



## Fragility Syndrome in Chronic Renal Failure in Elderly Patients Hospitalized at the Nephrology Department of the National Hospital of Lamordé (HNL)

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### Abstract

**Introduction:** Kidney ageing decrease the rate of glomerular filtration potentialized by heart vasculars and metabolic risks. It's constituted a health public problem in which geriatrics syndromes treatments are not made. Our aims were to describe the first data about epidemiologic clinic and therapeutic renal failure in elderly at hospital.

**Materials and Methods:** Our prospective longitudinal descriptive study conducted from April to August 2017 included renal failure patients aged 60 and over hospitalized at the Nephrology Medicine Department of the HNL. Renal function was assessed by the MDRD formula. Results - the prevalence of kidney failure was 25.5% of hospitalizations with mean age are around  $69.72 \pm 8.7$  years and 4.66 for sex ratio. 100% of patients had a creatinine clearance unless than 30 ml per min and 49% were hemodialysis. The comorbidities associated were HTA (29.4%) and diabetes (15.7%). Frailty by ABCDE tools was 60.8% and geriatrics syndromes were: Denutrition (96%), disability (62.8%) and mental deficient in 49.1%. The mortality was 31.4%.

**Conclusion:** Kidney failure in elderly appears chronic and severe. The therapeutic should be base on preventive of cardiovascular and metabolic comorbidities and geriatrics syndrome management by multidisciplinary approach between nephrologists, geriatric and internist physicians.

**Keywords:** Elderly; Renal failure; Geriatric syndrome; Niger

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Received Date: 08 Aug 2021

Accepted Date: 03 Sep 2021

Published Date: 09 Sep 2021

#### Citation:

Andia A, Brah S, Abdou I, Adehossi E. Fragility Syndrome in Chronic Renal Failure in Elderly Patients Hospitalized at the Nephrology Department of the National Hospital of Lamordé (HNL).

Am J Gerentol Geriatr. 2021; 4(1): 1023.

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### Introduction

The kidneys are necessary organs of the body ensuring several endocrine and exocrine functions, including stabilization of blood internal environment through the synthesis of erythropoietin, renin and the active form of vitamin D3 [1]. In humans, renal function decreases steadily but varies with age from around 30 years of age, characterized by a decrease in Glomerular Filtration Rate (GFR), an increase in renal vascular resistance and an increase in blood pressure or heart failure which accelerate this drop. Aging limit definite elderly continues to decline with the increase in life expectancy [2]. According to the meeting of the policy framework and action plan on the aging of the African Union, meeting in Nairobi from 3<sup>rd</sup> to 6<sup>th</sup> December 2001; in Africa, people aged 60 and over represented 5% of the general population in 2011, it is expected to more than double in almost all African countries by 2050 [3]. Renal failure is a major public health problem in the world and declared a major priority in France in 2001. The incidence of end-stage Chronic Renal Failure (CRF) increases with age, from around 10 per million inhabitants before the age of 20 to 1,000 per million inhabitants after 65 years [4]. In sub-Saharan Africa, chronic kidney disease was responsible for 4% to 22% of deaths according to hospital data [5]. In Niger, we do not have any data on renal insufficiency in elderly subjects in a hospital, hence the interest of this study in contributing to a better understanding of renal insufficiency in elderly subjects in at hospital.

### Materials and Methods

The Study Population consisted of people aged 60 and over Renal insufficiency hospitalized in the Nephrology department of the National Hospital Lamordé d April to August 2017 (6 months) including All patients with renal failure aged 60 years and over hospitalized during the study period and having agreed to participate in the study. The patients with alternate conscience, visual troubles and hearing impaired were non-include collection of data: We used Pre-established survey sheet:

**Table 1:** Socio demographics characteristics.

Socio demographics characteristics	Number (n)	Percentage (%)
<b>Prevalency:</b> Total admitted/patients IR	51/200	25.5%
Sex Ratio: 4.6	Men =42; Women =9	M=82.4%; W=17.6%
<b>Group of age:</b>		
Mean =69.72 ± 8.7 years. [60-103 year]		
Young old: 60-74 year	n=36	70.5%
Old old: 75-84 ans	n=14	27.5%
Oldest old: ≥ 85 ans	n=1	2%
Marital status		
Married/ widows /single	41/9/1	84.4%/17.6%/2%
<b>Morbidities</b>		
Hypertension/diabetes cardiopathy	15/8/2	29.4%/15.7%/3.9%
Toxics habits		
Decoction/self medicaments /alcohol/tobacco	43/53/9/14	84.3%/68.6%/17.6%/27.5%
<b>Fragility</b>		
ABCDEF score: <3 (frailty)	31	60.8%
<b>Treatment:</b> hemodialysis	29	45%
<b>Mortality</b>	16	31.4%

**Table 2:** Distribution of group age, toxics habits and comorbidities according for creatinine clearance.

CC(ml/min)	Total Elderly	Group of age (Years)	Toxics habits	Comorbidities
<15	43 (84.3%)	60-74: 29 (87.5%)	Decoction: 35 (68.6%)	Hypertension: 13 (25.9%)
		75-84: 13 (30.2%)	Self-medication: 4 (66.6%) <b>P=0.025</b>	Diabetes: 4 (7.8%) <b>p=0.001</b>
		≥ 85: 1 (2.3%)	Tobacco: 13 (25.5%)	Cardiopathy: 1(1.9%)
			Alcohol: 8 (15.6%)	
15-29	8 (15.7%)	60-74: 7 (67.5%)	Decoction: 6 (15.7%)	Hypertension: 2 (3.9%)
		75-84: 1 (12.5%)	Self-medication: 1 (2%)	Diabetes: 4 (7.8%) <b>p=0.001</b>
		≥ 85: 0 (0%)	Tobacco: 1 (2%)	Cardiopathy: 1 (1.9%)
			Alcohol: 1 (2%)	
Total	51 (100%)	51 (100%)	51 (100%)	51 (100%)

The Activity of Daily Living (ADL) sheets to assess autonomy, the MNA score for the Mini nutritional Assessment, the MM test score from Senegal for the cognitive status, the ABCDEF score for fragility assessment, patient records and the patient hospitalization register.

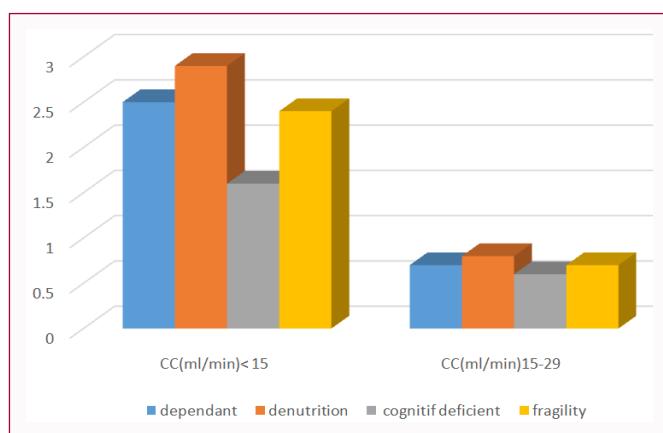
The pitfalls were a lack of means for carrying out certain biological or imagery test and information missing in some files. Lack of cooperation, absence of cares for some patients with impaired cognitive function.

► We used Creatinine Clearance (CC) estimated in milliliters per minute with the Modifying Disease Renal Diet (MDRD) formula:

$$\text{Clcr (ml/min)} = 186 \times (\text{Creatinine}/88.4) - 1.154 \times \text{Age} - 0.203 \times (0.742 \text{ if female sex}) \times (1.212 \text{ if black subject})$$

## Discussion

The hospital prevalence of Chronic Renal Failure (CRF) in our study was 25.5%. It remains higher than the overall hospital prevalence of CRF in Niger which increased from 2003 to 2013, going from 12.3% to 23% but remains lower than the result of Ilham in Morocco in 2013 which reported 32.9% [6-8]. The mean age of our patients was 69.72 years ± 8.7 with the predominant age group 60 to



**Figure 1:** Creatinine clearance according of autonomy, nutritional and cognitive status.

74 years (70.5%). our average age is close to Gorsane I in Tunis who finds 78.34 years in the subject over 75 years while the average age in France varies between 79.9 years ± 4 and 89.69 years ± 6 depending on the studies in subjects 74 and over [9-11]. This difference could be explained by the variability of the threshold defining the age profile

in a geriatric hospital setting and also by the low life expectancy of our population compared to that of Europe. the comorbidities in our studies corroborated the general epidemiological trend with hypertension 29.4% of which 25.5% had a CC less than 15 ml/min ( $P>0.05$ ) while diabetes was found in 15.7% with a statistically significant relationship with IRC ( $p=0.001$ ) as also found in the study by Salive et al. [12]. Kazara [13] reports in Algeria respectively Hypertension (61.47%) and diabetes (6.54%). The most common toxic habits in our study were taking decoctions (84.3%) and self-medication (68.6%) with an average of 1.95 drugs. the notion of drug intake was found in 100% of cases in the Colas ST study with an average of 6.5 drugs [11].

In our study, the majority of patients had a CC<15 ml/min (84.3%) with a mean of 8.88 ml/min (2.05-24.98). It is identical to that of Hallonet [10] in France which reported an average of  $8.7 \pm 3.5$  ml/min (3-22) but remains lower than that of Kazara [13] in Algeria and Colas [11] in Paris 7 which reported respectively 41.95 and 69.9 ml/min. The difference could be explained by the variability of the study inclusion criteria. In fact, in our study and that of Hallonet [10], patients had advanced CRF. In our study the mean CC was 9.71 ml/min for the age group 60 to 74 years; 8.73 ml/min for the 75 to 84 age group and 6.52 ml/min for those 85 and over. Kazara [13] in Algeria found 49.88 ml/min for the age group 74 to 84 and 34.28 ml/min for those aged 85 and over. These data could suggest that the prevalence of altered CC increases with age and without forgetting the importance of associated comorbidities. Frailty is a concept defined as a clinical syndrome, a dynamic and potentially reversible process, which reflects a decrease in physiological reserve capacities altering the mechanisms of adaptation to stress [14].

Several definitions had been proposed, including the tool for identifying the geriatric "valence" of a senior ("ABCDEF") at the request of the ARS (Regional Health Agency) of Haute-Normandie, during the development of the SROS (Regional Plan for the Organization of Care) III [15]. In our study, the assessment of frailty with this SCORE found 60.8%: Loss of functional independence (62.8%); denutrition (72.5%); CRF in all patients (100%); cognitive disorders (57.9%). So, in our study, the frailty was 60.8%. This result is superior to the study carried out by Andia and al in Niger, which found 23% in subjects, aged 70 and over in medical emergencies using a different tool [16]; our results also remain superior to Bordage [17] in France, which found 19.8% frailty. The context of developing countries marked by diagnostic and therapeutic delays could explain this superiority. In our study, the geriatric syndromes found were: Denutrition (72.5%), rate identical to that of Kazara [13] which found 72% but higher than that of Colas [11] which found 55.6% the reduction in protein-calorie intake worsening with the progression of CRF [18] associated with aging and chronic inflammatory state by hemodialysis membranes [19] could explain this difference; the degradation of cognitive functions was found in 57.9% of patients in our study. It varies according to the literature ranging from 21% to 87% [17-20]. Neurological manifestations may be synonymous with a severe impact of CRF and an urgent indication for the initiation of dialysis. Hemodialysis generally remains the effective symptomatic treatment of the advanced stage of CRF as shown in our series with 49% of hemodialysis patients. Gorsane in Tunis [9] which reports 14.3% and Bordage [17] in Rouen reports 84, 62% of hemodialysis patients. Mortality was 31.4% in our study with co-morbidities frequently associated with hypertension and diabetes. Our results are superior to those of Hallonet in and [10] in France and Gorsane

in Tunis [9] who respectively report 20.8% and 20% of deaths with the same frequently associated comorbidities. This difference could be explained by a delay in diagnosis and limited possibilities of therapeutic access.

## Conclusion

CRF is common in hospital settings and increases with age, hypertension and diabetes. It is complicated by a state of fragility with geriatric syndromes that can increase mortality. It requires reinforcement of primary and secondary prevention.

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