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RESEARCH ARTICLE

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EPIDEMIOLOGICAL STUDY OF BURULI ULCER IN CÔTE D'IVOIRE CONDUCTED IN THREE CENTERS.

ABSTRACT

Buruli ulcer (Bu) is a human skin infection caused by mycobacteria present in the environment called Mycobacterium ulcerans. Every year, increasingly numbers of new cases are recorded in different health care centers. The objective of this study is to conduct an epidemiological study based on (age, sex and occupation) in three caring home for patients with Buruli ulcer in Cote d'Ivoire. Results showed that the disease affects both men (55%) and women (45%). Children less than 15 years are mostly affected (47%). The sectors that are in contact with the living environment of the mycobacterium (rivers) are most affected: farmers (35%) and students (22 %). This study will allow authorities to better understand the extent of the disease in Côte d'Ivoire.

Keywords : Buruli ulcer, Mycobacterium ulcerans, age, sex, occupation and Côte d'Ivoire.

1. INTRODUCTION

Buruli ulcer (Bu) is a human skin infection caused by mycobacteria present in the environment called Mycobacterium ulcerans [1, 2, 3]. This is the most frequently encountered mycobacteriosis after tuberculosis [4, 5]. The M. ulcerans infection often leads to extensive destruction of skin and soft tissue with the formation of large ulcers usually on the limbs causing few deaths[6]. This disease is associated with many functional disabilities[7].

The mode of transmission of M. ulcerans is still a subject of controversy. There is no direct transmission from human to human however a link is generally recognized with a contact with stagnant or low flowing water, so that the existence of a hydrotelluric tank is strongly suspected [8, 9, 10]. In recent years, several research teams have discussed the potential role of different insects in the transmission of M. ulcerans[11, 12, 13, 7]. Since 1980, there has been a dramatic increase in cases of Bu in the world [14]. In sub- Saharan Africa, women and children are most often affected than men. In these areas, the prevalence is far higher especially along the Gulf of Guinea where the disease is rapidly expanding [9]. WHO estimates the total number of people with Buruli ulcer [1] to a few hundred thousand. The three major endemic countries are Ghana, Benin and Cote d'Ivoire. Every year, caring home for Bu recorded increasing number of new cases in Côte d'Ivoire [1]. Treatment period often long and costly remains inaccessible to most of the patients. This worrying situation reflects a real and serious public health problem in Côte d'Ivoire [4].

The objective of this study is to conduct an epidemiological study base on (age, sex and occupation) in three homes for people with Buruli ulcer in Côte d'Ivoire.

2. MATERIALS AND METHODS

2.1.Materials

2.1.1.Study site

The entire work was done in three homes for Buruli ulcer patients they are; Raoul Follerau Institute Adzopé (South-East), the health center Kongouanou (Central) and the health center Saint Michel Zoukougbeu (Central-West). These centers are located in three regions identified as endemic regions.

2.1.2.Target populations

They are men, women and children who have skin lesions clinically suggestive of Buruli ulcer. Their ages ranged from 4 to 70 years and this study was done on a population of more than 100 people in three centers.

2.1.3.Equipment used

We used a lot of equipment including:
- Study sheet on which there is a questionnaire
- Means of transportation
- A camera for snap shot.

2.2.Methods

2.2.1.Approach

After the usual formalities with officials of the center, we proceeded to visit the premises and identifying of patients. Each patient is subjected to a questionnaire to gather useful information. This was done under the supervision of an official of the center to allay fears that may arise in some patients. The supervisor usually explained to patients the importance of the study. Sometimes we used an interpreter. The interview with patients was done after the daily dressings to avoid stress; photos were taken for the needs of our study. Another questionnaire was submitted to the officials of these centers to inform us about the current treatments used and the general data of each center.

2.2.2.Data processing

To process the data, we used the software Epi Info version 6. This is a series of computer programs in the form of questionnaire to process epidemiological data. This software has three levels of use for the treatment of questionnaire or other structured data. Working at the simplest level, we have computerized our questionnaire, typed data and analyzed questionnaire data to produce lists , frequencies, cross tabulations, averages, graphs and statistics.

3. RESULTS AND DISCUSSION

3.1.Sex

Figure 1 shows that Buruli ulcer (Bu) affects both men (55%) and women (45%) with a sex ratio of 1,2.

3.2.Age

Figure 2 shows three age group affected by the disease. The youngest is 4 and the oldest is 70.
[4-15 years] = 47 %
[16 - 35 years] = 32%
[36-70 years] = 22 %

3.3.Occupation

Table 1 showed that the occupations that are in contact with the living environment of Mycobacterium ulcerans (rivers, aquatic insects)

are the most exposed. Farmers (35%) followed by students (22 %).

The objective of this study is to conduct an epidemiological study based on (age, sex and occupation) in three homes for people with Buruli ulcer in Côte d'Ivoire.

Our results showed that:
Our study population has a sex ratio of 1.2, and there's more men (55%) than women (45%) patients with Buruli ulcer (Figure 1). Our results are consistent with the work done in 2012 by Rodhain. The results of this study in Australia in the temperate zone, have shown that people infected with Bu involved both sexes [9, 15]. The same results were reported in Côte d'Ivoire by the World Health Organization (WHO), which showed a predominance of men affected by Buruli ulcer (Bu) than women [16, 17].

In our study, three age group emerge. First, children (4-15 years), representing 47% , young people (16-35 years) with 32 % and finally the older (36-70 years) with 21% (Figure 2). This mycobacteriosis rampant in rural areas, mainly in regions of hot and humid weather. In sub -Saharan Africa, Buruli ulcer affect preferentially children from 2 years [9, 18, 11].

In this study, we observed that all social class was affected. Although the disease does not seem to hit a specific professional group, we find still a predominance of groups of people whose activity is directly related to the living environment of Mycobacterium ulcerans, especially farmers (35 %) [11]. On the sidelines of these, students and the unemployed, majority are young (22% and 15%) are most affected. This can be explained due to their anti- mycobacterial immunity which is not yet developed, or because of their plays that expose them to risk of contamination. Other cases reported could be explained by exposure to contamination in one of the endemic areas [1].

4. CONCLUSION

This epidemiological study has revealed that children under 15 years are most at risk and that this disease affects people of both sexes (men and women). The sectors most affected are those activities related to the living environment of the mycobacterium (farmers and students). This study will allow authorities to better understand the extent of the disease in the country.

5. DECLARATION OF CONFLICT OF INTEREST

The authors wish to declare that there is no conflict of interest.

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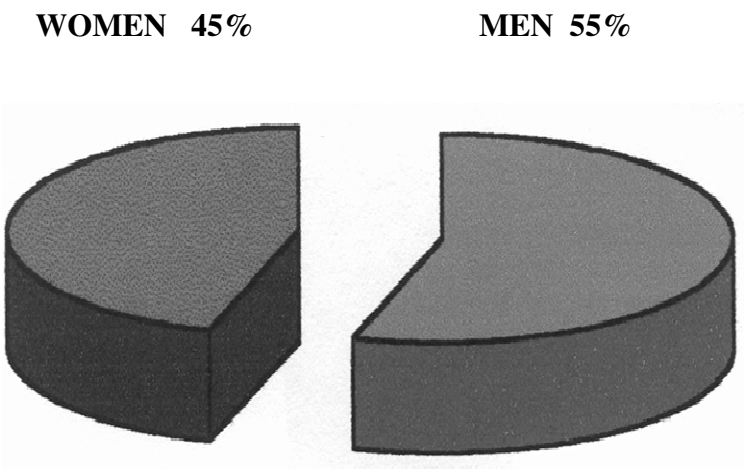

Figure 1 : Distribution of cases of Buruli ulcer according to sex.

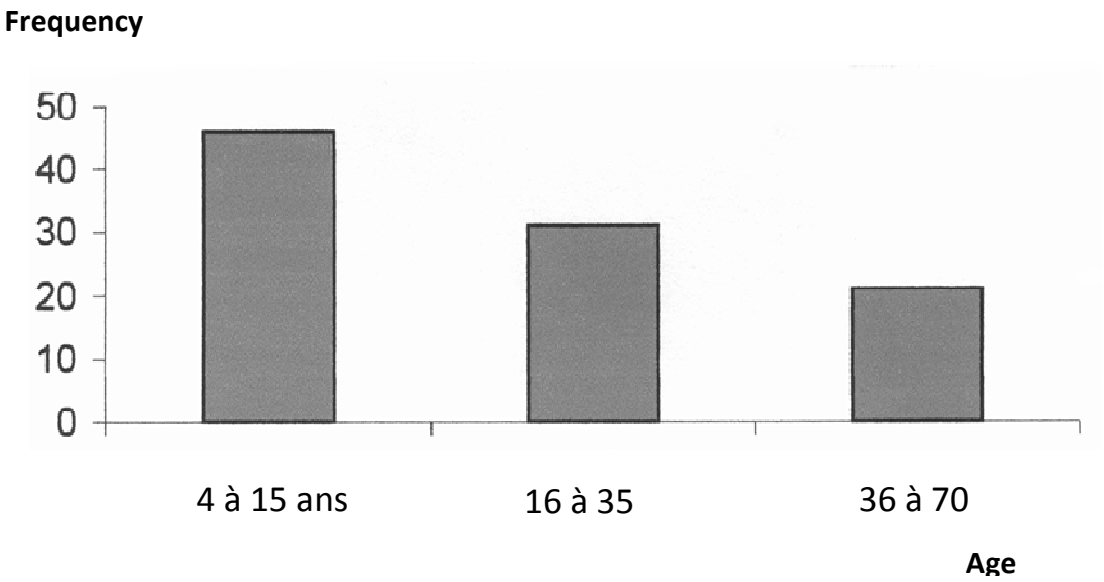

Figure 2**:** Distribution of cases of Buruli ulcer according to age

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Occupation	Frequency	Percentage
Farmers	35	35 %
Students	22	22 %
Unemployed	15	15 %
Teachers	2	2 %

Table 1: Distribution of cases of Buruli ulcer en according to occupation

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