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A COMPREHENSIVE STUDY ON CHILDHOOD CHRONIC KIDNEY DISEASE AMONG LOCAL POPULATION OF PAKISTAN

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Abstract:

Introduction: *Chronic kidney disease (CKD) is a serious, common and costly public health problem and its incidence is on the rise across the globe.*

Aim and objectives: *The basic aim of the study is to analyse the childhood chronic kidney disease among local population of Pakistan.*

Methodology of the study: *This cross sectional study was conducted in University of Management and Technology, School of Health Sciences Lahore during March 2018 to October 2018. The data was collected from 100 children age range for this purpose was 1 to 10 years. For this purpose we make two groups of study. One group was control group and the other group was suffering from kidney problems. For this purpose we collect the blood sample for serum analysis. Urea and Creatinine level of blood serum were also calculated by using enzymatic kits.*

Results: *The data was collected from 100 child patients with mean age range 10.65±6]5.78 years. According to the K/DOQI scheme, CKD is characterized by stage 1 (mild disease) through stage 5 (ESRD). The inappropriate activation of this system causes hypertension, fluid retention, and inflammatory, thrombotic, and atherogenic effects that may contribute to end-organ damage in the long term. Table 01 shows the values of analysis of statin therapy in patients. It shows the comparison between two groups on the basis of functional values.*

Conclusion: *It is concluded that children with CKD comprise a very small but important portion of the total CKD population. Whereas disorders associated with its development are well delineated, the availability of valid and widespread information regarding the epidemiology of CKD in children requires additional efforts.*

Key words: *Chronic, Kidney, Creatinine, Patients*

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INTRODUCTION:

Chronic kidney disease (CKD) is a serious, common and costly public health problem and its incidence is on the rise across the globe. Globally, the prevalence of CKD stage 2 or lower reported to be approximately 18.5 and 58.3 per million children. CKD is also a risk factor for cardiovascular disease (CVD), stroke, and heat failure. Children with CKD mainly die of cardiovascular cases and infections rather than that from renal failure [1].

Pediatric CKD imposes a large burden on society that is increasing despite ongoing efforts to control the disease. The burden is unevenly distributed by race and economic status. Whereas evidence suggests that preventive strategies could substantially reduce the burden [2]. There are indications that such strategies are not yet in place. The disease largely contributing to the CKD populations are type 2 diabetes, hypertension and focal segmental glomerulonephritis (FSGS). Children at risk of CKD include those from congenital anomalies of the kidney and urinary tract (CAKUT), hereditary disorders such as polycystic kidney disease and medullary cystic disease, premature and low birth weights or family history of CKD [3].

Chronic kidney disease (CKD) is a major public health problem, and preventing CKD and/or delaying progression of CKD patients to end-stage renal disease (ESRD) is a major task for the nephrology community [4]. This looks like an achievable target, in particular because of the availability of reno-protective drugs that may interfere with disease progression such as the inhibitors of the renin-angiotensin-aldosterone system (RAAS) [5].

Most epidemiological information on chronic kidney disease (CKD) originates from data available on end-stage renal disease (ESRD), the terminal stage of CKD when treatment with renal replacement therapy (dialysis or transplant) becomes necessary to sustain life. Little information is available on the prevalence of earlier stages of CKD, as patients are often asymptomatic [5]. The epidemiological studies that have been performed provide evidence that ESRD represents the "tip of the iceberg" of CKD and suggest that patients with earlier stages of disease are likely to exceed those reaching ESRD by as much as 50 times. Worldwide, the number of patients with CKD is rising markedly, especially in adults, and CKD is now being recognized as a major public health problem that is threatening to reach epidemic proportions over the next decade [6].

Aim and objectives:

The basic aim of the study is to analyse the childhood chronic kidney disease among local population of Pakistan.

METHODOLOGY OF THE STUDY:

This cross sectional study was conducted in University of Management and Technology, School of Health Sciences Lahore during March 2018 to October 2018. The data was collected from 100 children age range for this purpose was 1 to 10 years. For this purpose we make two groups of study. One group was control group and the other group was suffering from kidney problems. For this purpose we collect the blood sample for serum analysis. Urea and Creatinine level of blood serum were also calculated by using enzymatic kits.

Statistical analysis:

The data were collected and analysed using SPSS version 21.0. Student's t-test was performed to evaluate the differences in roughness between groups.

RESULTS:

The data was collected from 100 child patients with mean age range 10.65±6]5.78 years. According to the K/DOQI scheme, CKD is characterized by stage 1 (mild disease) through stage 5 (ESRD). The inappropriate activation of this system causes hypertension, fluid retention, and inflammatory, thrombotic, and atherogenic effects that may contribute to end-organ damage in the long term. Table 01 shows the values of analysis of statin therapy in patients. It shows the comparison between two groups on the basis of functional values.

Table 01: Comparison between two groups in laboratory values

Urine laboratory value	**Normal group**	**CKD group**	**Median value**	**P-value**
Sodium (mmol/L)	N/A	139 (29, 246)	N/A	
Protein (normal <30 mg/dL)		10.5 (4.0, 53.0)		
Creatinine (mg/dL)		0.08 (0.02, 0.18)		
Protein/creatinine ratio (normal <45 mg/mmol)		122.8 (57.3, 766.0)		
Microalbumin (mg/dL)		<1.2 (0.50, 70.1)		
β2-microglobulin (normal <133μg/g Cr)		154 (66, 662)		
Other laboratory value				
Magnesium (mg/dL)	2.0 (1.5, 2.3)	2.0 (1.5, 2.3)	1.9 (1.7, 2.3)	0.4303
Phosphorus (mg/dL)	4.7 (3.7, 5.5)	4.8 (4.1, 5.5)	4.2 (3.7, 5.5)	0.0913
Vitamin D levels (ng/mL)	30 (18, 44)	30 (18, 44)	24 (21, 34)*	0.3448

DISCUSSION:

The outcome of children with severe CKD is highly dependent upon the economy and availability of health care resources. Approximately 90% of treated ESRD patients come from developed countries that can afford the cost of RRT [7]. Despite comparable incidence rates, high mortality in countries that lack resources for RRT results in a low prevalence of CKD patients in those countries. In one of the tertiary care hospitals in India, for example, up to 40% of the ESRD patients opted out of further therapy because of a lack of financial resources [8], and of the 91 patients with ESRD in another hospital, only 15 underwent renal transplantation, 63 received hemodialysis, and the remainder opted out of dialysis or transplantation care secondary to financial constraints. Similar results were recently published from South Africa where only 62% of children (<20 years of age) with ESRD were accepted by an "Assessment Committee" for RRT as part of a rationing program [9].

Children with renal agenesis or renal dysplasia should be monitored for signs of kidney damage. Treatment is not needed unless damage to the kidney occurs [10]. Ectopic kidney does not need to be treated unless it causes a blockage in the urinary tract or damage to the kidney. When a blockage is present, surgery may be needed to correct the position of the kidney for better drainage of urine. If extensive kidney damage has occurred, surgery may be needed to remove the kidney [11].

CONCLUSION:

It is concluded that children with CKD comprise a very small but important portion of the total CKD population. Whereas disorders associated with its development are well delineated, the availability of valid and widespread information regarding the epidemiology of CKD in children requires additional efforts.

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