failure in children. *Nephron*, 11:209-220, 1973.
2. Luque A, Reyes A, Canals MJ, Gómez-Campdera FJ y Morales MD: Causas y progresión de la insuficiencia renal crónica en la infancia. *Nefrología*, 8(3):265-272, 1988.
3. García C, Goldani J y García V: Pediatric dialysis and renal transplantation in State of Rio Grande do Sul, Brazil. *Pediatr Nephrol*, 6:74-77, 1992.
4. Foreman JW y Chan JCM: 10 year survey of referrals to a Pediatric Nephrology Program. *Child Nephrol Urol*, 10:8-13, 1990.