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Acute Obstructive Renal Failure at the University Hospital of Brazzaville from Epidemiology to Therapy

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Abstract

Introduction: Acute obstructive renal failure (AORF) is a life-threatening medical and surgical emergency. The aim of our work is to describe the clinical, biological, echographic, etiological and therapeutic profile of AORF. Patients and methods: This is a retrospective and descriptive study spanning a period of 15 months (from January 1, 2022 to March 15, 2023) collecting cases of IRAO among the files of patients hospitalized in nephrology and dialysis at the CHU/B. Results: We have 35 patients out of 615 or 5.69% of the population studied. The mean age of the patients was 62.6 years (range: 22 - 88 years). The sex ratio was 3 men for one woman. The circumstances of discovery were dominated by pelvic pain at 37.14%. The mean diuresis was estimated at 966 ml per 24 hours (range: 0 - 3000). The obstacle was prostatic in 45.71%, tumoral in 14.28%; lithiasis 17.14%; and undetermined for 25.71%. The mean creatinine level was 111.9 mg/L (range: 11 - 325). Renal ultrasound showed dilated urinary cavities in 31.42% of cases; dilatation was bilateral in 25.71% of cases. The indication for hemodialysis was: uremic syndrome, threatening hyperkalemia and acute pulmonary edema in 37.14%; 5.71% and 2.85% respectively. Bladder catheterization or suprapubic catheterization was performed in 100% of cases and allowed the removal of the obstacle and immediate resumption of diuresis. Joint urological management consisted of the placement of a percutaneous nephrostomy tube in 8.57% of cases, and the insertion of the double J tube. The evolution was marked by 8.57% deaths. Conclusion: The incidence of IRAO at the Brazzaville University Hospital is 5.69%, with a predominance of prostatic obstruction. Emergency therapeutic management is mainly based on drainage of the urinary tract, followed later by

treatment of the causal pathology. The delay in consultation and the delay in performing the nephrostomy and double J catheterization constitute an obstacle to the recovery of normal renal function and vital prognosis.

Keywords

Acute Obstructive Renal Failure, Epidemiology, Therapeutics

1. Introduction

Acute obstructive renal failure is characterized by a sudden and significant deterioration of renal function. Obstructive ARF usually results in phenomena of compression of the ureters (retroperitoneal hematoma, retroperitoneal edema) or phenomena of obstruction (edema of the ureteral mucosa or ureteral meat). Rarely, acute obstructive renal failure is the result of accidental ureteral ligation (uterine surgery). Two particular forms nevertheless deserve to be mentioned: by precipitation of uric acid or calcium phosphate crystals linked to reductive tumor surgery; ureteral mucosal edema by major hyponatremia (resorption syndrome linked to transvesical prostatic resection, for example) [1].

Acute obstructive renal failure (AORF) is a life-threatening medical and surgical emergency. Any uncorrected obstruction of urinary flow can lead to acute and then chronic renal failure. Obstruction causes irreversible renal failure if bilateral and various tubular abnormalities if incomplete, but early elimination of the obstruction allows complete recovery. In order to improve the management of AORF, we conducted this study with the main objective of studying the clinical-biological, ultrasound, etiological and therapeutic profile of AORF in our nephrology dialysis department of the Brazzaville University Hospital (CHU).

2. Patients and Methods

We conducted a retrospective and descriptive study. The study period was 15 months (from January 1, 2022 to March 15, 2023). The study was carried out in the nephrology and dialysis department of the Brazzaville University Hospital. Information was collected from hospitalization registers and medical records of patients hospitalized for IRAO during the study period.

Included in the study were the files of patients who presented

-impaired renal function with a blood creatinine level greater than 120 µmol/L

-evidence of obstructive uropathy (clinical and/or ultrasound).

The files of subjects with chronic renal failure (CRF) already known as well as unusable files were excluded.

Data processing and analysis were carried out using Microsoft Office Excel 2021 software. The various tables and figures were generated using Microsoft Office Excel 2021 software. Quantitative variables were expressed as mean with standard deviation or as median with the first and third quartiles. The median was used

when 10% of the integer part of the mean was greater than the standard deviation. Qualitative variables were expressed as numbers and percentages.

3. Results

3.1. Frequency

During the study period, 615 patients were admitted to the nephrology department, among whom 35 patients (a total of 35 files were exhaustively listed according to the above-mentioned selection criteria) had presented with IRAO, *i.e.* a frequency of 5.69%.

3.2. Age and Gender

The mean age was 62.6 years ± SD with extremes ranging from 22 to 88 years.

The sex ratio was 3 men to 1 woman.

3.3. Circumstances of Discovery

The most common reason for hospitalization was dysuria (37.14%).

3.4. Etiology

1) The mean serum creatinine level was 111.9 mg/L or 986.95 micromol/L (range: 11 - 325).

2) Renal ultrasound showed hydronephrosis in 31.42% of cases; dilatation was bilateral in 25.71% of cases (our work).

3) The indication for hemodialysis (Figure 1).

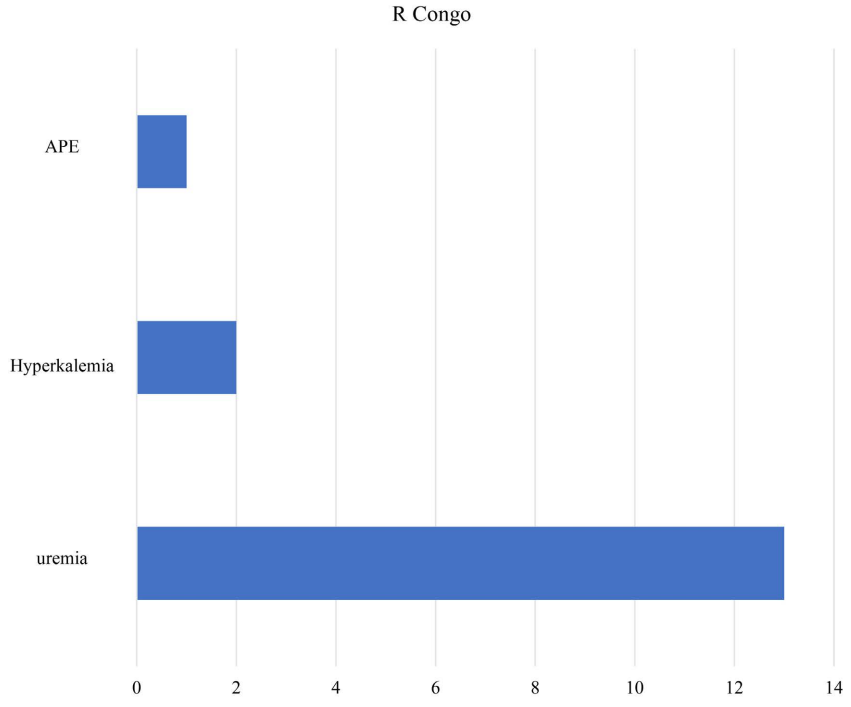

Figure 1. Indications of hemodialysis.

4. Discussion

1) We retained 35 patient files out of 615, or 5.69% of the population studied. The incidence of IRAO at the CHU is 5.69%. On the other hand, in Mali, Sy *et al.* in 2017 found 7.32% [2]; identical in Benin in 2015, Kokou *et al.* found 10.5% [3]. In Mali, the results and methodology were identical to ours while Kokou *et al.* had done work over 5 years, which would explain the difference between our results (see Table 1).

Table 1. Comparison between studies.

Studies	Predominant circumstances of discovery	%
Brazzaville R Congo	dysuria	37.14
Casablanca Morocco [4]	oliguria	71.96%
Niamey Niger [5]	dysuria	30.60%
Bamako Mali [2]	dysuria	50.6%

2) The average age was 48.9 years in Mali but the extremes went from 7 to 102 years. This is identical to the work carried out in Casablanca Morocco 63.11 years [4] and we found 59.91 years in Niger [5].

The sex ratio was 3 men for 1 woman. In all our research the sex ratio is identical and in favor of men. This was found by Lanzy A and collaborator 3 years earlier in urology at CHUB [6] [7].

3) The circumstances of discovery.

The circumstances of discovery were dominated by dysuria 37.14%. On the other hand, Table 2 below compares with other studies.

4) The causes of IRAO (Figure 2).

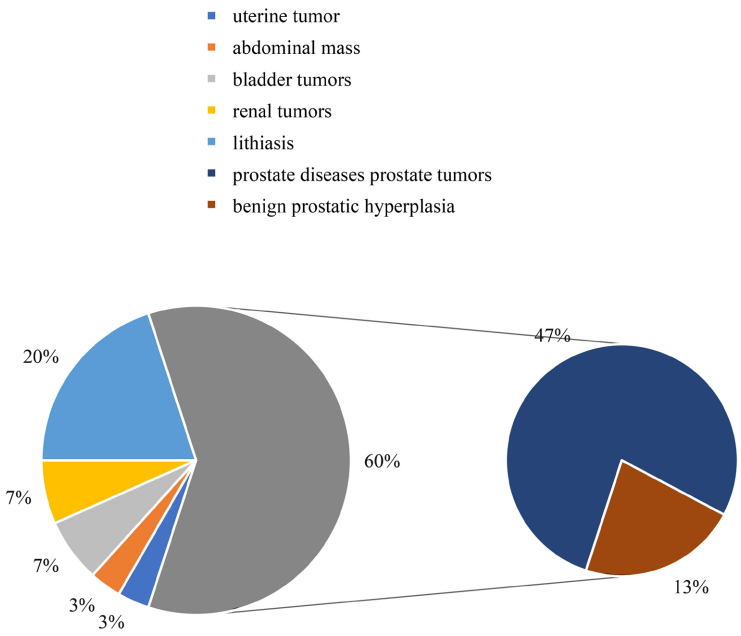

Figure 2. Causes of AORF.

Table 2. Main causes of AORF in some countries.

Gandzali Ngabe R Congo	The main causes of the obstacle were prostatic 45.71%, lithiasic 17.14%, and undetermined for 25.71%.
Kokou at Benin	Prostate tumors (44%), urinary stones (30.7%), Uterine tumors (5.3%).
Zeynabou Maiga at Niger	Benign prostatic hypertrophy, urethral stricture and urinary stones with respectively 72%, 17% and 11%.
Mabrouk at Casablanca Maroc	neoplastic in 74.8%; urinary stones 15%, undetermined 4.7%, retroperitoneal fibrosis 2.8%, bladder malformation 1.9%.
	The neoplastic origin was cervical, bladder, prostate, rectal cancer respectively 39.24%, 37.97%, 19%, 3.79%.

5) The mean creatinine level was 111.9 mg/L or 986.95 micromol/L (range: 11 - 325). Mean creatinine level was 143.31 mg/L or 1264 micromol/l. (Mabrouk in Morocco) the mean levels of admission would be high on admission.

6) Renal ultrasound showed hydronephrosis in 31.42% of cases; dilation was bilateral in 25.71% of cases. (our work). Hydronephrosis is 61.5%, and ureterohydronephrosis is 38.5% (Sy S in Mali).

7) The indication for hemodialysis.

The indication for hemodialysis was: hyperkalemia, acidosis, severe uremia and OAP in 83.1%; 34.57%; 21.49% and 11.21% of cases respectively. (Mabrouk *et al.* in Morocco [4] and Chavez-Iniguez *et al.* [7])

5. Conclusions

The incidence of IRAO was 5.69%.

The mean age was 62.6 years; the interest in uroMRI for early diagnosis is obvious.

The predominant obstacle was prostatic in 45.71%, followed by lithiasis in 17.14%.

The indication for hemodialysis was: severe uremia, threatening hyperkalemia and acute pulmonary edema, respectively: 37.14%, 5.71% and 2.85%.

The delay in consultation and the delay in performing the nephrostomy and the double J catheterization constitute an obstacle to the recovery of normal renal function and vital prognosis.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

[1] Canaud, B. (2005) Perioperative Acute Renal Failure: Definition, Diagnostic and Prognostic Criteria. *Bernard Canaud/French Annals of Anesthesia and Resuscitation*, **24**, 125-133.

[2] Sy, S., Samake, M., Coulibaly, M., Diallo, M.S., Kodio, A., Yattara, H., *et al.* (2020) Prevalence and Etiologies of Obstructive Renal Failure in the Nephrology Department of the University Hospital Center of Point G, Bamako, Mali. *Open Journal of Nephrology*, **10**, 187-198. https://doi.org/10.4236/ojneph.2020.103018

[3] Kokou, *et al.* (2015) Epidemiological Study of Obstructive Acute Kidney Injury in Benin. *African Journal of Urology*, **21**, 89-96.

[4] Mabrouk, *et al.* (2016) Clinical Characteristic and Management of Obstructive Acute Kidney Injury in Casablanca, Marocco. *Moroccan Medical Journal*, **13**, 211-218.

[5] Zeynabou, *et al. et al.* (2015) Epidemiology and Etiology of Obstructive Renal Failure at the Niamey University Hospital. *Health Sciences and Disease*, **22**, 1-3.

[6] Lanzy, A., *et al.* (2021) Epidemiology and Etiology of Obstructive Renal Failure at the Brazzaville University Hospital. *Health Sciences and Disease*, **22**, 98-102.

[7] Chavez-Iniguez, J.S., Navarro-Gallardo, G.J., Medina-González, R., Alcantar-Vallin, L. and García-García, G. (2020) Acute Kidney Injury Caused by Obstructive Nephropathy. *International Journal of Nephrology*, **2020**, Article ID: Article ID 8846622. https://doi.org/10.1155/2020/8846622