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Original Article

Hemorrhagic Stroke at the Department of Neurology, Fann National Teaching Hospital in Dakar, Senegal

Les accidents vasculaires cérébraux hémorragiques au service de Neurologie, CHU Fann, Dakar, Sénégal

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Abstract

Introduction: Hemorrhagic stroke is a public health priority with a high mortality. The objective of this study was to describe its epidemiology in patients admitted at the department of neurology of Fann national teaching hospital in Dakar, Senegal.

Patients and methods: Through a retrospective study (January2013 to December 2014), we collect data on sociodemographic features of patients, their past medical history, lifestyles, clinical presentation and prognosis.

Results: 495 stroke patients were admitted during that period. 171 had hemorrhagic stroke (34.5%). Their mean age was 57 years (±14.3). They were mostly male (52.6%), living in the suburb of Dakar (60.2%) with high blood pressure (74.9%), ischemic (12.9%) and hemorrhagic stroke as main past medical history. Pyramidal syndrome (95.3%), loss of consciousness (46.7%) and meningeal syndrome (12.2%) were the main clinical findings. Hemorrhage was supratentorial (89.4%) and the mortality rate was 42.1%.

Conclusion: Hemorrhagic stroke is a public health priority. It is necessary to strengthen program against cardiovascular risk factors especially high blood pressure.

Keywords: Hemorrhagic stroke; Epidemiology; Senegal.

Résumé

Introduction : Les Accidents vasculaires cérébraux hémorragiques(AVCH) sont une priorité de santé publique. Ils sont responsables d'une mortalité lourde. L'objectif de ce travail était de décrire leur épidémiologie chez des patients admis à la Clinique Neurologique du CHU de Fann, Dakar, Sénégal. Patients et méthode : Nous avons réalisé une étude rétrospective entre le 1er janvier 2013 et le 31 décembre 2014 portant sur des dossiers de patients admis pour AVCH. Résultats : sur 495 dossiers de patients admis pour AVC, nous avons colligé 171 cas d'AVCH soit une proportion de 34, 5%. L'âge moyen des patients était de 57 ans (±14,3) avec une prédominance masculine (52,6%). Ils habitaient en majorité la banlieue de Dakar

(60,2%) avec comme principaux antécédents l'hypertension artérielle (74,9%), l'AVC Ischémique (12,9%). Le syndrome pyramidal (95,3%), l'altération de la conscience (46,7%) et le syndrome méningé (4,1%) dominaient le tableau clinique. L'hématome siégeait en sus tensoriel dans 89,5%. La mortalité hospitalière était de 42,1%. Conclusion. L'AVCH demeure une priorité de santé publique. Il convient de renforcer les programmes de prévention primaire contre les facteurs de risque cardiovasculaires.

Mots-clés : Accident Vasculaire Cérébral Hémorragique ; Epidémiologie ; Sénégal.

Introduction

Stroke by their frequency and severity aremajor public health problem [22]. Hemorrhagic Stroke (HS) represents 10-15% of all stroke [5]. Its burden was estimated at 2 million cases per year (18). They are responsible for high mortality rate in different studies (30-50%)[13]. Many studies identify high blood pressure (HBP) as main risk factor [15].Management of a patient with hemorrhagic stroke is well codified and it may lead to a good recovery. When it is appropriate, it may improve the vital and functional prognosis of patients[1, 5, 16]. To contribute to the fight against the stroke, we conducted this work to determine the epidemiological features of patients admitted for hemorrhagic stroke in Neurology department atFann national teaching hospital in Dakar (Senegal).

Patients and method

The study was conducted in the neurology department ofthe Fann national teaching hospital. It was a retrospective descriptive study conducted from January 1st, 2013 to December 31st, 2014. Were included in this study all patients admitted for hemorrhagic stroke confirmed by brain imaging. We were excluded from this study incomplete records lacking information relevant to our investigation We had also exclude the pure subarachnoid hemorrhage. Data collection was carried out through a protocol of operating records which included sociodemographic aspects, clinical,additional examinations and evolutive aspects. The univariate statistical analysis of the data was conducted using the software SPSS 16.0 for Windows. All the patient records were investigated of confidentiality during the collection of data.

Results

A total of 495 patients were hospitalized for stroke, 171 HS (34.5%) medical files were included. The mean age was 57 ± 14.3 years with a male predominance of 52.6%. The 51-60 years old age group was the most represented with a frequency of 26.3%. Patients living in the suburbs of Dakar were the most affected with a percentage of 60.23% (103 cases). Main past medical history found were: high blood pressure (74.9%), ischemic stroke (12.9%) and ,Tobacco (4.1%) and alcohol (1.2%) were the main lifestyle associated risk factors. Clinically, the pyramidal syndrome was present in 163 patients (95.3%), consciousness disorders in 80 patients(46.7%) and meningeal syndrome in 21 patients(12.2%). The associated signson admission were HBP (57.3%), hyperthermia (3.5%) and altered general state (5.3%). 73 patients (42.7%) were admitted into the intensive care unit (table 2). On brain imaging, hematoma was supratentorial in 89.4% of the cases (106 of deep and 48 of lobar hematoma). Ventricular effusion was found in 87 patients (50.9%). Biologically, 14 patients (8.2%) had hyperglycemia and 16 (9.3%) kidney failure (table 3). The hospital mortality rate was 42.1% (72 deaths): 66.6% in the first week,16.6% in the second week, 9.7% in the third week and 6.9% in the fourth week (Figure 1). The probable cause of death was cardiorespiratory arrest in 29 cases

(40,27%) and septic shock in 15 cases (20, 83%). In 28 cases (37.5%) the cause of death was unknown. 59 patients (81,94%) died in the intensive care unit and 13 cases (18.06%) in the other wards. The mean hospitalizationduration was 14 days. Among the 99 survivors, 17 (17.1%) presented an immobilization'scomplication: 9 cases of nosocomial infections, 7 cases of deep venous thrombosis of the lower limbs and 1 case of bedsores.

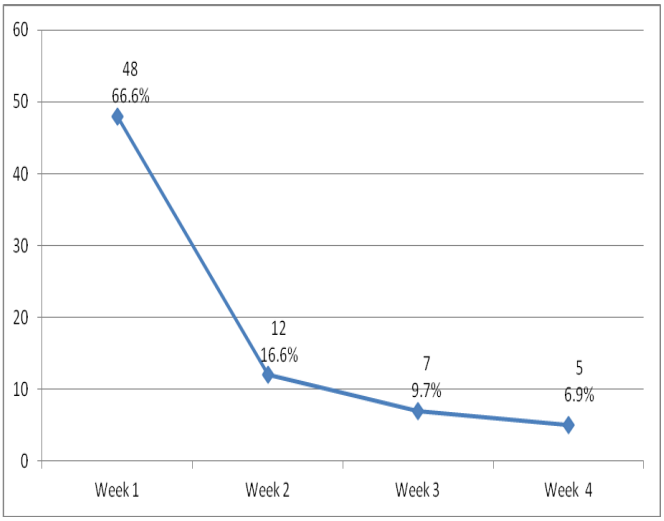

Figure 1. Evolution of the hospital mortality of patients (N = 171).

Discussion

Through our results, hemorrhagic stroke is frequent among patients admitted for stroke (1/3 of hospital admissions) with a younger mean age and significant mortality within the first week. This finding was observed in previous studies in Africa [20, 21, 23]. The mean age is rather young in our series that could confirm the early onset of the hemorrhagic stroke in Africa [23]. In developed countries, the age of onset of hemorrhagic stroke is older [7]. This gap could be explained by the combination of two factors in Africa: the earlyonset of cardiovascular risk factors and the delay in their management. Hemorrhagic stroke would affect individuals without any gender difference,but sometimes varying frequencies are observed [2, 10, 16, 25]. It is related to the geographical area of the patients. Previously considered as a disease of high income environment, stroke affects more suburban and rural community. Changes in the lifestyle of rural and semi-urban populations could explain this trend.In fact, 2/3 of our patients lived in the suburbs of Dakar. The distance between patients and our department makes difficult the accessibility and prolong the treatment delay. This lead to the worseningof prognosis among patients living outside of Dakar.The decentralization of neurological care in these areas would improve the accessibility. And the setting up of a functional stroke unit is associated with a decrease in mortality [7]. Many studies have shown the important role of the HBP in the occurrence of hemorrhagic stroke [17]. In our study, HBP was found in 57.3% of patients. In addition, there is a linear correlation between blood pressure and incidence of stroke. Indeed, an increase of diastolic pressure at 115 mm Hg could raiseby 4 times the incidence of stroke. However, a drop in systolic blood pressure of 2.6 mmHg on about 5 years would reduce by 36% the incidence of stroke [24].The prevention should involve early diagnosis and management of HBP patients. The history of stroke was the second most common etiologic factors in our study. And 1/3 of our patients presented stroke recurrence. Many African studies done in Africa reported a high incidence of stroke recurrence. In Mauritania, it was 12% according to *Diagana et al*. [6] while in Senegal it was 9.9% according to *Touré et al* (20). This high frequency of stroke recurrence in Africa reflects the shortcomings in the management of cardiovascular risk factors. Frequent alteration of consciousness was related to the severity of clinical presentation.

Indeed, nearly half of our patients presented with a Glasgow score less than 15. Several studies reported high prevalence of coma during the hemorrhagic stroke [4;16]. Alteration of consciousness, intraventricular blood effusion and high blood volumearestrong factor of mortality [9]. The relationship between coma and increased mortality rate during the Hemorrhagic stroke was demonstrated in several studies [2, 7, 8, 10, 13, 25]. Other associated signs were HBP,altered general state and hyperthermia. Severe HBPmay contribute to the bleeding process during the first hours. Chronic HBP promotes the formation of micro-aneurysmswhich can break and cause deep brain hemorrhage [3]. This is why it is recommended to fight hard against severe HBP in the care of stroke hemorrhagic [8]. Other issues like hyperthermia, Hyperglycemia, chronic kidney disease can deteriorate the patient's prognosis by a brain injury of systemic origin. Hemorrhage was mainly supratentorial with a deep location in ours study.This result is consistent with those in the literature [1, 5]. The ventricular effusionis a risk factors of mortality during cerebral hemorrhage [9]. The high frequency of ventricular effusioncould partially explain the mortality rate in our study. The mortality was frequent (42.1%) and early (66.6% in the first week) in this study. A Nigerian study revealed a mortality rate of 50.6% [14]. In China, a mortality rate greater than 50% (men) and 40% (women) were found [25]. In USA, a high mortality rate has been found but variable according to the periods and the presenceof surgery or not [2]. This mortality rate is higher for brain stem hemorrhage [21]. In addition to the alteration of consciousness and the treatment delay, the absence of stroke units could partially explain high mortality of the hemorrhagic stroke in Africa. Patients also die from nosocomial infections and immobilization complications as reported by Murthy and al. [12].We need to improve prevention of immobilization complications of patients admitted inour neurology department. This work aimed to describe the epidemiological profile of patients admitted for hemorrhagic stroke in the neurology department at Fann national teaching hospital in Dakar (Senegal). However, like any retrospective hospital study, there is some limitations. We have not recorded all patients file because of: lack in some variables, death at admission, file lost, poorly maintained records and so unusable, unavailability of some paraclinical investigations.

Nevertheless, it gives an overview on the epidemiological profile of patients and early management of hemorrhagic stroke in our Neurology Department.

Conclusion

Hemorrhagic stroke should be a priority for public health with a high mortality in the elderly than young people. The risk factors are dominated by HBP and stroke recurrence in our population. It is necessary to strengthen strategies for primary prevention against cardiovascular risk factors, but also the awareness to the community.

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