

EPIDEMIOLOGICAL STUDY ON THE MODE OF TRANSMISSION OF BURULI ULCER IN CÔTE D'IVOIRE.

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ABSTRACT

To conduct an epidemiological study on the mode of contamination of people living with Buruli ulcer in Côte d'Ivoire study conducted in three centers. This study was conducted by submitting a questionnaire to patients and responsible for different centers. We used the Epi Info version 6 software for processing the information received. The house near a river, insect bites and direct human to human transmission rights have been affected by this epidemiological study. The results showed that 80% of patients were inhabited by streams of water, and most of them (96%) were bitten by insects in stagnant water or low current. This study found that only 4% of patients contracted the disease after contact with a sick person. This study will allow authorities to make major decisions to reduce the high rate of patients with Buruli ulcer in Côte d'Ivoire.

Keywords: Buruli ulcer, *Mycobacterium ulcerans*, water courses, aquatic insects and Côte d'Ivoire.

INTRODUCTION

The bacterial species of the genus *Mycobacterium* are in hundreds. Among them, three species pathogenic to humans are responsible of dreaded diseases: tuberculosis, leprosy and Buruli ulcer. The latter disease caused by *Mycobacterium ulcerans*, is strong resurgence over the past thirty years and the World Health Organization (WHO) considers it a neglected emerging disease [1, 2, 3].

It occurs in rural areas, mainly in regions of hot and humid climate, it is in Sub-Saharan Africa, where children and women are more often affected than male adults, the prevalence is much higher, especially along the Gulf of Guinea [4, 5]. Every year, caring homes for Buruli ulcer record a number of increasingly growing new cases in Côte d'Ivoire [6].

Treatment cost, remains inaccessible to most of the patients. This disease causes major functional disabilities [7, 8]. The situation of this disease reflects a real and serious public health problem in Côte d'Ivoire [9, 10, 11]. The objective of this work is to conduct an epidemiological study on the mode of infection of people with ulcer in Côte d'Ivoire.

MATERIALS AND METHODS

MATERIALS

Place of study

The entire work was done:

- At the Institute Raoul Follerau Adzopé (south-east)
- At the health center Saint Michel Zoukougbeu (central-west)
- At the health center Kongouanou (central)

These three centers are located in three endemic areas.

Target populations

These are men and women of all ages suffering from Buruli ulcerans who come for care in these centers that are involved in this study.

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.

METHODS

Approach

After the usual formalities with officials of the centers, we proceeded to visiting the premises and identifying of patients. Each patient is subjected to a questionnaire to gather useful information. This was done under the supervision of the officials 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.

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.

RESULTS

Contamination due to habitation (Close to a river)

Figure 1 shows that a total of 80 patients, of which 70 patients (80%) had a house near a river. As against 10 patients (20%) who had never resided nearby streams of water.

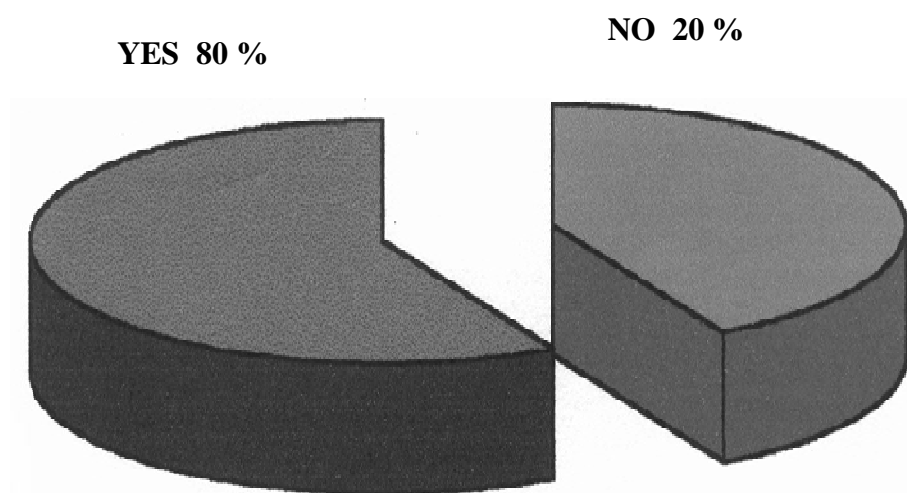


Figure 1: Distribution of cases based on closeness of habitation to water courses

Contamination by insects bite

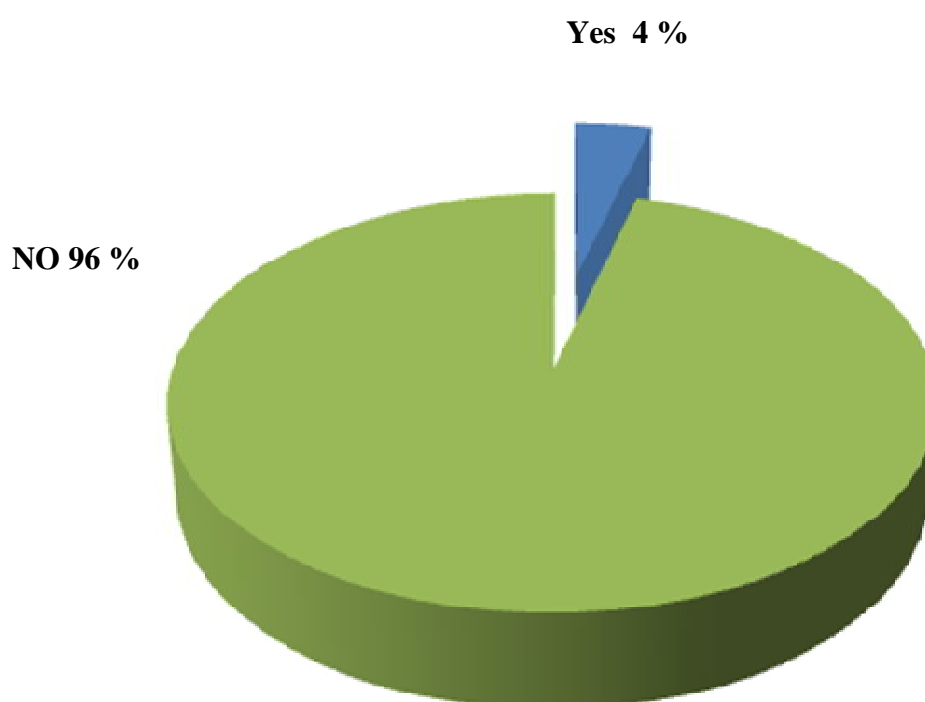
Table 1 shows that four patients (4%) affected by this disease have not been stung by an insect. 96 patients (96%) claim to have been bitten by insects in the water.

Table 1: Distribution of cases of buruli ulcer based on insects bites

Insectes bites	Frequency	Pencentage
yes	94	96%
no	4	4%

Contamination after contact with a sick person

96% of patients were not infected after contact with a sick person. 4% of them believe that they have been infected after prolonged contact with people with the disease (Fig 2).

**Figure 2: Distribution of cases of buruli ulcer based on contact with sick person****DISCUSSION**

The objectives of this work to conduct an epidemiological study on the mode of infection of people with Buruli ulcer in three careering homes for Buruli ulcer in Côte d'Ivoire.

Our results showed that:

In our study population, 80% of patients (Figure 1) lived in a house near a river. According to the World Health Organization (WHO), Buruli ulcer is sharp increase over the last thirty years and it is considered a neglected emerging disease. The mode of transmission of this disease is a subject of controversy today [1]. Our results were confirmed by the work of several teams of researchers who argued that most of the patients had contact with stagnant or

slightly running water so that the existence of a hydrotelluric tank is strongly suspected [12, 13]. In our study, we found that 96% of patients (Table 1) were bitten by insects. This hypothesis was confirmed by the work in 2012 in Australia. The results of this study stressed the potential role of different insects (order of Hemiptera) in the transmission of *Mycobacterium ulcerans* [13]. The same results were observed in the work of Doanno et al 2011. They showed that the aquatic insects of the order Hemiptera are involved in the transmission of the disease to humans [14, 15]. These results were reported by the work done in one of the endemic areas of Côte d'Ivoire [4, 16].

This study showed that only 4% of patients were infected after contact with sick person. These results confirm the hypothesis that support that there is no direct transmission from human to human (Figure 2) [13, 17].

CONCLUSION

This epidemiological study revealed that 96% of patients had a house near a river and 94 % of them were bitten by aquatic insects. This study showed that the transmission of this disease is not directly between humans. This study will allow the authorities to take important decisions in order to reduce the high rate of patients with Buruli ulcer in Côte d'Ivoire.

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