

Obstetrical Acute Kidney Injury: Epidemiology and Clinical Aspects in Teaching Hospital of Ignace Deen, Conakry Guinea

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Abstract

Introduction: In Guinea, data on the acute kidney injury (AKI) of women in the obstetrical context is still limited. This study attempted to determine the prevalence and the clinical signs of obstetric AKI in Guinea. **Patients and methods:** The study population consisted of pregnant or postpartum women with AKI, whom we treated in this institute from August 2018 to January 2019. All had normal anterior renal function with serum creatinine clearance $\geq 120 \mu\text{mol/L}$, and then suffered AKI. Patients characteristics were examined; maternal age, gestational weeks, AKI characteristics. **Results:** Of 2438 pregnant women admitted during the study period, 56 showed AKI. Antepartum and postpartum AKI accounted for approximately 80% and 17%, respectively. Regarding the maternal age, <25 years of age accounted for 54% (range: 17 - 40). Multiple gestations accounted for 34 (60.71%) of which functional AKI, organic AKI, and obstructive AKI accounted for 28/34, 2/34, and 4/34, respectively. Regarding the clinical manifestations, abdominal pain, tinnitus, visual disturbances, edema of the lower limb, and facial swelling accounted for 79%, 75%, 7%, 57%, and 54%, respectively. **Conclusion:** We here demonstrated peripartum AKI in Guinea, which findings may provide fundamental data to establish some strategy against this condition in this region.

Keywords

Obstetric AKI, Epidemiological and Clinical Aspects, Ignace Deen Conakry

1. Introduction

Acute renal insufficiency is defined as a sudden and temporary decrease in renal

function during pregnancy or during the peripartum period [1] [2].

It is a serious and formidable complication in obstetric settings. It is one of the major causes of morbidity and maternal-fetal mortality [1] [2].

Pregnancy-related ARI can be induced by the same causes as in the general population (functional, parenchymal, obstructive and septic causes) [3] but is more frequently related to specific pathologies of pregnancy with a different chronological distribution function of the term of pregnancy [4].

In Guinea, studies of women's AKI in obstetric settings are still under-explored. The objective of our work was to determine the prevalence of obstetric AKI and to describe the clinical manifestations observed in parturients.

2. Patients and Methods

This was a prospective study of the descriptive type over a 6-month period from 1 August 2018 to 31 January 2019. Included in this study all pregnant or immediate postpartum women hospitalized and/or followed in the hospital that had normal anterior renal function and serum creatinine $\geq 120 \mu\text{mol/l}$.

Our variables were: age, gestational, paraclinical and type of kidney insufficiency.

The diagnosis of ARI was selected on the basis of Creatinine level greater than or equal to $120 \mu\text{mol/l}$ and ultrasound which showed normal size kidneys with good corticomedullary differentiation. Also absent were renal osteodystrophy hypocalcemia and normochromic and normocytic arterial anemia. The AKI was functional in a clinical context of dehydration, oliguria; urine too dark.

The ARI was organic in the presence of elevated serum creatinine for more than 7 days with preserved or unreserved diuresis on the urinary excretory tract. The repeated control of serum creatinine allowed us to follow the evolution of the patients. This was defined according to the following modalities: The recovery was complete if the resumption of normal renal function was effective in 100% of cases. Creatinine levels returned to normal during treatment during hospitalization.

Classification of acute renal failure according to the classification of RIFLE [5].

3. Results

During the period, we admitted 2438 parturients, of whom 56 were included. All parturients had a serum creatinine greater than $120 \mu\text{mol/l}$ and 75% of them had microcytic anemia of between 8 and 10 g/dl. Calcium was normal in all 56 parturients. The course was marked by a normal recovery of the renal function in 54 parturients (96.42%), a chronic renal insufficiency in 02 parturients whose renal function did not normalize during the duration of follow-up. One of them died in hemodialysis. Three cases of fetal death have been recorded.

26.11 ± 6 years with extremes of 17 and 40 years.

4. Discussion

During our study, we collected 2438 patients who came for consultation, of which 56 developed an obstetric AKI, a frequency of 2.29%.

Statistical data from developing countries show that the incidence of obstetric AKI is: in India, Pakistan and Africa 7% - 11%, 18% and 57% respectively [6].

In Senegal, Diouf A.A. and Coll. in an obstetric gynecology ward in Dakar, found 8% of obstetrical AKI [7].

This low rate in our study could be explained by the high sample size and the duration of the study.

More than 80% of parturients had antepartum AKI and 17% postpartum AKI.

Parturients under 25 were the most frequent, 53.57%. The average age was 26.11 ± 6 years with extremes of 17 and 40 years (**Table 1**).

This result is close to that found by S. Alaoui *et al.* [8] in Morocco in 2016 who reported an average age of 29 ± 6 years. On the other hand, it is different from that of A.T. Lemrabott *et al.* [9] who reported in their study an average age of 32 ± 6 years.

According to the types of AKI we had functional AKI, organic AKI and obstructive AKI 62.5%, 28.6%, and 9.9% respectively (**Table 2**). The pregnancy-related AKI can be induced by the same causes as in the general population (functional, parenchymal, obstructive and septic causes) [3] but it is more frequently linked to specific pathologies of pregnancy with a different chronological distribution depending on the term of pregnancy [4]. These observations reinforce our findings that all types of AKI are observed.

In our study, multiple gestures accounted for 60.72% (34/56), including 28/34 functional AKI cases, 2/34 organic AKI cases, and 4/34 obstructive AKI cases.

Our result is different from that of Eswarappa *et al.* [10] in India in 2016 who found in their study a frequency of 52% primigest.

The main clinical manifestations were dominated by abdominal pain with 78.57%, tinnitus with 75%, visual disturbances with 7.43%, edema of the lower limbs with 57.14% and facial swelling with 53.57% (**Table 3**). The clinical picture in M.M.T. Zeinabou *et al.* [11] was dominated on admission by 40.6% of cases of oliguria, 37.5% of cases of edema and 37.5% of cases of seizure, 3.12% of cases of anuria.

According to the RIFLE classification, the stage E of the AKI was the most represented, 39.29% of the cases followed by stage I and R respectively in 21.43% and 17.86% (**Table 4**). This result is different from that obtained by S. Alaoui *et al.* [8] in Morocco in 2016 reported in their study 35.4% at stage R followed by 26.2% at stage I and 38.5% at stage F.

Table 1. Socio-demographic parameter.

	Parameter	Number	%
Fréquence	AKI anté-partum	46	82.14
	AKI post-partum	10	17.86
	Age (year)	56	100
	16 - 25	30	53.57
	26 - 35	20	35.71
	35 - 45	6	10.72

Table 2. AKI and gestation.

Gesity	Fonctional AKI	Parenchyma AKI	Obstructive AKI	Total
Multipare	28	2	4	34
Paucipara	3	10	1	14
Primipara	4	4	0	8
Total	35	16	5	56

Table 3. Clinical Sign in admission.

Clinical Sign	Number	Percentage
Abdominal pain	44	78.57
Visual disturbance	40	71.43
Hearing loss	42	75.00
Œdème Foot	32	57.14
Swelling	30	53.57
Nausea/Vomit	35	62.5
Confusion	6	10.71
Oligo-anuria	4	7.14
Diarrhea	2	3.57

Table 4. RIFLE Classification of patient.

RIFLE	Number	Percentage
R	10	17.86
I	12	21.43
F	6	10.71
L	6	10.71
E	22	39.29
Total	56	100.00

5. Conclusion

Acute kidney failure is a common obstetric complication. All types of acute kidney failure were observed with a predominance of functional IRA. Early management by a multi-disciplinary team would prevent maternal and fetal complications.

Conflicts of Interest

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

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