

Full Length Research Paper

## Kidney failure in rural areas in Togo: A case of Saint Jean de Dieu Afagnan's Hospital

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To determine the epidemiological, clinical and developmental renal failure in a religious hospital in a rural area southeast of Togo, a retrospective descriptive study on the viewed patient records and / or hospitalized from 1 January 2007 to 31 December 2011 hospital Afagnan was conducted. A total of 203 cases of patients with renal impairment (22% had an IRA, 50% had CKD and 28% of undetermined) were collected. There was a male predominance with a sex ratio in renal failure 1.57. The average age of onset was 45 years in renal failure. The cause of kidney disease could not be determined in 40% of cases. Chronic kidney disease glomerular accounted for 29.41%. Acute tubular necrosis accounted for 57.9% of acute renal parenchymal. Overall mortality of renal failure was 33%. This study confirms the problem of renal failure in developing countries and especially in rural areas.

**Keywords:** Kidney failure, IRC-CKD, IRA-AKF, risk factors, rural areas, religious.

### INTRODUCTION

Kidney failure is a widely spread disease throughout the world. Any kidney deterioration, whether acute or chronic, increases the morbidity-mortality rate (Bagnis, 2003). The first health issue caused by kidney failure is the assessment of its acute or chronic nature (Mercadal et al., 1998).

The acute kidney failure (AKF) is a widely spread disease. Taking the whole population, the acute kidney failure may range from 260 to 800 out of a population of one million people (Brivet et al., 1996). Among some populations, the risk factor is pretty high. Nearly 1% of

admitted patients suffer from acute kidney impairment. This percentage jumps to 20% when it comes to intensive care patients. It is often part of a multi organ systems failure, and reveals the acuteness of the patient's condition (Abou et al., 2003). The AKF mortality rate varies from 45 to 70 % (Abou et al., 2003).

When we consider the whole population, chronic kidney failure (CKD) is a disease which frequently affects patients suffering from multiple diseases which necessitate many therapies (Bagnis,2003). The CKD has been a frequent disease in Africa over the last few years (Touré et al., 1984). Its prevalence and impact on the population are not yet determined. The collected data is about the acute kidney impairment in hospitals. According to it, the CKD is a resurgent disease (Ahmed, 2006).

In Togo, studies focused on the kidney failure are scarce. A study carried out by Sabi et al. shows a prevalence rate of 3% of acute kidney impairment at the University Hospital called CHU Sylvanus Olympio (Sabi et al., 2011). No study has been carried out in rural areas. We have decided to carry out a study in rural areas nationwide in Togo where diagnostic materials are few. Our study aims at determining the epidemiological, clinical and developmental kidney failure among adults admitted at the Afagnan Hospital.

## METHOD

It is a retrospective and descriptive study carried out at the internal medicine, gynecological and obstetrical, surgery and intensive care departments of the religious hospital of Afagnan. This hospital is located in a rural area at about 60 Km away from Lomé, the capital city of Togo. The data were collected from 1<sup>st</sup> January 2007 to 31<sup>st</sup> December 2011 and concerned the cases of patients aged above 15 years who have been consulted and admitted in this hospital because of any sort of renal impairment.

Socio-demographic, epidemiological, clinical parameters have been taken into consideration. These are namely risk factors, clinical and extra clinical renal signs and para-clinical, therapy and development.

The data collected have been reordered on a collection sheet presenting the parameters of the study. We used the Epi-info version 3.5.1 software to analyze data.

## RESULTS

### Epidemiological aspects

The average age for the occurrence of the renal impairment was 45.43 years specifically 40.7 years for the female sex and 46.4 years for the masculine sex with extreme cases of 15 years and 92 years. The average age is 49.93 years in case of AKF specifically 41.4 years with the female sex and 48 years for the masculine sex; it is 44.16 years in case of CKD, specifically 42.4 years for the female sex and 54.1 years for the masculine sex. We noticed a masculine prevalence with a sex-ratio at 1.57. But the sex-ratio is 1.81 with patients suffering from AKF and 1.49 suffering from CKD.

Active adults aged between 25 to 54 years were the most affected by the renal impairment (54,2%). Active adults with an AKF represented 42.2% of AKF and 61.8% of CKD were active adults.

### Clinical aspects

Most of the patients were admitted by the emergency service (91,1% of AKF and 74,5%). Kidney failure

represented 2% of hospital admissions in internal medicine and was associated with 0.26% of surgical diseases. It represented 0.88% of hospital admissions for intensive care.

The main renal impairment cases concerned Edema (100 % of AKF and in CKD) and oliguria (40 % in AKF and 45.9 in CKD) as illustrated in the below table 1

As for the non-renal impairments, anemia and digestive disorder were the most frequent. High blood pressure represented the third sign in the CKD (Table 2).

### Risk factors

The first risk factor is the HBP. The second risk factor is self-medication based on infusions. Taking infusions and high blood pressure represent the major risk for suffering from acute renal impairment. As for the acute renal impairment, the major risk factor is high blood pressure coupled up with diabetes as shown in (Table 3).

### Paraclinical aspects

The average rate of hemoglobin was 8,1 g/dl in kidney failure. In AKF this rate was 10,4g/dl and of 7,4g/dl in CKD. Anemia was more acute in chronic kidney failure.

### Etiological Aspects

Regarding acute kidney failure, the IRA-AKF's anti parenchymatous AKF's are 42% of AKF hospitalized followed by AKF functional (22, 22%). The chronic tubular necrosis was 57, 9% of the AKF parenchymatous. As for the CKD, the chronic glomerulus nephropathy (20, 40%) has been the most observed. Diabetes nephropathy was 11, 76% of the IRC-CKD and 40% of chronic glomerulus nephropathy. Etiology has not been determined in 38, 23% CKD cases.

### Therapeutic aspects

Diuretics were the most used medicine notably in CKD (98%). Hypertensives were prescribed to 40% of kidney failure (26% in AKF and 40, 5% in CKD). The most Common anti-hypertensive in our study was the calcic inhibitory.

Dialysis indicator found with 111 patients that is to say (44 with female and 67 with male). Seventy-seven were CKD that is to say 65% of patients were CKD and 26, 7% AKF were identified with diabetes.

### Progressive Aspects

During the study 3180 patients died at Afagnan hospital. Mortality resulted from kidney failure was 33%. This rate was 22, 2 in AKF and 36, 3% in CKD.

**Table 1.** Repartition of patients suffering from renal impairment according to renal signs.

	AKF (n=25)		CKD (n=74)		IKD (n=40)		Total (n= 139)	
	n	%	n	%	N	%	n	%
Oedema	25	100	74	100	40	100	139	100
Oliguria	10	40	34	45,9	16	40	60	43,2
Anuria	2	8	13	17,6	12	30	27	19,4
Hematuria	1	4	2	2,7	2	5	5	3,6

**Table 2.** Repartition of patients suffering from renal impairment according to extra renal signs.

	AKF (n=32)		CKD (n=77)		IKD (n=38)		Total (n= 147)	
	n	%	n	%	N	%	n	%
Heart failure	3	9,4	7	9,1	5	13,2	15	10,2
Breathing signs	4	12,5	8	10,4	3	7,9	15	10,2
Neurological signs	2	6,3	7	9,1	8	21,1	17	11,6
Digestive disorders	20	62,5	49	63,6	26	68,4	95	64,6
Anemia	8	25,0	61	79,2	32	84,2	101	68,7
Skin signs	1	3,1	4	5,2	0	0	5	3,4
HBP	7	21,9	42	54,5	20	52,6	69	46,9

**Table 3.** Repartition of patients suffering from renal impairment according to risk factors.

	AKF (n=45)		CKD (n=102)		IKD(n=56)		Total (n= 203)	
	n	%	n	%	n	%	n	%
High blood pressure	9	20	13	12,7	11	19,6	24	11,8
HBP	5	11,1	21	20,6	3	5,4	29	14,3
Diabetes	1	2,2	12	11,8	1	1,8	14	6,9
Nephropathy	1	2,2	8	7,8	3	5,4	12	5,9
HIV	3	6,7	6	5,9	5	8,9	14	6,9
Infusion	7	15,6	5	4,9	9	16,1	21	10,3
Alcohol	3	6,7	3	2,9	1	1,8	7	3,4

## DISCUSSION

### Epidemiological Aspect

Male predominance was noted in our study (sex-ratio at 1, 57) not only in AKF (sex-ratio at 1, 81) but also in CKD (sex-ratio at 1, 49). Most works have noted predominance in males. Sabi et al. (2011) in Lome on AKF, Diallo et al. (1997) in Ivory Cost and Lengani et al. (2010) in Burkina-Faso have respectively noted a ratio of 1,34; 1,61; 1,63. These results are similar to Hulot et al.; 2003.

In our study the average age of death with kidney failure was 45 years old (49 of age with AKF and 44 of age with CKD). The average age in the study of Sabi et al. (2011) and Benja et al. (2016) in Madagascar on CKD respectively was 42 and 45 years old. Lengani et al. (2010) study on AKF noted an average age of 38, 6 years old.

### Clinical Aspect

Several of our patients had extra kidneys signs (72, 41%) against 68, 47% of kidney signs. This proportion was respected in AKF as well as in CKD. Anaemia was the

most frequent extra kidneys manifestation (49,75%). 59, 8% of anaemia were CKD. The average rate of haemoglobin was 8g/dl (7,4g/dl in CKD and 10,4g/dl (Ahmed et al., 2006). According to the note, the severity of anaemia is proportional to acute kidney failure (Baumelou, 2006). This explains the low rate observed in IRC-CKD.

Majority of patients were admitted at the intensive care. This results in the AKF emergency character. Lengani et al. (2010) also reported a high rate of patients with IRA-AKF at emergency care (83,5%). In these series, medicine services admitted more patients with kidney failure (74, 87%). 85, 7% with IRA-AKF were follow-up in medicine. Lengani et al. (2010) reported in a study conducted on AKF concluding that 75, 2% of patients presented medical pathology. Surgical pathologies were observed in 13, 2% of cases and gynecological were 11, 6%. The predominance of medical causes is explained by the high rate of pathologies infection and auto medication in our regions. This contrast with the context of countries where the prevalence of surgery cause is high and varies from 31 to 49%, 31 to 49% reported in studies (Kleinknecht, 1994).

### **Etiological Aspect**

We could not determine the cause of about 40% of chronic nephropathies. Insufficient means of diagnosis at Afagnan hospital is the immediate fact. Chronic glomerulus nephropathy were 29, 41% including 11, and 76% of diabetes nephropathy. Ahmed (2006) had noticed in their studies 40, 2% of glomerular nephropathy and 17, 6% of vascular nephropathy. All data were not statistically significant.

The functional acute kidney failure was 22, 22% of AKF, 13, 33% of obstructive AKF and acute parenchymatous nephropathies were 55%. These data practically correspond to literature data (Bagnis, 2003). In report, organic AKF were 55 to 60% of AKF hospitalized (bagnis, 2003).

In Lengani study AKF obstructive were 12, 4% of cases and acute tubular necrosis were 80% of organic AKF (Moulin et al., 2003) against 44% in our study.

Application of clinical criteria has underestimated acute tubular necrosis cases. Unspecified etiologies were 22, 2% of AKF. A policy of equipment reinforcement particularly in laboratory has to be adopted in the country. This policy will enable quick decision made in favor of patient's state of health.

### **Therapeutic Aspect**

Diuretics were the most use medicines especially in the AKF (98%). Ahmed (2006) notated that patients use of 42, 85% of diuretics against 91% from Sabi et al (2011). This massive use of diuretics can be explained by the

presence of oedemas (72, 54% of patients affected by CKD have oedema).

Antihypertensives were used in 40% of cases in kidney failure (26% in AKF and 40,5% in CKD cases). In Ahmed series antihypertensives were used in 40% of cases (Ahmed, 2006).

Dialysis was indicated in 54, 68% of cases with kidney failure. Ahmed found 87% of patients who needed dialysis (Ahmed, 2006).

### **Progressive Aspect**

In this study the rate of lethality of kidney failure was 33%. Mortality rate causes in CKD was 36, 27%. Mortality rate in Ahmed (2006) study was 47%. Sabi et al. (2011) had notified a mortality rate of 38, 9%. Secondary hospital mortality of AKF found in our series (22, 22%) was comparable to the 24% signaled in the study of Lengani et al. (2010). Our result cannot be compared to western studies, because patients' profiles are different. Mortality per AKF about 50% still remains high in developed countries (Lameire., 2006; Ouattara., 2011) where most patients die in a diagram of multivisceral weakness (Chanard., 1994).

### **CONCLUSION**

This study confirms that there is a renal failure in rural areas. The etiologies of these renal failures are various. There is a high mortality that is dominated by chronic kidney diseases. Hence, the need for people awareness in order to prevent the severe affection occurrence.

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