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Full Length Research Paper

Pathologies taken in charge in internal medicine in a Sub-Saharan country of Africa

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Patients admitted to the internal medicine differ from one country to another because of the specificity of each department. To determine the epidemiological, diagnostic and evolutionary pathologies during hospitalization in internal medicine, we carried out a retrospective cross-sectional study over a period of three years from reviews of medical records of patients admitted to the internal medicine department of Centre Hospitalier Universitaire SOURO SANOU (CHU SS), Bobo-Dioulasso, BURKINA FASO. 5362 patients were involved. The average age was 43.10 ± 12.2 years, with a sex ratio of 1.16: 1. The majority of our patients had a low socio-economic standard of living. HIV/AIDS was the most common infection with an admission rate of 24%. The cure rate was 53.9% and the overall mortality rate 33.3%. This mortality was dominated by HIV/AIDS (27.8%). The Early mortality rate was 37.4% (<3 days). Despite the epidemiological transition characterized by the emergence of cardiometabolic diseases, HIV infection remains responsible for a high mortality in our context.

Key words: Sub-Saharan country, internal medicine, epidemiology, diagnosis, evolutionary.

INTRODUCTION

Burkina Faso, a developing country is experiencing a poor health situation with regards to the indicators provided by the Management of Statistical Studies and Planning of the country, and the Human Development Index (HDI), which ranks it 183rd out of 186 countries (Direction of the planning, 2000). Indeed, the general morbidity of the population was 15.80% in 1995 for a rate of an overall mortality estimated to 15.2 per 1,000 (Ministry of Health, BURKINA FASO, 2010). Poor health coverage, the non-availability of medicines, the low level of care provided, the low educational level of the population along with a low purchasing power are among the many factors increasing morbidity and mortality in sub-Saharan African countries (Bertrand Ed, 1978). Despite the emergence of cardio-metabolic diseases that most of the African countries experience, of which Burkina Faso is no exception, morbidity and mortality from infectious diseases remain a concern. LENGANE's work in 2007 in the same Department of Medicine confirmed this finding with a prevalence of HIV infection (Lengane, 2007), which makes it a major public health issue. In this context, we wanted through this study to determine the epidemiologic profile of pathologies taken in charge by the Department of Internal Medicine from that time to 2009 to best insure their taking in charge.

MATERIALS AND METHODS

It is a cross-sectional study with retrospective and a descriptive perspective that focused on the systematic files review of all patients admitted in the internal medicine service during the study period from 1st January 2007 to 31st December 2009.

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Involved, were patients with a minimum age of 15, regardless of sex, admitted or transferred to the internal medicine department of Centre Hospitalier Universitaire SOURO SANOU (CH SS).
From a questionnaire, data such as: age, sex, occupational status, residence area, admission modes, duration of hospital stay, selected diagnosis (primary and / or secondary) and the evolution of the patient were taken into account. The selected diagnosis was classified by nosological group according to the International Statistical Classification of Diseases and Related Health Problems: ICD 10. Incomplete and uninformative medical records were excluded from the study.
Data entry was made with Epi-Info.6.4 software. These data were analyzed using Epi-Info 2000 and the significance level was 0.05.

RESULTS

General Data

A total of 5362 patients were involved; the average age of our patients was 43.1 ± 12.2 years, ranging from 15 to 100 years. The age group from 30 to 39 years accounted for 22.8% of our patients. Males accounted for 54% Versus 46% for women i.e a sex ratio of 1.16: 1. Figure 1 shows the distribution of patients per age. The socio economic level was input with 3748 patients and 68.1% (2553/3748) had a low level of socio-economic level, below the poverty line (<82672FCFA / year, or £ 183). Access to primary health care was difficult with 44.5% of our patients.

Diagnostic Aspects

Classification of Main Diagnoses in Accordance with Major Disease Entities

For each admitted patient, one main diagnosis was selected. Cardio-metabolic disorders were poorly represented with respective rates of 3.2% for metabolic diseases and 1.9% for cardiovascular diseases. The main diagnoses in accordance with major disease entities are shown in Table I.

The Main Diseases Encountered in Service

The thirteen first affections encountered in the course of our study in a decreasing order are shown in Figure 1

Evolutionary aspects

The distribution of patients in accordance with evolution is reported in Figure 3

Mortality Study

We noted 1785 deaths, i.e. a rate of 33.3% (1785/5362). Among the fatalities, 92.6% were admitted from states and of pulmonary tuberculosis with respective rates of 10.5% (73/694), 7.2% (50/694) and 5.6% (39/694). Table II shows the specific mortality due to infectious and parasitic diseases.
The contribution to the proportional mortality of the different disease entities are listed in Table III.
Central nervous system diseases related deaths were dominated in 82.8% by stroke and acute bacterial meningitis with respective rates of 46.2% (170/368) and 36.6% (135/368).
Liver cancer and liver cirrhosis were the leading causes of death for diseases of the digestive system with respective rates of 31.4% (111/357) and 31.1% (110/357).
Age-specific mortality was high in the age group from 30 to 49 years.
Table IV shows the distribution of deaths per age

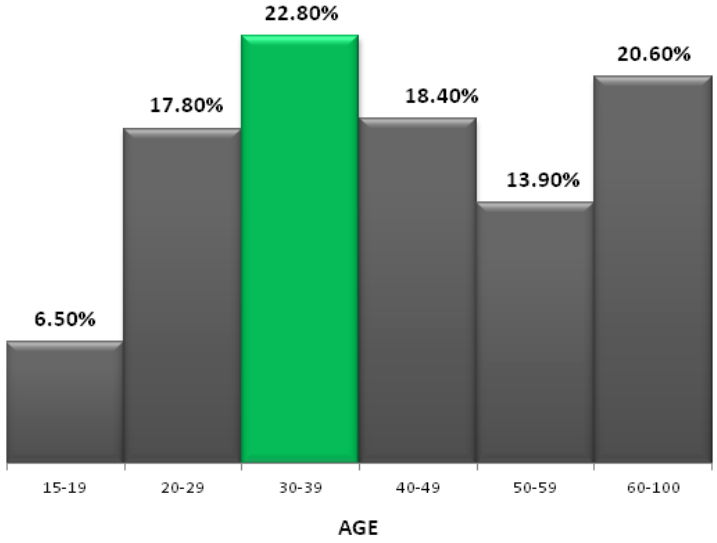
DISCUSSION AND COMMENTS

The retrospective nature of the study did not allowed to have complete information on all patients admitted during emergency consultations Versus 7.4% from external consultations.
The mortality rate was higher in the first three days of hospitalization i.e. 37.4%. But the overall mortality remains dominated by infectious and parasitic diseases with a rate of 38.9% (694/1785).
AIDS was the leading cause of death among infectious and parasitic diseases with a lethality of 71.6% (497/694), it was followed by severe malaria, unspecified septicemia the study period. However, the data obtained allowed us to better understand the epidemiology, diagnosis and evolutionary profile of patients admitted in internal medicine.
The predominance of the age group 15 to 39 (22.8%) was shared by some authors as (Lengane, 2007) and (Essossimna, 2002) in Burkina Faso. This could be explained in part by the structure of the pyramid of ages of Burkina Faso which is broad-based that is to say, a predominance of young adult population, and on the other hand by the fact that the study was conducted in internal medicine which admits only patients who are 15 or older. A male predominance (54 males / 46 females) was observed in agreement with (Lengane, 2007) and (Somé, 1994) in Burkina Faso, (Bertrand et al., 1978) in Cote D'Ivoire. Although barely mentioned in the literature, this male predominance in Burkina Faso could be explained by the exposure of males to some factors making them more vulnerable (work in mines, agricultural work, and alcohol related occupation). The low level of socio-economic life of the majority of our patients was mentioned by (Soré, 2011) in Bobo-Dioulasso and

Table 1: principal Diagnostics according to pathologic entities**.**

pathologic entities	Number	Percentages (%)
1-infectious and parasistic diseases	1985	37.02
2- Diseases of the digestive system	1027	19.15
3- The nervous system diseases	969	18.07
4- Blood and hématopoïetic organs diseases	300	5.59
5- Diseases of the urogenital tract	287	5.35
6- Envenomation and poisoning	188	3.51
7- Nutritional and metabolic endocrine diseases	174	3.24
8- Diseases of the respiratory system	132	2.46
9- Diseases of the circulatory system	105	1.96
10- The symptoms and ill-defined conditions	76	1.42
11- Diseases of the skin and subcutaneous tissue	63	1.17
12- The muscle diseases and musculoskeletal system	35	0.65
13- Psychiatric disorders	21	0.39
Total	**5362**	**100**

Figure 1: Distribution of patients according to age



(Somé, 1994) in Ouagadougou. Indeed, Burkina Faso is a developing country where 46.4% of the population lives below the poverty line (<82672FCFA / year, or £ 183) as justifying the lack of access to primary health care for our patients (44.5%); which for the most part are directly driven to the tertiary level of the health pyramid without climbing the different levels (National institute of Statistics and Demography, 2008). This finding would be a proof of the prevalence of hospitalized patients with low socio-economic background.

Among the pathologies treated in internal medicine, infectious and parasitic diseases occupied the first rank with 37.1% of admissions. This predominance of infectious and parasitic diseases is shared by (Lengane, 2007) who reported a rate of 36.8% through his studies carried out from 2005 to 2007 in the same department. Moreover (Zannou et al., 2009) in Cotonou mentioned an admission rate of 60.5% in the internal medicine department for this nosological group. This particularly high frequency of infectious and parasitic diseases is consistent with the characteristics of morbidity in sub-Saharan African countries, including Burkina Faso. However this seems to contrast with the epidemiological transition characterized by the increasing emergence of cardio-metabolic diseases in the Southern countries noted in the reports of some countries since late 2000 (Ministry of Health of Burkina Faso, 2010).

AIDS ranked 1st in this disease entity and was the first reason for hospitalization in internal medicine. Despite lot of sensitization campaigns to break the chain of transmission, AIDS remains a concern of health systems in Southern countries (National institute of Statistics and

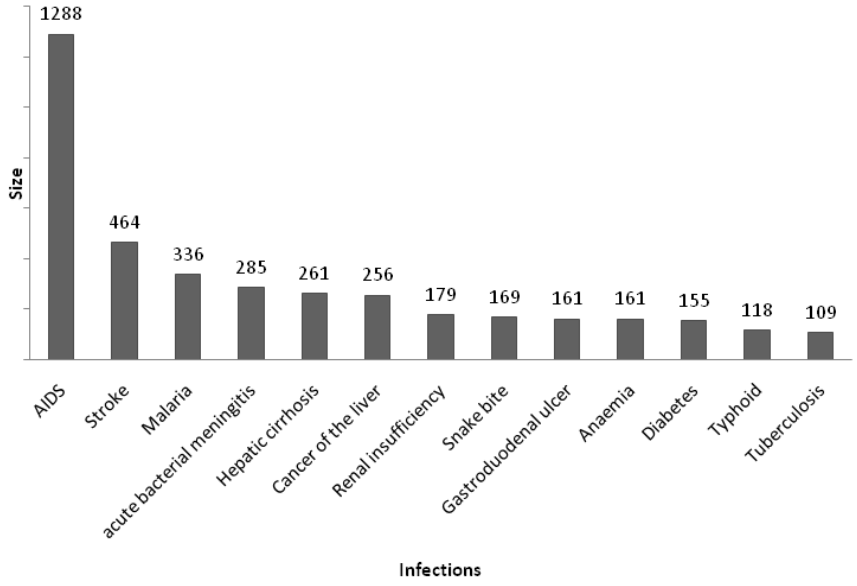


Figure 2: Distribution of the 13 infections found in internal medicine

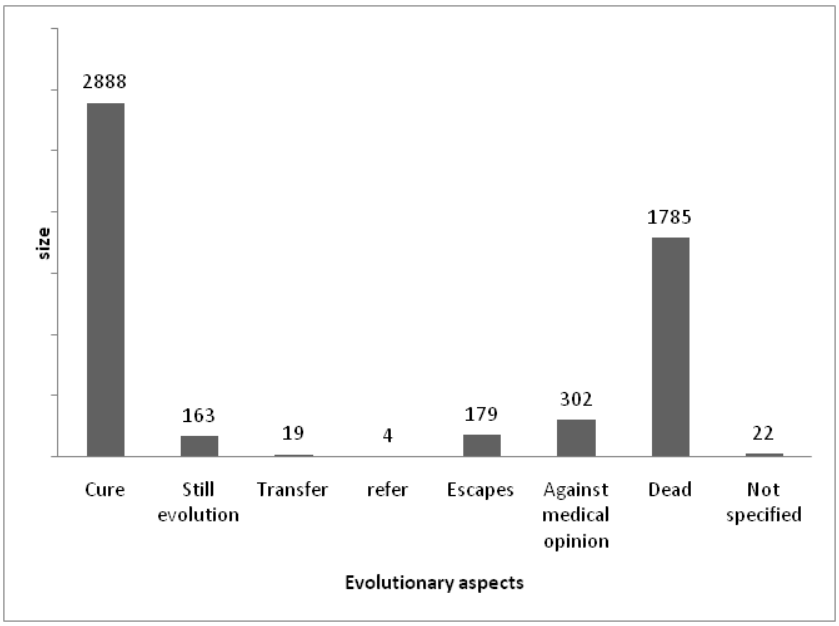


Figure 3: Distribution of patients according to evolution

Demography, 2008). It strongly influences the frequency of infectious and parasitic diseases, thus, upsetting health indicators (WHO, 2013).

The mortality rate was higher in the first three days of hospitalization i.e. 37.4%, the high early mortality is reported by many African authors, it is the case of (Hountondji's studies et al., 1988) and (Lengane, 2007), (Diarra et al., 2006) who found respective rates of 46.7%, 45.5%, and 27.1%.

This situation reflects the absence of ER workers, the lack of emergency resuscitation unit, the difficulty of transferring ICU patients, and the lateness transfer of patients in the internal medicine department.

This raises the necessity to provide emergency medical

Table 2: Specific mortality due to Infectious and Parasitic Diseases

Infectious and parasitic diseases	Number of deaths	Specific mortality rate (%)
VIH	497	71.60
severe malaria	73	10.52
Unspecified septicemia	50	7.20
pulmonary tuberculosis	39	5.62
Typhoid fever and salmonellosis	19	2.74
Tetanus	8	1.15
intestinal amoebiasis	3	0.43
Neuro-meningeal cryptococcosis	2	0.29
Blackwater bile fever	1	0.14
Total	**694**	**100**

Table 3: proportional mortality of the different pathological entities

Pathologic Entities	Number of deaths	Specific mortality rate (%)
1- Infectious and Parasitic Diseases	694	38.88
2- Nervous System Diseases	368	20.62
3- Diseases of the digestive system	354	18.83
4- Diseases of the urogenital tract	104	5.83
5- Diseases of the blood and blood-forming organs	69	3.86
6- Endocrine, nutritional and metabolic diseases	46	2.58
7- envenomation and poisoning	43	2.41
8- Diseases of the respiratory system	32	1.79
9- Symptoms and ill-defined morbid conditions	32	1.79
10- Diseases of the circulatory system	29	1.62
11- Diseases of the skin and subcutaneous tissue	8	0.45
12- Diseases of muscle and musculoskeletal system	4	0.22
13- Psychiatric disorders	2	0.11
Total	**1785**	**100**

Table 4: Deaths distribution per age.

Age range (years)	Number of hospitalized patients	Number of deaths	Proportion in mortality (%) *	Mortality rate
15-19	531	88	4.93	16.57
20-29	953	260	14.56	27.28
30-39	1221	405	22.69	33.17
40-49	985	325	18.21	32.99
50-59	744	285	15.97	38.31
60-69	560	203	11.37	36.25
70-100	549	219	12.27	39.89
Total	**5362**	**1785**	**100**	

*Number of deaths per age range divided by the total number of deaths

services and internal medicine department with a small working unit of resuscitation which would allow early treatment of critical cases and thus reduce this mortality.

Among the infectious and parasitic diseases, AIDS was the leading cause of death with a rate of 71.6%. Indeed the recruitment period of our patients (2007-2009), the policy of free support for people infected with HIV was not yet effective.

This finding has been reported by several authors in Saharan Africa during this period or the one before 2010 (Lengane, 2007), (Somé, 1994) and (Zannou et al., 2009). This finding is also confirmed by the (WHO, 2009), which reports that 2 out of 3 adults die from an infectious disease in Africa and this frequency is strongly influenced by the HIV / AIDS infection (WHO, 2013).

The majority of patients hospitalized in the department for HIV infection presented numerous opportunistic infections reflecting a severe immunosuppression. Those affections being no longer reported today due to the extension of ARV treatments, which could justify partly

this high mortality in HIV infection during the period from 2007 to 2009. The promotion of an early screening tests and an effective management would reduce the lethality.

Deaths related to central nervous system disorders were dominated in 82.8% by stroke and acute bacterial meningitis (ABM). Burkina Faso due to its location in the heart of the meningitis belt of LAPEYSSONNIE where highly lethal acute bacterial meningitis outbreaks are recurrent is very exposed, that could be an explanation for this high mortality related to MBA (Yaméogo et al., 2011).

As a result, the high lethality associated with stroke among the central nervous system diseases was reported by (Lengane, 2007), the modesty of the technical platform, the difficulty of achieving C T, impediments to the transfer of hemorrhagic stroke in intensive care are also as many constraints that could explain this high mortality.

Liver cancer and liver cirrhosis were the leading causes of death for diseases of the digestive system with rates of 31.4% (111/357) and 31.1% (110/357). However poorly informed on the etiology because of the retrospective nature of our study, KYELEM's studies in the same department in 2011 reported a high prevalence of chronic carriers of hepatitis B (65.5%) with patients hospitalized for primary liver cancer (Kyelem et al., 2011). This finding raises once again the necessity of strengthening screening and vaccination against hepatitis B in the Southern Countries.

CONCLUSION

The internal medicine department of the CHU-SS Bobo Dioulasso is characterized by the diversity of pathologies taken in charge. Despite the epidemiological transition marked by the emergence of cardio-metabolic disease in the southern countries, infectious and parasitic diseases are a concern in internal medicine in Burkina Faso. These infectious and parasitic diseases are dominated by AIDS, acute bacterial meningitis and severe malaria. The majority of our patients were young with an age between 15 and 39 years.

The mortality rate was higher in the first three days of hospitalization. The three diseases / infections the most lethal were AIDS, stroke and primary liver cancer. It was noted that autoimmune systemic diseases were rare.

An early treatment of infectious and parasitic diseases would reduce mortality in the department of internal medicine at CHU Souro Sanou.

CONFLICTS OF INTERESTS

Authors report no conflict of interest opposing them.

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