Research

Analysis of Mortality in a Dermatological Affections Referral Center in Sub-Saharan Africa, Abidjan, République de Côte d'Ivoire

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ABSTRACT

Objectives: To document patients who died in Dermatology Department at University Teaching Hospital (UTH) of Treichville; describe epidemiological aspects; indicate the various dermatological diseases associated; specify the immediate causes; identify the determinants.

Materials and Methods: This was a cross-sectional study with descriptive and analytical referred. Included were all hospitalized patients died in the Dermatology and Venerology service of Treichville University Hospital from January 2000 through December 2014.

Results: One thousand seven-hundred and thirty-five patients were hospitalized. The hospital mortality was 10.26% (178 deaths). The average age of the death was 43.16 years; the sex ratio was 0.83. Patients who had no source of income were the most numerous (61.53%). The average hospital stay was 20.05 days. Patients had at the entrance an altered condition in 49.43% of cases and 46.62% in middle condition. Those who regularly bought their drugs were 58.21%. Those who died in the second half of the month were the most numerous (55.61%). Dermatosis groups associated deaths were: infectious dermatosis 41.57%, 29.77% tumor dermatitis and drug eruptions 16.85%. Of the 178 deaths, the 1st 3 are pathologies associated fasciitis (50 cases), Kaposi’s sarcoma (46 cases) and toxic epidermal necrolysis (17 cases). Respiratory distress (41.31%) and septic shock (36.52%) were the main immediate causes of death. Anemia (41.40%), tuberculosis (10.82%) and diabetes (10.19%) were the major comorbidities. Serology was positive in 92.5% of dead patients who have realized their HIV status (n=80). Significantly associated determinants were essentially the regular bought of drugs (p =0.013), the altered condition (p =0.033), death hours (p =0.023) and comorbidities (p =00000).

Conclusion: Mortality is a reality in the Dermatology and Venerology at UTH of Treichville. These determinants are numerous and some need to be better studied to identify true risk factors in order to make appropriate recommendations.

KEYWORDS: Mortality; HIV; Dermatosis.

INTRODUCTION

Dermatological diseases are not among the most common causes of death in sub-Saharan Africa. However, since the advent of human immunodeficiency virus (HIV) infection which is one of the causes of death in sub-Saharan Africa, some skin diseases have become very common while others have seen their prognosis serious. Data on overall mortality from skin dis-
dases in hospital services remain very partial references in the literature. So we conducted this study to analyze mortality in a Dermatology Department of black Africa. It will specifically to describe the epidemiological aspects, indicate the various associated dermatological disease, specify the immediate causes of death, identify the determinants and measures the scalability of deaths from 2000 to 2014.

MATERIALS AND METHODS

This was a descriptive and analytical cross study of hospitalized patients from January 2000 to December 2014 (15 years) in the Dermatology and Venereology Department of University Hospital of Treichville. Were included in the study, all patients died during the study period, regardless of the age, sex and pathology. Were not included deceased patients registered in the register of Dermatology and whose records could not be found. Data were collected from patient records on a survey sheet. The seizures and analyzes were made on the EPI-INFO 3.5.1 software. The test of chi-square ($\chi^2$) was used for comparison of proportions and $t$-student for the comparison of averages.

RESULTS

Epidemiological Aspects

During this period of 15 years we registered in 1735 inpatients, including 178 deaths or a hospital mortality of 10.26%. The average age of patients who died was 43.16 years, ranging from 2 to 89 years. There was a male predominance with a sex ratio (M/F) of 1.19. Patients live as a couple in 51.87% of cases and by followed singles with 31.25%. They had no source of income at 61.53% and 29.48% worked in the informal economy.

Cause of Death

Infectious skin diseases were the leading cause of death (41.57%), followed tumor dermatoses (29.77%) and drug reactions (16.85%). The list of 1st 10 diseases causing deaths is shown in Table 1 and the immediate causes in Figure 1. From 2000 to 2006, 3 leading causes of death were in ascending order Kaposi’s disease, fasciitis and burili ulcer. From 2007 fasciitis has become the leading cause of death followed by Kaposi’s disease.

| Pathologies               | Frequency |
|---------------------------|-----------|
| Fasciitis                 | 50        |
| Kaposi disease            | 46        |
| Lyell Syndrome            | 17        |
| Steven Johnson            | 10        |
| No necrotizing bacterial cellulitis | 9 |
| Squamous cell carcinoma   | 7         |
| Pyodermitis               | 6         |
| Diabetic gangrene         | 5         |
| Escarres                  | 4         |
| Burili ulcer              | 3         |
| Bullous pemphigoid     | 3         |

Table 1: The first 10 causes of death, Dermatology and Venereology of Treichville University Hospital Service, Abidjan, from 2000 to 2014.

Figure 1: Distribution of deceased patients according to the immediate cause of death, Dermatology and Venereology of Treichville University Hospital Service, Abidjan, from 2000 to 2014.
The death rate found in our study was slightly higher than that of Tollhupp-Jouret et al\textsuperscript{2} in France and Keita et al\textsuperscript{3} in Guinea with 9% and 7.90%, far higher than Nair et al\textsuperscript{4} 3.58% in India in Dermatology services. Compared to those of studies conducted in Côte d’Ivoire in other services, our mortality rate substantially corresponds to that found by Dekou A et al\textsuperscript{5} (10.1%) in a urology Abidjan. This high mortality rate could be explained by the fact that the patients arrived at a very advanced stage. Indeed, nearly half of deceased patients (49.43%) came in an altered condition. The patients who died were in 61.95% between 4:30 pm to 8:30 am; in 74.71% they died at working days of the week; 55.61% in the second half of the month. The determinants significantly associated with death ($p<0.05$) are shown in Table 2.

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tumor dermatosis we noted much of Kaposi’s disease with 46 cases or 86.79% (Table 1). This condition is related to HIV with a predictive value in the Dermatology Department at University Hospital of Treichville 87.5%.8

CONCLUSION

Mortality is a reality in the Dermatology and Venereology of Treichville University Hospital. From 2000 to 2014 the rate was 10.26%. Infectious skin diseases and tumor are the main causes with as main immediate causes respiratory distress and septic shock. These determinants are numerous and some need to be better studied to identify true risk factors in order to make appropriate recommendations.

CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

REFERENCES

1. Chalapati R, Alan DL, Yusuf H. Causes of death. In: Jamison DT, Feachem RG, Makgoba MW, et al., eds. Disease and Mortality in Sub-Saharan Africa. 2nd ed. Chap 5. Washington, DC, USA: World Bank; 2006.

2. Journet-Tollhupp J, Grange F, Bernard P. Évolution de la mortalité dans le service de dermatologie du CHU de Reims (1996-2009) [In French]. Annales de dermatologie et de vénérologie. 2013; 140(2): 91-96.

3. Keita M, Koulibaly M, Soumah MM, et al. Morbidité et mortalité hospitalières dans le service de dermatologie-MST du CHU de Conakry (Guinée) [In French]. Annales de dermatologie et de vénérologie. 2014; 141(12): 356-357.

4. Nair PS, Moorthy PK, Yogiragan K. A study of mortality in dermatology. Indian J Dermatol Venereol Leprol. 2005; 71: 23-25. doi: 10.4103/0378-6323.13781

5. Dékou A, Ouegnin G, Konan P, et al. Contribution à l’étude de la mortalité dans un service d’urologie: Le cas du service d’urologie du CHU de Cocody d’Abidjan (côté d’Ivoire) de 2000 à 2006 [In French]. Afr J Urol. 2009; 15(1): 44-52.

6. Institut National de la Statistique (Côte d’Ivoire). Résultats définitifs RGPH 2014: Indicateurs démographique [In French]. Portail INS. 2014. Web site. http://www.ins.ci/n/. Accessed September 14, 2016.

7. Channon M, Hosegood V, McGrath N. A longitudinal population-based analysis of relationship status and mortality in KwaZulu-Natal, South Africa 2001-2011. J Epidemiol Community Health. 2016; 70: 56-64. doi: 10.1136/jech-2014-205408

8. Ecra EJ, Kouassi YI, Gbéry IP, et al. Fasciitis depending on the HIV serostatus in Abidjan (Côte d’Ivoire). J Clin Exp Dermatol Res. 2014; 5: 6.