

. COMPARATIVE STUDY OF THE PROFILE OF MORTALITY IN THE DEPARTMENT OF INTERNAL MEDICINE AT THE PRINCE REGENT CHARLES HOSPITAL (PRCH)

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ABSTRACT

Aim: Study the mortality of patients hospitalized in the Department of internal medicine of the PRCH from the years 1988-1990; 1998-2000 and 2008-2010.

Patients and methods: this is a comparative and retrospective study of 9 years divided into 3 periods of 10 years apart, from January 1988 to December 1990; from January 1998 to December 2000 and from January 2008 to December 2010. The data came from medical records to track patients and records in the department of internal medicine of the PRCH.

Results: We recorded 11654 admissions with 2202 deaths during the three periods of our study for 545 deaths during the period 1988-1990 (18,17%); 920 deaths in 1998-2000 (21,11%) and 737 deaths in 2008-2010(17,15%), so an increase of the mortality in the second period and a reduction in the third period the other periods. We had a high male mortality in all periods with sex ratio ranging from 1.4 to 1.5. The most affected age group is 25- 34 years during the period of 1988-1990 and 1998-2000, for the period of 2008- 2010, it is the age range of 35-44 years who was the most affected. In our series, mortality from tumours, diseases of the genitourinary system, endocrine diseases, nutritional and metabolic has increased over time. Infectious and parasitic diseases are the leading causes of death in all periods of study with a rate of 66.2%

(1988-1990); 64.7% (1998-2000) and 60.2 of the deaths %(2008-2010) all-cause mortality. The rate of mortality before 48 h is 12,29% over the period 1988-1990; 17.7% during the period 1998-2000 and 18.45% during the period 2008-2010. AIDS is the main land is found in the majority of patients who died during the three periods but has experienced a reduction over time (89.7%; 74.3% and 85.2 %). Tuberculosis, malaria, salmonellosis and bacterial meningitis were the main causes of mortality among the subjects HIV +.

Conclusion: at the end of our study, we find that there was a change in the profile of marked mortality including by decreasing changes in mortality from infectious and parasitic diseases with an increase in mortality by the non-infectious over time chronic diseases (diabetes, HTA, renal failure).

Key words: comparison, mortality,. internal medicine of the PRCH.

Introduction

Over the past twenty years, the global health situation has changed rapidly. Around the world, people live longer than ever before and populations age. As a result, the burden of the disease is increasingly defined in terms of disability rather than premature mortality [1]. Having so far failed to completely stem diseases communicable and already plagued by no communicable diseases, African countries are thus facing a "double health burden"

[2]. Teaching Hospital in the years 1978 to 1984, the PRCH focused almost all of doctors of different specialties and was considered to be Hospital of last resort for other peripheral health facilities of the country. Currently, many parameters have changed. The PRCH is not academic but remains a more common reference hospital in the country. The discovery of HIV/AIDS in the 1980s worsened the sanitary situation and has influenced deeply the mortality rate. The year 1993 was that of regression of all health indicators because of the war that brought the country to more than 20 years back [3]. Mortality and morbidity are reliable indicators of a population. The knowledge of mortality statistics is important in the fight against the major causes of death. As there is lack of reliable data on these indicators, we proposed to make a contribution to the constitution of a database. The general objective pursued by this work is to study the evolution of mortality in the service of medicine internal (MI) of the PRCH during 1988- 1990; 1998-2000 and 2008-2010.

The specific objectives are to study the mortality and the leading causes of death for each period of study, as well as to do a comparative study between the three periods.

Patients and Methods

Study type

A retrospective and comparative study

Patients

Any record of an inpatient in the Department of internal medicine of the PRCH from January 1, 1988 to December 31, 1990; January 1, 1998 to December 31,

2000 and January 1, 2008 to December 31, 2010. No record was rejected.

The tracked variables

The name and first name, sex, age, residence, the entry date, release date, diagnosis, evolution, and the existence of a particular field.

THE RESULTS

1. Overall mortality

In our study, we recorded 11654 admissions in internal medicine including 2202 case of death during the three periods, or 18.89 percent.

Table I : Mortality by period

Period	Admissions	Number of deaths	Death Frequency (%)
1988-1990	2999	545	18,17
1998-2000	4358	920	21,11
2008-2010	4297	737	17,15
Total	11654	2202	18,89

2. Sociodemographic data

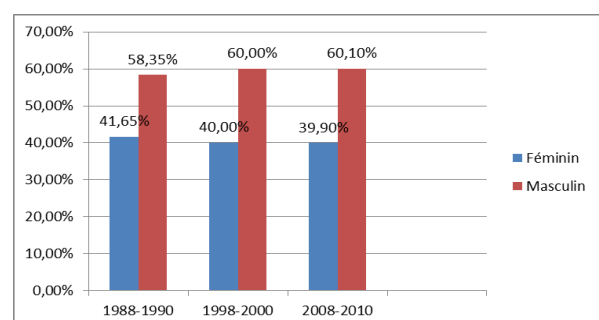


Chart I: distribution of deaths by sex during the three periods

3. Causes of death based on the ICD 10

Infectious and parasitic diseases were the leading cause of death in all periods of study, there has been an increase in mortality over time for the following pathologies: tumors; Genitourinary diseases; as well as endocrine, nutritional and metabolic diseases.

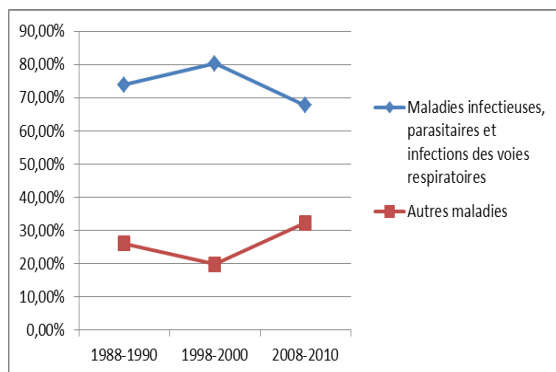


Chart II: Evolution of mortality by infectious, parasitic diseases and infection of the Airways compared to other non-infectious disease during the three periods.

4. Comparison of causes of death between the three periods

TB and malaria were the leading causes of death in all periods of study. Mortality by HCC, malaria and diabetes, HTA and kidney failure increased over the three periods.

5. Mortality early

Table II: comparison of early mortality over time

Period	Total of deaths	Number of early deaths	Frequency of early deaths(%)
1988-1990	545	67	12,29
1998-2000	920	163	17,7
2008-2010	737	136	18,45
Total	2202	366	16,6

6. The mortality of the old patients

Table III: comparison of mortality of the elderly

Period	Admissions (elderly)	Number of deaths	Percentage
1988-1990	308	76	24,6%
1998-2000	387	85	21,9%
2008-2010	515	136	26,4%
Total	1210	297	24,5%

DISCUSSION

In our study, the overall mortality rate from 18,17% during the period 1988-1990 to 21,11% during the period 1998-2000 and to 17,15% during the period 2008-2010.

The increase in the mortality rate registered in the period 1998-2000 would be linked to instability caused by the socio-political crisis prevailing in these years having resulted in poverty and the resurgence of diseases essentially communicable.

Ndorere Z., in his study conducted in 2004 to CHUK on morbidity and mortality in MI, found a mortality rate of 10.36% [4]. ZANNOU DM and coll. [5] in Benin in 2009 found a rate of 21%. In our study, we had a high male mortality in all periods with sex ratio ranging from 1.4 to 1.5. The more exposure of men to several risk factors such as smoking and alcoholism would have favored higher mortality of men over women. NSHEMEZIMANA S., in his study on the morbidity and mortality in internal medicine at the HMK in 2013,

has found a high male mortality of 77.6 percent against 22.6% [6].

MBAZUMUTIMA J., in his study on mortality in internal medicine to the PRCH found a male with (68.9%) against (31.1%) mortality in the period 1978-1988 [7]. The most affected age group is 25-34 years old; 28.5% over the period 1988-1990 and 28.6% in the period of 1998-2000 while for the period 2008-2010, it is the age range of 35-44 years who was the most affected with 23.9%. The patients in the two age groups were the most represented in our series. SYMPARA., in a study in Mali at the health center of Macina had the maximum of death in the age group of 25-49 years [8]. In a study conducted in Mali by TIDIANI C. CHU of Point G in 2010-2011, the largest number of deaths was an age between 32-46 years [9].

In our series, infectious and parasitic diseases are the leading causes of death with 66.2% during the period 1988-1990; 64.7% in the period of 1998-2000 and 60.2 percent over the 2008-2010 period. They are followed by diseases of the digestive system in the periods of 1988-1990(15,4%) and 2008-2010(11,8%); while in the period of 1998-2000, are diseases of the respiratory system that occupy the second place with 15.5%. These results converge with those of other African authors.

For BASSIROU SANOGO, in his study on the morbidity and mortality in the health center of reference of Bougouni in Mali in 2006; infectious and parasitic diseases came to head with 38.09 percent, followed by diseases of the digestive 20,09% and 9.52% circulatory diseases [10]. In the study conducted by OUATTARA B. and al. to the military hospital in Abidjan (HMA) in 2012, infectious diseases were dominant and represented about 74% of

the causes of death in the service of internal medicine [11].

This particularly important frequency of infectious and parasitic diseases is consistent with the characteristics of the morbidity of sub-Saharan African countries. In the European Union, diseases of the circulatory system were the main cause of death in 2006-2008 [12]. In our series, the tuberculosis occupies the first place among the causes of death in all periods studied with a much higher mortality rate in the period 1998-2000, 28.8%. Several factors explain the surge in TB cases: population growth, the unfavorable socio-economic environment and the epidemic of HIV/AIDS [13]. This resurgence of TB mortality is attributable to HIV infection. This co-infection varies from 16 to 80% in sub-Saharan Africa where TB is the first opportunistic infection [14,15]. In a study conducted by Ntiranyibagira O. in the Makamba and Nyanza-lac hospital in 2012, tuberculosis was the third cause of death with (10.6%) [16].

Malaria is the second cause of death,(in our study), in all periods and with a mortality rate growing over time from 18.7% in period 1988-1990 to 21.5% and 24.4% respectively in second and third period.

MBAZUMUTIMA J. in his study on mortality in internal medicine to the PRCH, period from 2011-2013, has found that malaria was in second place among the main causes of deaths with a rate of 13% [7]. NSHEMEZIMANA in 2013 in the military hospital of Kamenge and in the same department found a rate of 11.1% malaria mortality [6]. In Burundi, Ntiranyibagira O., in a study done in the Makamba hospitals in 2012 found malaria as the leading cause of death with 35% [16].

OUEDRAOGO and al., in their study in the CHU of Ouagadougou in 2004, have found malaria as 3rd cause of death with 6.3% [17]. In our study, mortality due to diabetes has increased over time from 0.2% to 0.5% and 2.7% over the three periods with a fatality rate that is evolving in pace (5.6%, 1.5%; 10.15%).

Changes in diet and lifestyle habits would have caused the resurgence of diseases like diabetes, high blood pressure, especially in the cities.

MBAZUMUTIMA J., in his study found an increase in mortality due to diabetes from 3.7% over the period 1978-1980 to 11.1% in the period of 2011-2013 [7]. In our series, mortality before 48 h is 12,29% over the period 1988-1990; 17.7 per cent during the period 1998-2000 and 18.45% during the period 2008-2010. The lack of evolution in time of adequate equipment and intensive care units would have led to a lack of support in the first hours of hospitalization. BERTRAND

E.D. Cote d'Ivoire found a mortality rate before 48 h of 3.44% [18].

NDORERE Z., in his study on the mortality and morbidity in service of internal medicine at CHUK in 2004, found a mortality rate before 48 h 1.8% [4].

In our series, AIDS is the main field is found in the majority of patients who died during the three periods and the main causes of mortality in HIV-infected patients are tuberculosis 63.8%, malaria 10.6%, salmonella 9.6% and meningitis 9.2%. PONGATHIE and al. in the CHU of Treichville in 2001, the leading causes of death in patients infected by HIV were purulent meningitis, tuberculosis and cerebral toxoplasmosis [19]. In our series, cirrhosis (14.5%), the malaria(14,5%) and the tuberculosis(9,2%) are the main causes of death of the elderly in 1988-1990; These are the same causes in 1998-2000, but with cirrhosis (10.6%) in third place while that in 2008 - 2010 the stroke (8,8%) occupies the third place after the tuberculosis(19,1%) and malaria (17.6%).

In a study by MABOUNGOU GUIMBI KC in 2011 in the Congo on the causes of admission and mortality in the elderly of 60 and more at the Brazzaville CHU, the leading causes of death were stroke, diabetes and hypertension [20]. DUTH G and al., in Senegal, found the no-defined death in first place followed by deaths from diseases of the circulatory system [21]. In metropolitan France in 2009, the main

causes of death of the elderly were tumors followed by diseases of the cardiovascular system [22].

CONCLUSION

At the end of this work, we find that the period 1998-2000 has experienced a mortality compared to other periods, either 21,11%. The male was the most affected in all periods. The 25-34 age group was the most affected during the first two periods and that of 35-44 was the most affected during the 3rd period. Infectious and parasitic diseases are the leading causes of death in all periods of study, dominated by TB and malaria. We have seen an increase in mortality over time by tumors; diseases of the genitourinary system; as well as endocrine, nutritional and metabolic diseases. HIV/AIDS is the main field found in the majority of patients who died.

REFERENCES

1. **OMS, Organisation Mondiale de la Sante.** Prévention des maladies chroniques : un investissement vital ; Genève 2005.
2. **Mortalité et santé en Afrique subsaharienne.** Disponible sur: <https://www.ined.fr/fr/recherche/projets-recherche/P1516>
3. **NIYONGABO N.T., NDAYIRAGIJE A, LAROUZE L, P AUBRY. BURUNDI.** L'impact de 10 années de guerre sur les endémo-épidémies. Med trop 2005, 65: 305-312.
4. **NDORERE Z.** Cause d'hospitalisation et mortalité dans le service de médecine interne du CHU Kamenge (2000-2003). Thèse de médecine. Université du Burundi, mars 2006, 64p.

5. **ZANNOU DM.et coll.** Mortalité et morbidité en hospitalisation médecine interne au centre hospitalier et universitaire Hubert K. Maga de Cotonou. Médecine d'Afrique noire n°5612, Décembre 2009, 609-614.
6. **NSHEMEZIMANA S.** Etude de la morbidité et de la mortalité en Médecine Interne à l'Hôpital Militaire de Kamenge. Thèse de médecine. Université du Burundi, Bujumbura, 2014, 51p.
7. **MBAZUMUTIMA J.** Mortalité en médecine interne à l'hôpital prince régent Charles 1978-1980 et 2011-2013. Thèse de médecine. Université du Burundi, janvier 2017, 64p.
8. **SYMPARA A.** Evaluation des activités des services de médecine au centre de santé de référence de Macina, Thèse de Médecine, Bamako, 2006, 86p.
9. **TIDIANI C.** Morbidité et mortalité parasitaire et fongique dans les services de médecine interne et maladies infectieuses et tropicales du CHU Point G. Thèse de médecine, Université de Bamako, 2011, 114p.
10. **BASSIROU SANOGO.** Profil de la morbidité et de la mortalité au centre de santé de référence de Bougouni. Thèse Médecine, Université de Bamako, 2006, 77p.
11. **KRA O, OUATTARA B, ABA T, KADJANE NJ,** et al. Morbidity and mortality from infectious diseases at the Military Hospital of Abidjan, Côte d'Ivoire. Med Sante Trop 2012; vol 22 n°1: 75-78.
12. **Eurostat :** les causes de décès au niveau régional, 2011.
13. **Banque mondiale.** Le Burundi face au VIH/sida, 05 janvier 2013.
14. **NGOM A, AKA-DANGUAY E, KOFFI N, TCHAMRAN M, MOH K , KOUASSI B.** Epidémiologie de la tuberculose à Abidjan ; effet de l'infection à VIH. Med Trop (mars) 1999; 59: 165-8.
15. **DAGNRA AY ADJOH K, TCHAPTCHET HEUNDA S,** et al. Prévalence de la coinfection VIH-tuberculose et impact de l'infection VIH sur l'évolution de la tuberculose pulmonaire au Togo. Bull soc Pathol Exot 2011; 62: 247-250.
16. **NTIRANYIBAGIRA O.** Causes d'hospitalisation et de mortalité dans les services de Médecine interne et chirurgie de deux hôpitaux publics de Makamba. Université du Burundi. Thèse de médecine, Bujumbura, 2012, 68p.
17. **OUEDRAOGO M.et coll.** Morbi-mortalité liée aux maladies respiratoires chez les malades infectées par le VIH au CHU d'Ouagadougou (Burkina Faso). Médecine d'Afrique noire n°5109, AOUT /SEPTEMBRE 2004, 456-458.
18. **BERTRAND E., LEBRAS M., RENAMBOT J.,** et al. Mortalité et morbidité hospitalière en 1974 dans un service de médecine interne à Abidjan. Med Afrique Noire 1978; 25: 319-326.
19. **PONGATHIE A.** Morbidité et mortalité dans le service de médecine interne du CHU de Treichville en 2001. Thèse de médecine, Abidjan, 2003, 109p.

20. **MABOUNGOU GUIMBI KC**, Les motifs d'admission et de mortalité du sujet âgé de 60 ans et plus en réanimation polyvalente du CHU de Brazzaville. Thèse de médecine, Brazzaville, 2013, 123p.

21. **DUTHE G., Laurent R., PISONG**, Vivre et mourir après 60 ans en milieu rural africain, isolement, recours aux soins et mortalité des personnes âgées à MLOP INES 2009, 78: 9-12.

22. **INSERM_CEPIDC** (centre d'épidémiologie sur les causes médicales de décès.www.cepdc.inserm.fr).