Exploration Of Renal Function In Leprosy Patients Under Treatment And Those Who Have Undergone Anti-Leprosy Treatment At The OUIDAH Leprosy Treatment Center (BENIN)

AÏKOU Nicolas [1, 2,3,], Rock Allister LAPO[1,3] ; COULIBALY Founzégué Amadou [1,2]; AHOYO Angèle Théodora [1, 2,3.] Gominan MOUTAWAKILOU [1,2,3.] AÏKOU Nadine Lucrèce. Mirèze. [1, 2, 3.] AÏKOU Arielle Nadège Emérentienne [1, 2, 3.] Lydie ZANNOU[1, 2 3.] Ibrahim ALKOARE [1, 2, 3]; EDORH Patrick [1,2,3]

Corresponding author:
Dr. AÏKOU Nicolas: National University of Sciences, Engineering and Mathematics
Department of Human Biology
Laboratory of Clinical Biochemistry and Medical Microbiology
aikounicolas@yahoo.fr, nicolashoundjo@gmail.com,
04 BP 435
Tel : 00229 95059832

ABSTRACT

Aim: The objective of this study is to evaluate the effect of taking anti-leprosy drugs in leprosy patients under treatment and at the end of treatment.

Materials and Methods: In order to achieve this, we collected eighty (80) leprosy patients in whom we measured urea and creatinine. We also determined the creatinine clearance.

Results: The results obtained show an increase in urea and creatinine concentrations in subjects with more than four years of treatment compared to those with between six months and four years of treatment. A significant difference between these two types of patients is obtained with the average creatinine concentrations.

Conclusion: This shows that the duration of treatment with anti-leprosy drugs has an effect on the fundamental parameter of renal exploration, creatinine, but also on urea, which is why there is a risk of renal failure.

Keywords: Anti-leprosy, leprosy, creatinine, urea, renal clearance, renal failure.

INTRODUCTION

In most developing countries, leprosy was a major public health problem. The global fight against leprosy is one of the major advances in public health in recent years1. It affects all people regardless of age and gender. It is a disease that has been known for a very long time. It is a chronic, disabling, maiming, disfiguring, horrendous and stigmatizing disease1. Thanks to the progress of Medicine, it is in regression. However, it has not yet disappeared. In Benin, the fight against leprosy, which began well before 1960, was reinforced after independence by the creation of new sectors of the major endemics. Slowly the number of patients decreased from 20,000 cases in 1982 to 13771 in 1986 and 2256 in 1990. The prevalence of the disease increased from 3.18% in 1986 to 0.47% in 1990.[2 Indeed,] every year new cases of leprosy are still registered by the epidemiological surveillance system. As an illustration, 243 new cases are notified in 2012 in Benin, which corresponds to an average of 4 new cases of leprosy every week [41]. The Ministry of Health has specified that 75% of the new cases detected are multibacillary forms and therefore highly contagious.

However, despite global progress, leprosy is still far from being eradicated, and greater vigilance is required if it is not to re-emerge in the next ten to twenty years.2 The following are some of the key issues that need to be addressed in order to prevent the re-emergence of leprosy in the next ten to twenty years. Currently, 2 to 3 million people worldwide are cured of leprosy-related disabilities. This figure is fairly stable between

2,000 and 3,000 cases per year since 2004 [10].

The evolution of the disease entails risks of life-threatening recurrences, neurological and visceral sequelae [10]. Thus, care must always be taken to avoid associated lesions. Treatment of leprosy is long term, from 6 to 12 months or more, and involves the use of drugs with a high nephrotoxic potential.[39] It is therefore important, in patients undergoing these treatments, to explore renal function in order to diagnose possible renal failure.

The aim of our work was to explore renal function by measuring urea and creatinine in patients undergoing and those who have undergone the same treatment at the Ouidah Leprosy Treatment Center located in southern Benin in West Africa.

In this work, our objectives are as follows:

OBJECTIVES

To explore the impact of anti-leprosy treatment on renal function.

These are :

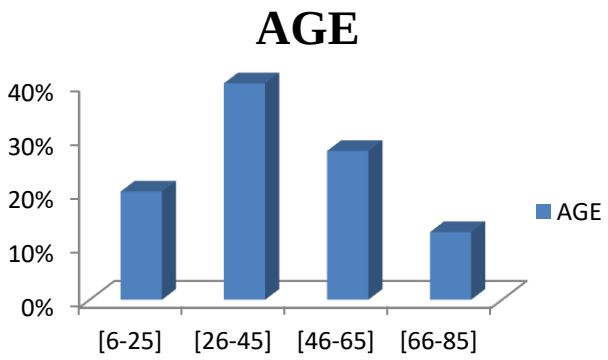
- Dose urea and creatinine in leprosy patients undergoing treatment.
- Dose urea and creatinine in leprosy patients at the end of treatment.
- Determine renal clearance in patients undergoing treatment
- Determine renal clearance in treated patients.
- To contribute to the improvement of the management of lepers in terms of biological explorations.

A) Materials and methods

The biological material consists of 80 blood samples taken from leprosy patients on dry tubes. We carried out the following biochemical parameter determinations, namely : Urea by the urease method and creatinine by the JAFFE method. As reagent we used the CYPRESS urea kit and the BIOLABO creatinine kit.

B) RESULTS

The majority of subjects in our study population belong to the 26-45 age group, i.e. 40%. (Graphe 1)



Graphe 1: **Distribution of the study population by age of subjects**

The figure 2 shows that the female sex is more represented with a percentage of 55% against 45% of the male sex.

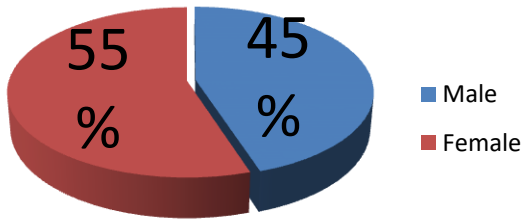


Figure 2: **Distribution of the study population by gender**

The figure 3 shows that the majority of the subjects in our study population, 53.75%, had been in treatment for more than four years and 46.25% had been in treatment from six months to four years.

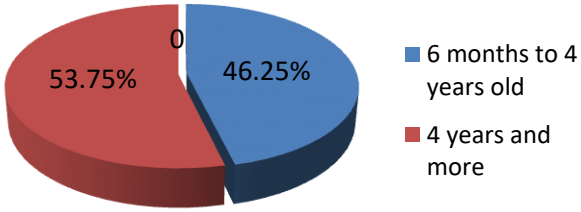


Figure 3: **Distribution of the study population according to the duration of treatment of the subjects.**

C) DISCUSSION

Drug-induced renal impairment is a common occurrence in clinical practice.[25] It is a serious event associated with significant morbidity and mortality. Because of its rich vascularization (25% of cardiac output), the kidney is an organ that is particularly vulnerable to drug toxicity in the body [30]. 30 Given the often unadmitted consumption of drugs (particularly analgesics, herbal preparations and, in general, drugs sold without a doctor's prescription), the precise evaluation of the incidence of acute toxic renal failure remains delicate. In the course of our work, which is based on the exploration of renal function in leprosy patients under treatment and those who have undergone anti-leprosy treatment at the Ouidah Anti-Leprosy Treatment Center, we have found that our study population consists mainly of people between the ages of 06 and 83, which allows us to say that leprosy affects people of all ages. The female sex is more represented than the male sex. This finding is confirmed by the WHO, which in its report states that it is the female sex that is most represented among leprosy patients.[8] Our study revealed that at the critical 5% t threshold > |t observed, there is a difference but not significant between the urea concentration of leprosy patients on treatment from six months to four years and those on treatment for more than four years. On the other hand, we observed that at the same threshold there was a significant difference between the creatinine concentration of leprosy patients on treatment from six months to four years and those on treatment for more than four years.

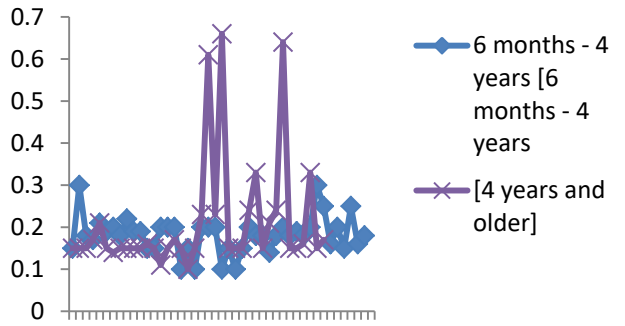


Figure 4: Distribution of uremia by duration of treatment

Indeed, the blood concentration of urea is a function of diet. Urea is produced in a variable way from one day to another according to the quantity of degraded proteins, of food origin or endogenous [33]. Thus, azotemia is increased in cases of hypercatabolism (treatment with corticoids, tetracyclines, infectious syndrome, trauma, digestive haemorrhage, etc.). This parameter alone cannot allow exploration of renal function33. Creatinine remains a fundamental biological parameter because it is the best marker of renal function used in clinical practice [26]. It remains useful for exploring renal function because of its excellent specificity (few false positives) and acceptable analytical performance [26]. 26 However, both parameters must be measured to diagnose renal failure.

Since there is a significant difference between the creatinine concentration of leprosy patients on treatment from 6 months to 4 years and those on treatment for more than 4 years. This shows that the duration of treatment with anti-leprosy drugs has an effect on the fundamental parameter of renal exploration, creatinine, but also on urea, which is why there is a risk of renal insufficiency [25].

Table 1 : Presentation of Student Test Results for Comparison of Mean Urea Concentration Averages

Variances	t observed	Method	ddl	t critical	Pr > |t|
Unequal	-1,209	Satterthwaite	43,005	2,017	0,233
	-1,209	Cochran-Cox	37	2,026	0,234
Equals	-1,261		78	1,991	0,211

D) CONCLUSION

Although leprosy treatment is an alternative to leprosy eradication, it can also cause disruption of many body functions such as kidney function. In this study, which focused on the impact of anti-leprosy treatment on renal function, we noted renal impairment by anti-leprosy drugs in patients undergoing a long period of treatment (> 4 years). It is therefore important to check renal function in patients prior to treatment and those undergoing treatment to avoid other more feared sequelae such as renal failure.

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