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RESEARCH ARTICLE

HIGH PROPORTIONAL MORTALITY AMONG ADULTS HOSPITALIZED HIV-INFECTED: STRENGTHS TECHNICAL PLATFORM AT JASON SENDWE PROVINCIAL REFERRAL HOSPITAL, LUBUMBASHI, DEMOCRATIC REPUBLIC OF CONGO

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ABSTRACT

Background: The inadequacy, lack of suitable equipment in our specialty infrastructure and lack of monthly deaths in people living with human immunodeficiency virus increase the number of deaths and undetermined diagnosis in the internal medicine department of Sendwe referral hospital. The purpose of this study was to determine the biographical characteristics, proportional mortality from infection with the human immunodeficiency virus and the map of the morbidity and mortality of diseases related to this infection.

Methods: This is a retrospective cross sectional study running the period from January 1, 2012 to Jun 15, 2016 concerned hospitalized adults HIV-infected in internal medicine at Jason Sendwe referral hospital. Interpretation of the results was performed by frequencies, central tendency and dispersion parameters. Proportional mortality was calculated to divide the number of death from HIV-infected on global mortality-years. The global mortality was calculated to divide the number of death on study population-years

Results: The median age was 41 years and male was predominant (57%). Proportional mortality was 65%.The frequencies causes were: Tuberculosis (29%), cryptococcal meningitis (26%) and pneumopathy (12%). The diabetes comorbidity was found in 3%. The associated conditions of death were dominated by respiratory distress (21%), and anemia (14%). Patients (92%) were accessing care clinical stage 3and 4 of the WHO2006. The undetermined diagnosis was 30%.

Conclusion: Proportional mortality is interpellator and suggests strengthening technical platform and regular audit of deaths to improve medical practices and reverse trends in mortality. The main challenge would be to establish the share of comorbidities in the occurrence of death in persons living with HIV from under equipped country.

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INTRODUCTION

The profile of morbidity and mortality varies from one country to another. Liver, cardiovascular and pulmonary diseases are rising in the Northern countries among people living with the human immunodeficiency virus (PWLHIV) on antiretroviral therapy (ART) (Palella *et al*., 2006; Bonnet *et al*., 2009) while tuberculosis, sepsis, cryptococcal meningitis and the wasting syndrome in the Southern countries (Stephen *et al*., 2008). This profile is indicative of the level of technical equipment from the viewpoint human and material resources of an hospital institution (Donabedian, 1988). In addition, morbidity and mortality is suggested as an indicator of quality care (Rothberg *et al*., 2009). Therefore, describe the distribution of causes of death among people with HIV to better define preventive and curative health priorities (Caroline *et al*., 2012). However, in Democratic Republic of Congo (DRC) and Lubumbashi in particular, little interest in this issue. This investigation was initiated to determine the proportional mortality, demographics

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and distribution of causes and circumstances of death among hospitalized patients in internal medicine for human immunodeficiency virus (HIV) infection.

Context, population and methods

This survey was conducted with Jason Sendwe provincial referral hospital. This hospital is the second in Democratic Republic of Congo in terms of capacity. It is the tertiary hospital care according to health policy in DRC and the main referral hospital in Lubumbashi area. Moreover, the Centre for Excellence in HIV care / AIDS is set in the said hospital and works in synergy with this provincial referral hospital. This cross-sectional retrospective study concerned the hospitalized patients (age≥ 15years) in the internal medicine department from January 1, 2012 to Jun 15, 2016. The data used for this survey were collected in internal medicine inpatient records in accordance with national health information system in DR Congo, who gets the parameters of interest below: sex, age, date input and death converted hospital stay, deaths circumstances. The causes of death were determined according to the International Classification of diseases, 10th Revision (ICD-10). The diagnosis was categorized into primary diagnosis that led to the hospital or departure and secondary diagnosis that is mean the associated conditions discovered during the stay and requiring intervention or in other words the death circumstances. Regarding para clinical examinations support the hospital quickly has lymphocytes CD4 cells counter, an ultrasound, a radiology and an electroencephalogram (ECG). Also, practitioners rely firstly in private for the scanner, dialysis and tubing gastro-oesophageal. In other, to university clinics of Lubumbashi for bacteriology to identify specific germs. The autopsy and radiotherapy are not commonly used in local medical practice.

Statistical analysis

Data collection was performed using Epi –Info7. Interpretation of the results such as the sex, age, hospital stay, and the frequencies of death were performed by frequencies, central tendency and dispersion parameters. Proportional mortality was calculated to divide the number of death from HIV-infected on global mortality-years. The global mortality was calculated to divide the number of death on study population-years.

Ethical Statement: I attest that the research has been conducted in accordance with the principles of the Declaration of Helsinki of World Medical Association .In view of securing confidentiality, all recording materials were anonymously collected and codes were used to identify each died patients. Data were accessible only to our research team.

RESULTS

Study population and baseline characteristics

The total number of reported deaths during the 3.5 years of investigation was 722 deaths in 2100 patients who were hospitalized in the internal medicine department. Among them, 370 deaths per infectious pathologies whose 242 for HIV infection with proportional mortality of 65% according the figure 1. Six out of ten patients hospitalized in internal medicine have a pathology associated with HIV infection. The male was represented in 137 cases (57%) and women in 105 (43%). The most affected age group was between 36 to 46 years in 35% of cases. The median age was 41 years (IQR: 35-50).

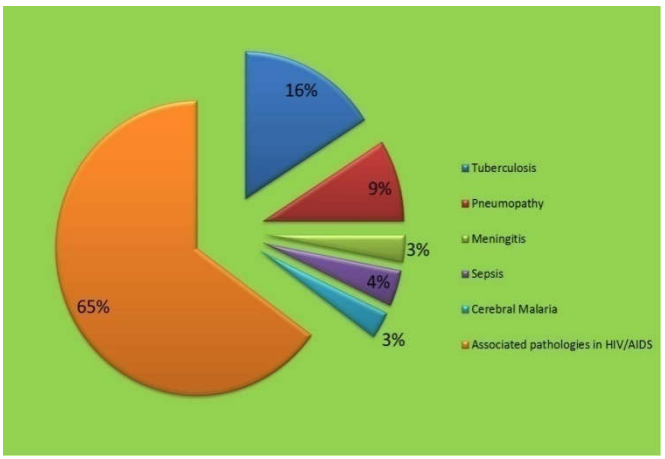

Figure 1. Proportional mortality due to HIV / AIDS' patients (n = 370) hospitalized in internal medicine for infectious medical pathology from Sendwe hospital, Lubumbashi, 2012-2016

Clinical Features

The median length of hospital stay was 5 days (IQR: 3-10). The circumstances of death (n = 242) were dominated by respiratory distress (20,7%, n = 50), anemia (14%, n = 34), coma (10,3%, n = 25), the dehydration (3,3%, n = 8). These conditions have not been indicated in 51,7% of cases (n = 125). Pathologies associated with HIV infection were in order of importance (n = 242). Tuberculosis (29%,n= 69), cryptococcal meningitis (26%, n = 63), and pneumopathy (n = 30, 12%) represented in Figure 2. Patients were accessing care clinical stage 3 and 4 of the WHO 2006 in 92% of cases (n = 223). The diabetes comorbidity was found in 3% of cases (n=8) and suspicion of hepatocellular carcinoma in 1% of cases (n = 3). Other infectious diseases naïve patients with HIV infection were respectively (n = 128): Cerebral malaria (7.8%, n = 10), sepsis (11.7%, n = 15), meningitis (7.8%, n = 10), pneumopathy (25.8%, n = 33) and tuberculosis (46.9%, n=60)

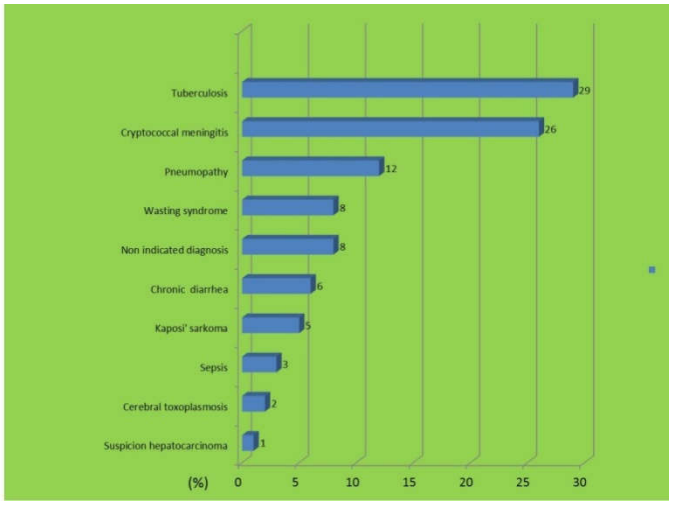

Figure 2. Frequency of AIDS-related diseases in HIV 'patients (n = 242) were dying in internal medicine from Sendwe hospital, Lubumbashi, 2012-2016

DISCUSSION

This survey is not consecutive to another to scan the registry of hospital internal medicine services of the Jason Sendwe provincial referral hospital. However, the death certificates and decrypting individual patient medical records will be subject to further study on the quality of life post mortem to PWLHIV in Lubumbashi. Beyond the weakness of technical platform and data collection system, the survey highlighted the local map of morbidity and mortality. The proportional mortality ratio (65%) was relative that the test was not systematic in all inpatient and also from patients who had broken care through lack of means was not reported to this hospital. The socio-demographic profile (median age and gender) in this series was 41 years with a male predominance. This is consistent with African cohorts (Stringer *et al*., 2006; Toure *et al*., 2008; Coetzee *et al*., 2004; Mustapha *et al*., 2012). The main causes of death were tuberculosis, cryptococcosis, lung disease and wasting syndrome. These findings are close to Stephen D' study (Stephen *et al*., 2008). Moreover, the Moroccan and Brazilian study (Mustapha *et al*., 2012; Beatriz *et al*., 2009) highlight tuberculosis and cryptococcosis. In United States of America (Beatriz *et al*., 2009) the most frequent opportunistic infections were neuro-meningeal cryptococcosis, infections with *Mycobacterium avium* disseminated, cerebral toxoplasmosis and recurrent bacterial pneumonia. Therefore, it is unacceptable to die of tuberculosis when treatment is free in Lubumbashi .The cryptococcosis came after tuberculosis in this investigation. However, the diagnostic tool by Chinese ink and cryptococcal antigenemia (Lukasu *et al*., 2016) is readily available in Lubumbashi. From this, it follows the priority given to prevent, screen and manage these opportunistic infections. The poor prognosis (TUABO504) can be explained by the therapeutic protocol unsuitability for cryptococcosis well put evidence (TUAB0505) and also the huge cost of treatment. In contrast to tuberculosis treatment adherence and early detection could reverse the saw provides that treatment is free in DRC. Furthermore, the study of Lewden (Lewden *et al*., 2004) reavels *histoplasmosis* and cerebral toxoplasmosis in Guyana; *Mycobacterium avium complex* and *Mycobacterium tuberculosis* and cytomegalovirus infection in Guadeloupe and Martinique. Regarding the lung, there was no pathogen reported. In this momentum, a prospective study is useful in this hospital to identify the pathogens responsible for underlying diseases. The wasting syndrome is poorly represented in the Moroccan study (Mustapha *et al*., 2012). In contrast, the syndrome had been important in this investigation and study of Lawn (Lawn *et al*., 2005). This could be attributed to precarious condition of living of these patients. Also this syndrome may mask certain infections such as *Mycobacterium tuberculosis* (Zachariah *et al*., 2006), *Mycobacterium avium complex*, and chronic diarrhea (Lucas *et al*., 1994). Chronic diarrhea had occupied the sixth place in the survey. In Morocco, Mustapha (Mustapha *et al*., 2012) reported Cryptosporidium. This assumes that the identification of some germs such as (*Isospora beli*, cryptosporidiosis, cytomegalovirus, *Mycobacterium avium* but also *Jirovecii* pneumonia and *Jacob virus*) are not wanted in this referral hospital resulting either from misunderstanding or inaccessibility to technical platform. The proportion of Kaposi's sarcoma (5%) found in this study was close to the Moroccan and Malian study (Mustapha *et al*., 2012; Camara *et al*., 2012). By against some tumors such as non-Hodgkin lymphoma, brain lymphoma, colon have not been reported in this investigation. These tumors may be explained by the lengthening of the lifespan induced by antiretroviral drugs in northern countries and the availability of means of sophisticated equipment of diagnosis. The hepatocellular carcinoma suspicion (1%) was low reported that the test is conducted at the balance sheet pre- transfusion in routine care. In contrast, data from northern countries suggest the role of non-AIDS defining illnesses in the increase deaths (Palella *et al*., 2006; Bonnet *et al*., 2009). The undetermined diagnoses were important. This suggest capacity building in medical practionners and facilities of access to technical platform to aid decision about optimizing treatment.

Conclusion

The view (photo) of morbidity and mortality would be dictated by the spatial disparities of access to technical facilities. The proportional mortality of HIV infection is interpellator and suggests a partial integration of the Center of Excellence within Jason Sendwe referral hospital. It would be required to optimize hospital management and diagnosis of opportunistic infections and non-AIDS disease including intra most of them are preventable. The strengthening and the increase of the technical platform as well as an audit of these deaths should be established to monitor the quality of care and reliable mortuary statistics. The main challenge would be to establish the share of comorbidities in the occurrence of death in persons living with HIV from under equipped country.

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