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PREVALENCE AND CLINICAL PRESENTATION OF CYSTIC KIDNEY DISEASES AT LAGOS STATE UNIVERSITY TEACHING HOSPITAL

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ABSTRACT

Background: Cystic kidney diseases are an important cause of Chronic Kidney Disease (CKD), contributing about 10% to the burden of End Stage Renal Disease (ESRD). The prevalence of different types of renal cysts tends to vary with age with simple renal cysts and autosomal dominant polycystic kidney disease (ADPKD) having a higher prevalence with increasing age. Studies on cystic diseases of the kidneys are however few in our environment.

Objective: To determine the prevalence of cystic kidney diseases seen over a six year period in Lagos state University Teaching Hospital (LASUTH) and describe the patterns observed.

Methodology: Retrospective crossectional study involving all patients with cystic kidney diseases seen at the medical outpatient department of the nephrology unit between October 2008 and October 2014. Data, were obtained from the unit's record files and patients case files. Data collected included, patients age, gender, type of cyst, presentation, complications. Diagnosis was made by abdominal ultrasonography and or computerised tomography (CT) scan.

Results: A total of 37 out of 1524 patients with renal diseases seen during the period had cystic kidney disease (2.4%). Age range was 14-76years with a mean of 45.2 years. A slight female preponderance was noted with a male: female ratio of 1: 1.2. The types of cysts seen were: autosomal dominant polycystic kidney disease (48.6%), simple cysts (45.9 %), multicystic dysplastic kidney disease (2.7%) and medullary cystic kidney disease (2.7%). The most common presentation was abdominal pain (48.6%), followed by incidental finding (32.4%) , Hypertension (27%)and Renal failure (19%). 5% presented with abdominal mass, while 2.7% presented with haematuria.

Conclusion: Cystic kidney diseases, though constituted only a small proportion of patients seen during the study period, is still an important cause of morbidity in patients attending our renal clinic. A high index of suspicion is needed for diagnosis.

Introduction:

Cystic diseases of the kidneys encompass a large number of genetic, developmental or acquired conditions that share in common the presence of single or multiple cysts in the kidneys. They constitute an important cause of chronic kidney disease (CKD) / end stage renal disease (ESRD) especially in the western world where most studies on cystic kidney diseases have being done.[1,2] They are thought to contribute as high as 10% to the burden of ESRD[3]. It is generally thought that cystic kidney diseases may be less prevalent in Africans[4], largely because of paucity of data from this region. However, studies have shown an almost equivalent affectation of both white and black Americans[5] buttressing the fact that these diseases may not be as infrequent as thought.

The epidemiology of cystic kidney diseases depends to an extent on the population being studied, with simple renal cysts and ADPKD occurring more commonly in adults, autosomal recessive polycystic kidney diseases (ARPKD) presents usually in childhood while acquired renal cysts tend to be more prevalent in the elderly and in patients on dialysis.

Few studies have being done in Nigeria detailing the prevalence of cystic kidney diseases.

Objective:

This study sought to determine the prevalence of cystic kidney diseases seen over a period of six years in the Nephrology medical out-patients' clinic of Lagos State University Teaching Hospital (LASUTH) and describe the patterns seen.

Methodology:

Study design: Retrospective cross sectional study involving all patients seen at the nephrology clinic LASUTH between October 2008 and October 2014.

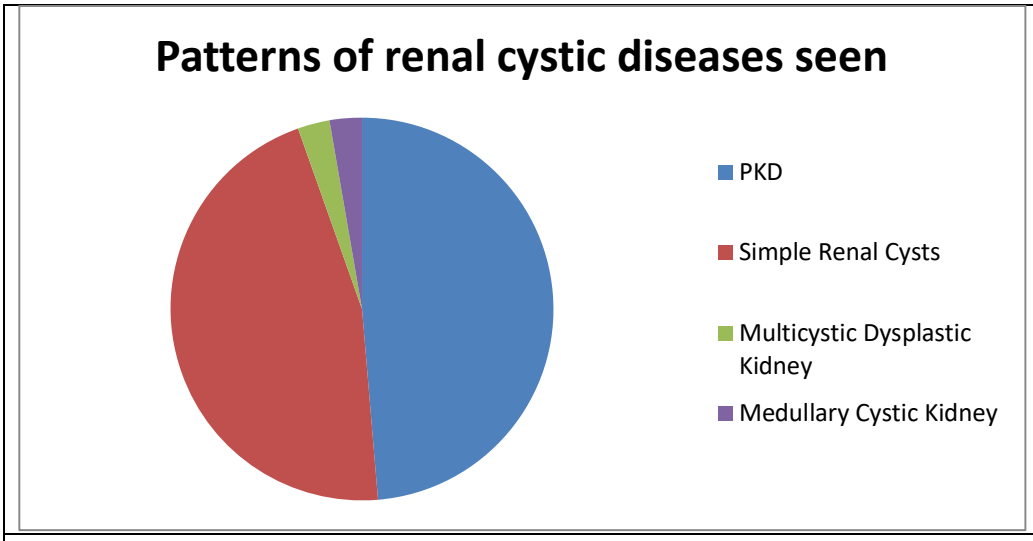
Methods: Data were obtained from the unit's record files and patients case files. Information extracted included; age, gender, type of cyst, presentation and complications. Diagnosis of renal cysts was made by abdominal ultrasonograhy and or abdominal computerized tomography (CT) scan.

Data are expressed as mean and percentages.

Results:

A total of 1524 patients were seen during the study period, with 37 patients having renal cystic disease, giving a prevalence of 2.4%. Age range was 14-76years with a mean age of 45.2years . A slight female preponderance was noted with M:F ratio of 1:1.2. Polycystic Kidney Disease (PKD) was the most predominant type seen (48.6%), followed closely by simple renal cysts (45.9%) , single cases each of multicystic dysplastic kidney disease (2.7%) and medullary cystic kidney disease (2.7%) were seen. Abdominal pain was the most common presentation (48.6%) other presentations included; asymptomatic or incidental finding on other screening (32.4%), Hypertension (27%), Renal failure (19%), Abdominal mass (5%), Haematuria (2.7%).

Urinary tract infection was the most common complication observed , seen in 7 patients (18.9%), Urinary Calculi was noted in one patient.



PKD	48.6%
Simple Renal Cysts	45.9%
Multicystic Dysplastic Kidney	2.7%
Medullary Cystic Kidney	2.7%

Fig 1. Table showing pattern of renal cysts

Table 1: Observed mode of presentation

Presentation	Number and %	PKD	Simple renal cysts	Multicystic Dysplastic kidney	Medullary Cyst
Abdominal pain	18 (48.6%)	5 (13.5%)	11 (29.7%)	1 (2.7%)	1 (2.7%)
Incidental Finding	12 (32.4%)	6 (16.2%)	6 (16.2%)	-	-
Hypertension	10 (27%)	10 (27%)	-	-	-
Renal Failure	7 (19%)	6 (16.2%)	-	1 (2.7%)	-
Abdominal mass	2 (5.4%)	2 (5.4%)	-	-	-
Haematuria	1 (2.7%)	1 (2.7%)	-	-	-

Discussion

We found the prevalence of cystic kidney diseases among the patients in our centre to be low. The prevalence of 2.4% obtained in this study may not be a true representation of the burden of cystic kidney diseases seen, mainly because of the retrospective nature of this study. Prevalence rate of as high as 15.4% has being reported in a similar study carried out in Ilorin Nigeria[6]. However, this was a prospective study, accounting for the wide variation in the observed prevalence. It is worthy of note that, the mean age of 45.2 years is similar to those obtained in other studies both within and outside the country,[6,7] this underscores the fact that the incidence of renal cysts tends to increase with age.[8,9]

Our study showed PKD (48.6%) to be the commonest type of cystic disease seen closely followed by simple renal cysts (45.9%), this differs from reports of cross sectional studies done in the general population where, simple renal cysts have been shown to be the commonest type of cysts seen[9]. This observation may be accounted for by the population of patients being studied as this study was conducted among patients attending the nephrology clinic. Others observed were single cases of multi-cystic dysplastic kidney and medullary cystic kidney.

PKD are of two types; Autosomal Dominant Polycystic Kidney Disease (ADPKD) which usually manifests in adult life and Autosomal Recessive Polycystic Kidney Disease (ARPKD) which is commoner in childhood. ADPKD is a multisystem disorder characterized by multiple bilateral renal cysts as well as

cysts in other organs, it is also associated with other non-cystic extra renal

manifestations. ADPKD is the most common genetic cause of renal failure in adults, accounting for about 6-10% of ESRD in America and Europe[1,2,10]. The prevalence of ADPKD of 8% has been reported in a hospital based study in Nigeria[11]. Common clinical presentation of ADPKD include: chronic loin pains, haematuria, infection, hypertension, nephrolithiasis.[12] We found hypertension to be the most common presentation in our study (55.5%), this is similar to what Rabbani et al found in a study carried out in Pakistan[13]. It is worthy of note that varying patterns of clinical presentation have being observed in varying studies, while Delaney et al[14], reported flank pains as the most common presentation , Chijoke et al[11] in Ilorin reported renal failure as the most common presentation in their patients with ADPKD. Other presentation observed were ; renal failure (33.3%), incidental finding (33.3%), abdominal pain (27.7%), abdominal mass (11.1%), and haematuria (5.5%). One patient had nephrolithiasis complicating PKD.

Simple renal cysts are the most common acquired renal cysts and are usually unilateral with an increasing incidence with age. They are largely asymptomatic but abdominal pain, infection, erythrocytosis, renal mass, hypertension and renal insufficiency are possible presentations[15]. In our study, approximately one third of patients with simple renal cysts presented as an incidental finding while two thirds had abdominal pain. The hospital based nature of this study may account for the higher symptomatic presentation.

Single cases of medullary cystic kidneys and unilateral multi-cystic dysplastic kidneys were observed. These are relatively rare cystic kidney diseases. Medullary cystic kidney disease is an inherited renal disorder characterized by medullary cysts in kidneys of normal or reduced sized and progressive tubulo-interstitial sclerosis leading to ESRD. It is inherited in an autosomal dominant pattern. Common clinical presentations include: impaired urinary concentrating ability and subsequently renal failure. Though abdominal pain as seen in our patient is not a usual presentation, it may have been an incidental finding on evaluation since ultrasonography is the commonest modality used in investigating abdominal pains.

Multicystic dysplastic kidney is a form of renal dysplasia characterized by the presence of multiple cysts separated by a dysplastic parenchyma and the absence of a normal pelvo-calyceal system, the kidney is non-functioning. Bilateral disease is incompatible with life but unilateral disease may be asymptomatic. Our patient had contralateral hydronephrosis and presented with abdominal pains and renal failure .

We conclude that cystic kidney diseases though constituting only a small proportion of patients seen during the study period, still remain an important cause of morbidity in patients seen in our nephrology clinics. A high index of suspicion is needed for diagnosis. We recommend more prospective studies, possibly in the general population to help ascertain the burden of cystic kidney diseases in Nigeria.

References

1. Garcia IC, Torres VE, Offord KP et al. Epidemiology of Adult Polycystic Kidney Disease . Olmsted country Minnesota: 1935-1980 . Am J Kidney Dis 1983;2:630-9.
2. Gabow PA, Autosomal Dominant Polycystic Kidney Disease. N Engl J Med 1993;329:332-42
3. Bisceglia M, Galliani CA, Senger C et al. Renal Cystic Diseases: a review. Adv Anat Pathol 2006 . Jan ;13(1):26-56
4. Seedat YK, Naicker S, Rawat R, Parsoo I: Racial differences in the causes of end stage renal failure in Natal. S Afr Med J 1984:65:956-958.
5. U.S. Renal Data System. USRDS 1990 Annual Report:IV. The demographics of ESRD. Bethesda, MD: National Institute of Health,

   National Institute of Health. National Institute of Health, National Institute of Diabetes and Digestive and Kidney Diseases: 1990; 17-22.

6. Chijoke A, Aderibigbe A, Olanrewaju TO, Makusidi AM, Oguntoyinbo AE.. Prevalence and pattern of cystic kidney diseases in Ilorin, Nigeria. Saudi J Kidney Dis Transpl 2010;21:1172-8
7. Yium JJ, Gabow P, Johnson A, Kimberlingbu Martinez-Mardonado M. Autsomal dominant polycystic kidney disease in blacks with ESRD: frequency, clinical course and effect of sickle cell haemoglobin. J Am Soc Nephrol 19992;3:305.
8. Carrim Z.I, Murchison JT, The prevalence of simple renal and hepatic cysts detected by spiral computed tomography. Clin Radiol 2003. 58(8):626-629.doi:10.1016/S0009-9260(03)00165-X
9. Tada S, Yamagishu J, Kobayashi H,Hata Y, Kobari T. The incidence of simple renal cysts by computed tomography. Clin Radiol 1983;34:437-42
10. Ravine D, Gibson RN, Walker RG, et al. Evaluation of ultrasonograhic diagnostic criteria for autosomal dominant polycystic kidney disease1. Lancet 1994;343:824-827
11. Chijoke A, Aderibigbe A, Olanrewaju T O, Makusidi A.M et al. The prevalence and clinical characteristics of adult polycystic kidney disease in Ilorin, Nigeria. Port J Nephrol Hpert 2010; 24(2): 159 -163
12. Gabour PA. Autosomal dominant polycystic kidney disease more than a renal disease. Am J Kidney Diseases 1990;16:403-413.
13. Rabbani MA, Ali SS, Murtaza G, et al. Clinical presentation and outcome of autosomal dominant polycystic kidney disease in Pakistan: a single centre experience. J PAK Med Assoc. 2008 Jun;58(6):305-9
14. Delaney VB, Adler S, Bruns FJ, et al. Autosomal dominant polycystic kidney disease:presentation, complications, and prognosis. Am J Kidney Dis 1985;5(2):104-11.
15. Kala R, Fyhrquit F, Haltiamen P, Ranste J. Solitary intrarenal cysts, hypertension andrenin.J Urol 1976;116:710