



Research Article

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Urinary lithiasis: epidemiological, clinic and therapeutic aspects at CNHU-HKM / Cotonou, Republic of Benin

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Abstract

Objective: To report the epidemiological, clinical and therapeutic aspects of urinary lithiasis at the university clinic of urology - andrology of Centre National Universitaire Hubert Koutoukou MAGA of Cotonou. **Patients and methods:** This is a retrospective study of 117 cases of urolithiasis collected over 10 years, carried out at the university clinic of urology - andrology of Centre National Universitaire Hubert Koutoukou MAGA of Cotonou. The study parameters were age, sex, profession, clinical and para-clinical characteristics, topography of urolithiasis, the treatment used and the main complications. Frequency and average calculations allowed us to analyze our results. **Results:** The average age in our study was 44.5 years. The age group between 40-49 years old was the most represented with 27.4% of the cases. The sex ratio was 2. The most frequent clinical manifestation was dominated by low back pain in 85.5% of cases. Cytobacteriological examination of the urine was pathological in 27 patients or 20%. The most commonly used imaging test was ultrasound of the urinary tree (89.5%) followed by Euro-CT (56.4%). Creatinine levels were disturbed in 16.2% of patients and uremia in 13.7%. Over 85% of urolithiasis involved the upper urinary tract. The JJ catheter surge (29.9%) and percutaneous nephrolithotomy (24.8%) were the main techniques used for the treatment of urolithiasis at CNHU-HKM of Cotonou. **Conclusion:** Urolithiasis remains a problem in our environment and requires an appropriate diagnosis with a view to effective and prompt management.

Keywords: Urolithiasis, Epidemiology, Clinical, Endoscopic Treatment.

INTRODUCTION

Urinary lithiasis is a public health problem in almost all countries of the world [1].

Formerly considered as the prerogative of the rich countries, they affect more and more the developing countries with a prevalence varying from 4 to 18% according to the countries and a peak observed in the age group of 40-60 years [1, 2].

In Europe, their prevalence is 10% including 9.8% in France [2].

In Africa, the prevalence varies according to countries and regions, ranging from 12 % of reasons for hospitalization in urology in Burkina Faso to 14% in the DRC [3, 4, 5].

Mostly, the main reason for consultation is dominated by renal colic; complications are dominated by urinary tract infections and obstructive renal failure [4, 6]. The aim of this study is to determine the epidemiological, clinical and therapeutic aspects of urinary lithiasis at the university clinic of urology - andrology of the national university center Hubert Koutoukou MAGA of Cotonou.

PATIENT AND METHODS

This is a retrospective, descriptive carrying on 117 patients suffering from urolithiasis between January 2011 and April 2019 is over 10 years. It was carried out at the university clinic of urology - andrology of Centre National Universitaire Hubert Koutoukou MAGA of Cotonou.

Was part of our study, all patients received for gallstone s urinary s clinical confirmed by the para clinical at the University Clinic of Urology, Andrology d u CNHU-HKM Cotonou during our study period some of the age but also with a complete file; otherwise, it was excluded.

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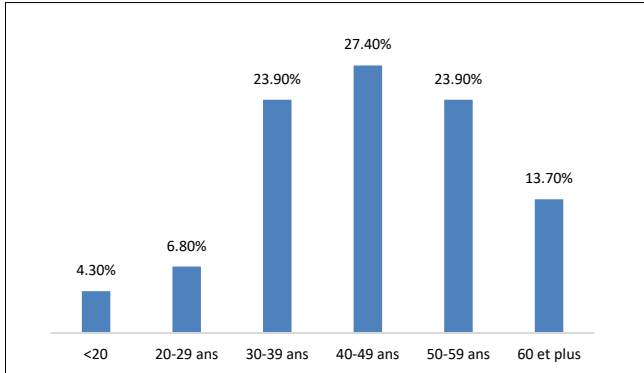
The study variables were: socio-demographic characteristics (age, sex, profession), clinical (reasons for consultation, topography of urinary lithiasis), para-clinical (imaging, ECBU + antibiogram) and therapeutic (medical and surgical treatment).

Data were collected from the hospitalization register and patient medical records. For the analysis, SPSS version 20 software and Excel version 2013 were useful to us and allowed us to obtain our results.

RESULTS

Out of a total of 2,568 hospitalized patients, 117 cases were notified, representing a hospital prevalence of 4.55%.

The average age of the patients was 44.4 years and the sex ratio was 2.



Graph 1: Age distribution of respondents

The age group between 30 and 59 years (75.2%) was the most represented followed by 60 years and more (13.7%) and finally that under 30 years (11.1%).

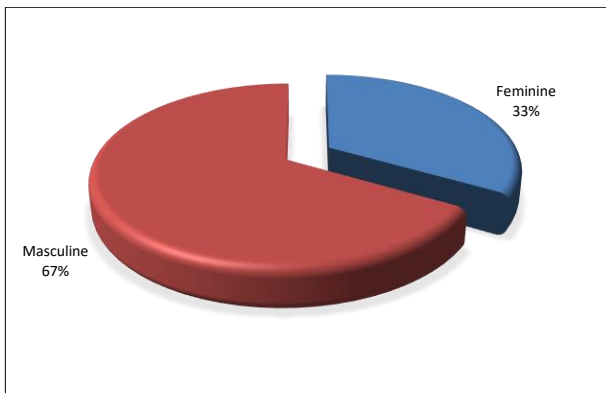
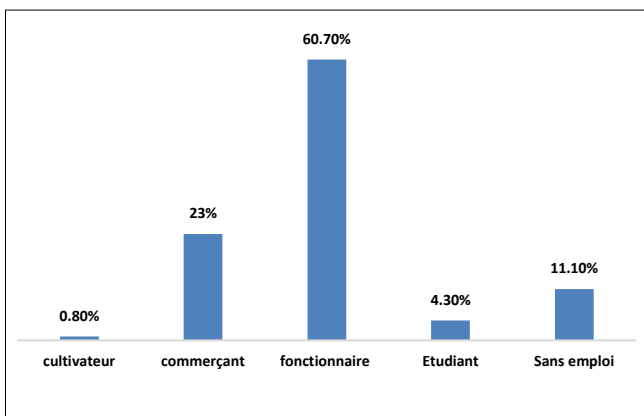


Figure 1: Distribution by sex of respondents

Men were more numerous 78 or 66.7% compared to women 39 or 33.3%.



Graph 2: Distribution by profession of respondents

Civil servants were the most represented 60.7%, followed by traders 23%, unlike cultivators 0.8%

Table 1: Distribution according to clinical signs

Clinical sign	Absent	Present
Low back pain	17 (14.5%)	100 (85.5%)
Hematuria	110 (94%)	7 (6%)
Urinary tract infection	110 (94%)	7 (6%)
Dysuria	104 (88.9)	13 (11.3%)
Pollakiuria	99 (84.6%)	18 (15.4%)
Urination	114 (97.4%)	3 (2.6%)
Complete bladder retention	112 (95.7%)	5 (4.3%)
Incomplete bladder retention	116 (99.1%)	1 (0.9%)
High blood pressure	116 (99.1%)	1 (0.9%)
Anuria	114 (97.4%)	3 (2.6%)
Renal failure	116 (99.1%)	1 (0.9%)

Low back pain (85.5%) and pollakiuria (15.4%) were the main reasons for consultation

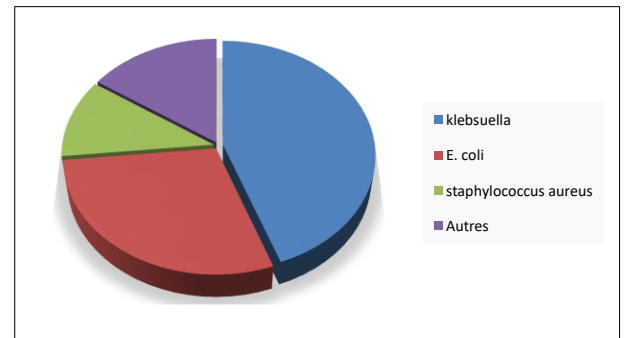


Figure 2: Distribution by germ

ECBU was pathological in 20% of our respondents

The klebsiella (44.4%) were the most common followed by E. coli (29%) and staphylococcus aureus (11.1%)

Others include much rarer germs such as proteus mirabilis, Pseudomonas aeriginosa, entrobacteria and represented 15.5%

Table 2: Distribution according to the imaging examinations carried out

imagery	Unrealized	Realized
Ultrasound	12 (10.3%)	105 (89.5) %
ASP	109 (93.2%)	8 (6.8%)
UIV	107 (91.5) %	10 (8.5 %)
Uroscanner	51 (43, 6)%	66 (56.4%)

Ultrasound 105 (89.5%) and CT scan 66 (56.4%) were the most used imaging tests

Table 3: Distribution according to the signs of renal repercussions

Renal balance sheet	Normal	Pathological
Uremia	101 (86.3%)	16 (13.7%)
Creatinine	98 (83.8 %)	19 (16.2%)
Ionogram	108 (92.3%)	9 (7.7%)

Creatininaemia was disturbed in 19 patients or 16.2%, uremia in 16 patients or 13.7% and the ionogram in 9 patients or 7.7%

Table 4: Distribution according to the topography of Lithiasis

Location	Absent	Present
Left renal	86 (73.5%)	31 (26.5%)
Right renal	75 (64.1%)	42 (35.9%)
bilateral renal	108 (92.3%)	9 (7.7%)
Left ureteral	99 (84.6%)	18 (15.4%)
Right ureteral	97 (82.9%)	20 (17.1%)
Bladder	100 (85.5%)	17 (14.5%)
Urethral	117 (100%)	0 (0%)

Right renal localization (35.9%) was the most frequent followed by that of the left side (26.5%) on the other hand, there was no urethral localization

Table 5: Distribution by treatment method (surgical)

Treatment	Not done	Done
Nephrolithotomy	100 (85.5%)	17 (14.5%)
Ureterolithotomy	100 (85.5%)	17 (14.5%)
Extracorporeal lithotripsy	115 (98.3%)	2 (1.7%)
Percutaneous nephrolithotomy	88 (75.2%)	29 (24.8%)
Ureteroscopy	106 (90.6%)	11 (9.4%)
Cystolithomy	104 (88.9%)	13 (11.1%)
Nephrectomy	113 (96.6%)	4 (3.4%)
JJ ascent	82 (70.1%)	35 (29.9%)

The Montée JJ with 35 patients or 29.9% and the NLPC 29 patients or 24.8% were the most used surgical techniques

Table 6: Breakdown by treatment method (medical)

Treatment	Not used	Used
Monitoring and advice	111 (94.9%)	6 (5.1%)
NSAIDs	96 (82.1%)	21 (17.9%)
Analgesic and rest	92 (78.6%)	25 (21.4%)
Antibiotic	95 (81.2%)	22 (18.8%)
Alkalinization of urine	111 (94.9%)	6 (5.1%)
Acidification	117 (100%)	0 (0%)

The use of analgesics (21.4%) and antibiotics (18.8%) accounted for the bulk of medical treatment

DISCUSSION

The prevalence of urolithiasis is 4.55% in all patients hospitalized in urology and andrology. These results are similar to those of all Garoua in Cameroon where prevalence of nephrolithiasis urine was 5.5% [7].

However, they differ from those of Pablo *et al* in the DRC and those of Kaboréa *et al.* in Burkina-Faso where the prevalence was 14% and 12.52% respectively [3, 4].

This difference can be explained by the conditions climate, lifestyle and access to care that generally can differ between countries and regions [7].

75.2% of patients were between 30-59 years of age with a peak between 40-49 years (27.40%), 66.7% were male and 60.7% were civil servants

These results are similar to those of Pablo and all carried out at the university clinics of Kinshasa / DRC and those of Garoua and all carried out in Cameroon where men predominated respectively with 59 % and 71.74%. The art of the most affected age group was 40-59 years (44.9%) and 46-60ans (26.08%) [3, 7].

This distribution of e tendency general can be explained by the fact that it is the socially active men who are targeted because of changing fashion life (sedentary lifestyle, eating habits) [2].

Low back pain was the most common mode of onset in 85.5% of our patients. These results join those of Diallo *et al.*, MOBIMA Timothée *et al.*, and of KABORE according to which the lumbo-abdominal pains represented respectively 94,2%, 37,4% and 32% [8, 9, 4].

This localization is explained by the fact that 85% urinary lithiasis concern the upper urinary tract.

In our study, only 20% of ECBU were positive and the most common germs were klebsuella (44.4%), followed by E.coli (29%) and staphylococcus aureus (11.1%). These same germs were found in the studies of DANAI and Ali Mahamata and all [10, 11].

On the other hand in Kinshasa, the urinary tract infection was found in 75.5% of the patients, however Escherichia coli and Staphylococcus aureus were also the most frequent germs respectively in 35.3% and 20.6% of the cases.

This difference may be due to the fact that the ECBU were probably taken a fortiori from antibiotic therapy [3].

89.5% of urolithiasis had been diagnosed by ultrasound, 56.4% by CT scan, 8.5% by UIV and only 6.8% by ASP.

On the other hand in the study by MOBIMA Timothée and all carried out in Bangui in the Central African Republic, ultrasound had diagnosed 41.7% of urinary lithiasis, followed by ASP 35.6% and UIV 22.6% [9].

This trend is also true in the study of Mr. Ali Mahamata *et al.* carried out in Ndjamena in Chad where the radiography of the pelvis was the most performed examination in 95.38% of cases followed by the couple ultrasound - radiography in 88.46 % of cases [11].

This difference is explained by the fact that the technical platforms vary from one country to another.

90% of urolithiasis was located in the upper urinary tract and involved the right side more than the left side. These results are identical to those of MOBIMA Timothée and all where 87.8% of urinary lithiasis concerning the upper apparatus including 67.80% for the kidneys, 20% for the ureters [9].

The same is true of the study by Pablo Kuntima *et al.* carried out in Kinshasa / DRC and by H. Boumzaoued and all carried out in Morocco where localization in the upper urinary tract represented 85.1% and 87.8% respectively [3, 5].

This localization is also true in the study by Pablo Kuntima *et al.* carried out in Kinshasa / DRC and by H. Boumzaoued and all carried out in Morocco where the localization in the upper urinary tract represented respectively 85.1% and 87.8% [3, 5].

This localization can be explained by the fact that most urinary lithiasis is linked to nutritional imbalance but also on the side where we are used to lying down [1, 5].

In regard to surgical treatment, DD Rise 29.9%, 24.8% PCNL, the ureteroscopy 9.4 % and the cystolithotomie 11.1% were currently the most used techniques.

In Europe and most countries of the Maghreb, almost 99% of bed urinary lithiasis to deal with endoscopically while in sub-Saharan Africa open surgery is still applied in many countries for lack of equipment [12, 13, 14].

In Morocco, out of 772 lithiasis cases, 49.48% underwent percutaneous nephrolithotomy (NLPC), 38.78% Ureteroscopy, 5.7% extracorporeal lithotripsy (ECL), and only 2.13% of patients had use of other surgeries [5].

This data is almost similar to ours, which is to be encouraged. On the other hand, in other African countries such as Congo Brazzaville and in Chad, open surgery is still widely used there [15, 11].

However, the increase in NLPC cases is linked on the one hand to the renal localization of lithiasis and on the other hand to the various missions carried out by Europeans in the urology-andrology service within the framework of campaign against urinary lithiasis.

Also, the increase in the rise of JJ probes is linked to the prevention or treatment of obstructive renal failure which has widened their field of use.

16.2% of patients had a high creatinine level before any intervention. These results join those of Pablo Kuntima Diasiama Diangienda and all performed in the DRC where 15.5% of patients had obstructive renal failure but also those of Diallo and all performed in Senegal where obstructive renal failure complicated 13.5% of urinary lithiasis [3, 8].

Conflicts of Interest

The authors declare no conflict of interest.

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