

Typhoid Fever, a Public Health Problem in Hospitals : Case Study at a Work station in Kinshasa, DR Congo.



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Abstract

This study focuses on typhoid fever in its public health aspect. It is a driving force in admissions to hospital. It affects more adults who are part of the staff of health establishments in Kinshasa in the DRC. Our clinical picture was dominated by headache (25%), fever, insomnia and cough (12.5%), asthenia, abdominal pain (8.4%), and the dissociation of Pulse and temperature, vomiting and hypertension (4.2%). Our study shows that workers assigned to collection-sorting until disposal of care waste are sick of typhoid on their workstation.

Keywords: Typhoid fever; public health; Case study; Kinshasa (DRC)

Introduction

Human health has several factors that cause its evolution to be linked to several factors such as physiological, moral, armed conflict, expansion of several diseases and degradation of the family environment in society. Migration, displacement of populations especially in developing countries are factors that underlie various diseases. These diseases worry physician researchers and their work teams. Typhoid fever is common in several countries of the world and is common in countries with low levels of hygiene. It is endemic and poses a significant public health problem. According to statistics, there are 21,000,000 cases per year and 200,000 deaths worldwide [1]. In developing countries, the incidence is 540 cases per 100,000 or 0.2 cases / 100,000 in temperate countries [2]. In high-income countries, typhoid fever is contracted while traveling abroad. It quickly eradicates because the living conditions are better and the health system is also better. Moreover, given its climatic conditions, the living standards of the inhabitants and other endogenous factors, Africa is not immune to the spread of typhoid fever.

Man is the only reservoir of viruses because contamination is by water, food because in the most affected areas children, adolescents and even adults are the first carriers of this virus. Since the 1990s, the incidence of antibiotic-resistant Salmonella typhi has increased rapidly in the Indian continent, South Asia, sub-Saharan Africa [3]. Man is then the chronic carrier and plays an important role in the transmission of the disease. He

may lodge it and excrete it in the stool. So we call it a disease of the hands rooms. The literature shows us that this disease is a public health problem but we do not have national statistics in DR Congo. This pathology is endemic [4].

For example, Mr PARENT studied typhoid fever in Lubumbashi (eastern DRC). In Kinshasa in 1977, Omanga conducted a study in children. In 2008, an epidemiological study of adult typhoid fever in the city of Goma in eastern DRC on 57 cases from January to December 2008 [5]. The bacteriological and epidemiological aspects of salmonellosis were observed at the University Clinics of Kinshasa (CUK) in 1968 by Gatti [6].

Some Concepts

Salmonella are enterobacteria that do not ferment lactose and aid in the non-production of urease. They are parasites of man, rodents, poultry and reptiles. As a result of oral penetration, salmonella (single-cell species) are the basis of typhoid fever, gastroenteritis and Food-borne infections. Typhoid fever is a bacterial infection caused by Salmonella enteria serotypes Typhi and Paratyphi (A, B, C). It is a mesenteric lymphoma starting point and is caused by four antigenically distinct human Salmonella servers but of similar pathogenicity These Salmonella are called major because of the seriousness of the pathology they cause.

From the point of view of Pathophysiology and biological diagnosis, Salmonella are integrated with a contaminated drink

or food. The infective dose would be 10⁵ bacteria. They are evidenced by haemoculture and / or by coproculture, and / or by demonstration of specific antibodies by indirect diagnosis. The serodiagnosis of WIDAL and FELIX detects the presence in the blood of antibodies directed against the constituents of Salmonella [7]. As for preventive treatment, it is based on general hygiene and TAB vaccination of specially exposed populations such as military personnel and hospital staff. From a curative point of view, treatment is based on antibiotic therapy (use of chloramphenicol followed by fluoroquinolones and cotrimoxazole) [8].

Public health is a study of the physical, socio-cultural and psychosocial determinants of population health and actions to improve the health of the population [9]. Other authors define public health as a science and the art of preventing disease, prolonging life and promoting health. The ultimate objective is to enable each individual to enjoy his or her innate right to health and longevity [10,11]. Unlike medicine, public health rests on two levels; On the one hand, it emphasizes prevention rather than curative treatment and on the other hand it develops a population approach [12].

Case study in this article concerns the workers and not the nurses of the four hospital structures in Kinshasa (CUK, Kinshasa University Clinics, HGRK, Kinshasa General Reference Hospital, HGK, Kintambo General Hospital and HGRN, Reference of Ndjili or Sino-Congolese hospital) in DRC ongo allocated to the management of hospital waste. As a result of our observations, we define hospital waste as a collection of household waste (DAOM) and infectious-care waste (DASRI) as shown in the attached photos. Our primary objective is to review the clinical signs associated with typhoid fever on this target population. One way to make an inventory during a fixed period of the presence of this disease of the hands rooms in this workstation. Far from us to see, the epidemiological aspects, but we will insist on the prevention of the diseases associated with typhoid fever.

Material and Method



Figure 1: On the left a tank with waste mix and on the right the worker without hand protection who deposits the waste in the tanks to burn.

This study of prospecting and research-action concerns 80 suspected cases of typhoid fever following various clinical signs observed in the exercise of their function in 2006. These are the general signs (fever, asthenia, dissociation of the pulse and temperature); Digestive signs (abdominal pain, diarrhea,

vomiting); Neurological signs (headache, dizziness, insomnia); Respiratory signs (cough, Ronchi) and other signs such as high blood pressure and angina (Figure 1)

Case follow-up began in 2008. The dossier must meet the following criteria:

- a. Be between 30 and more (often the men are assigned to this work door)
- b. Present the general, digestive, neurological, respiratory and other signs mentioned above
- c. Find in the stools, urine, blood, cerebrospinal fluid the seed sought.

A total of 272 workers or interviewers (141 at the CUK, 69 at the HGRK, 35 at the HGRN and 27 at the HGK) are assigned to this position. We chose 20 per hospital, so we have a sample of 80 cases to follow. These cases were not chosen at random but more for their regularity at work and sometimes their seniority of the 80 agents, clinical signs were observed during the study, of 24 of them, 30% of the cases. Thus the 24 workers were followed and hospitalized in internal medicine of each place of work.

The elements related to our surveys show, when we observe the photographs, that there is a failure in hospital hygiene, individual and collective. Indeed, workers collect waste that is not sorted without protection. With their hands, they accompany the waste to their place of treatment. As the incinerator no longer works, the waste is put in a National Program, sanitation bin where they are burnt. This behavior is dangerous for the environment (pollution of the air, fauna and flora (Figure 2).



Figure 2: On the left, an unprotected worker pouring waste into the National Sanitation Program tank and on the right the mixed waste is burnt (final treatment).

Mode of Contamination

The method of contamination in the 24 cases of 80 workers in our sample was indirect. On the other hand, the probability of direct contamination comes from the workplace. The clinical signs observed during the 2006 campaign Table 1 shows that the clinical signs of typhoid fever occur on 30% (24/80) of workers assigned to the collection and treatment of hospital waste in the healthcare setting. Some workers have a picture suggestive of typhoid fever others have been for a fever that has resisted against quinine, chloroquine, artemisin, and to antibiotic therapy. The length of time between the onset of the illness and the day on which we requested hospitalization was long of the 24 cases, 17 cases or 70.85% accepted their hospitalization in February 2007. Admission was motivated by the isolation of germs in the

stools of workers complaining of digestive disorders. In a few cases the symptomatology was not suggestive of typhoid fever.

Table 1: Clinical signs observed in 2006.

Clinical signs	patients	signs	no signs
Fever	10	3	7
Asthenia	5	2	3
Pulse Dissociation and Temperature	5	1	4
Abdomain pain	8	2	6
Vomiting	4	1	3
Diarrhea	8	2	6
Headaches	10	6	4
Dizziness	6	0	6
Insomnia	4	3	1
Cough	8	3	5
Ronchi	7	0	7
High Blood Pressure	4	1	3
Angina	1	0	1
Total	80	24	56

The microbiological diagnosis was selected on the basis of blood cultures, coprocultures, urocultures and biliculture. Thus, 15 haemocultures were performed in 17 patients, 16 positive coprocultures. *S. typhi* was isolated from 11 urocultures (only one allowed). It was demonstrated in the 17 patients. Associated conditions not mentioned here, such as intestinal parasitic infections, hookworm infection, amoebiasis, anguillulose have not been studied. Urinary tract infections have been associated with typhoid fever. The patients were treated with chloramphenicol monotherapy at 25gr. Antibiotics were administered as a combination. The average duration was 14 days. Progressive treatments were applied (Table 2).

Table 2: Distribution of typhoid fever and outcome modality.

Output mode	worforce	Percentage
Improvement	12	70.59
Exit on request	1	5.88
Évasion	1	5.88
Death	2	11.7
Transfer	1	5.88
Total	17	100

Discussion

Worldwide annual estimates of typhoid are 17 million according to the WHO [13]. In our study of the sample of 80 staff members divided by 20 in four hospitals, there was an improvement on 12 of the workers for the 17 with recognized symptoms of typhoid. This study did not allow us to classify the epidemic as seasonal. However, the disease is linked to a defective hygiene and the predominance is masculine because in the collection of waste and discarded, it is the men who are affected. The statistical study of the clinical symptoms compared according to the authors on 208 cases, we also demonstrate the

persistence of the same symptoms to date. Fever took the lead with 89.9% of the 208 cases studied [4].

In this case, typhoid fever is predominantly an adult disease and urban origin predominates. The mode of direct contamination illustrates the fact that paramedical personnel (workers) are affected. Fever that does not respond to antimalarials or antibiotics is a reason for hospitalization as well as permanent headaches. Improved indicators of typhoid for 70.85% of patients or sufferers is effective. Patients are advised to wash their hands after each treatment. Similarly at home, they should take boiled water disinfected if possible with chloramines. Public health interventions to prevent typhoid require that health education be emphasized in terms of worker hygiene (hand washing at work, during meals, etc.), sanitation systems (Such as appropriate gloves, boots, overalls, glasses, etc.), to ensure that appropriate clothing is used in the handling of hospital waste.

Conclusion

This study is a development of this condition within healthcare institutions as regards the management of hospital waste. Measures to combat typhoid in hospitals include education and awareness in a healthy way of treating hospital waste from collection, sorting through treatment. It is recommended the use of appropriate treatments, antibiotics or vaccine use (does not provide definitive protection) available to those who work or are exposed to high-risk areas. Let us also not forget that the DRC is in Africa, which is an area at risk where the population is confronted with the highest burden of food-borne diseases such as typhoid fever where more than 91 million cases are inventoried in the world For 137,000 deaths [14].

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