

Clinical and Etiological Characteristics of Hemiplegia at the University Regional Hospital Center Ouahigouya

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Abstract

Objective: To describe the clinical and etiological characteristics of hemiplegia in the northern region of Burkina Faso. **Methodology:** This was transversal with a descriptive and analytical study of one hundred and ninety-six hemiplegic patients in charge of general medicine at the Ouahigouya Regional University Hospital from November 2015 to November 2017. **Results:** The majority of patients had a brutal hemiplegia predominant on the right. The sample consisted mainly of male patients with a mean age of 58 years. High blood pressure was the main factor of vascular risk. The cerebrovascular accident (58.7%) was the main pathology diagnosed. Most patients received symptomatic management. Physiotherapy was performed in 29.6% of patients. The clinical outcome at discharge was marked by the persistence of hemiplegia in more than 90.8% of patients. There was an improvement in the average MIF score at the exit. **Conclusion:** The lack of computed tomography and neuro-resuscitation unit were the main factors limiting the management of hemiplegia in our context.

Keywords

Hemiplegia, General Medicine, Ouahigouya

1. Introduction

Hemiplegia is the paralysis of a hemi-body that results in an attack of the major cortico-spinal motor pathway, either the brain or both partners. Because of the crossing of the pyramidal tract at the level of the brainstem, paralysis is found on the side opposite the brain injury. A motor aphasia is observed in case of attack of the dominant cerebral hemisphere. Hemiplegia is defined as the “more or less

complete loss of voluntary motor function in one half of the body” according to the literature. The spasmodic or spastic hemiplegia that makes the paralyzed limbs rigid and the flaccid hemiplegia that makes the paralyzed limbs softened or sluggish are translated by the occurrence at the beginning, constituting the main types. It may interest either the upper limb or the lower limb or the face or the different floors at a time. Hemiplegia can be total or partial, proportional or not related to the muscular strength of the different stages, pure (pure motor) or not (associated sensory sign). It is common and affects patients of all ages. Hemiplegia is most often seen in a stroke, which is the leading cause of acquired disability in adults and the third leading cause of death in France. Other causes are associated with it. His diagnosis is clinical. A detailed neurological clinical examination and brain imaging are essential for a diagnostic orientation and its efficient management. In the literature, the most common causes of hemiplegia are cerebrovascular accidents and head trauma. Adequate management followed by early and regular physiotherapy improves the prognosis of patients. The aim of our study was to describe the clinical and etiological characteristics of hemiplegia treated in a regional hospital in Burkina Faso.

2. Methodology

2.1. Study Design

This study took place in the general medicine department of the Ouahigouya regional university teaching hospital in the northern region of Burkina Faso. Burkina Faso is a French speaking country in West Africa. It covers 274,000 km² with a population estimated at 16,248,558 inhabitants, and the northern region covers 16,207 km² with 1,185,795 inhabitants according to 2006 Census. The overall mortality rate is 14.0‰ and the live expectancy at birth is 54.1 years in the northern region about Ministry of Health of Burkina Faso (2011) statistical yearbook.

2.2. Study Population

The study was transversal with a descriptive and analytical purpose. The study included all hemiplegic patients with muscle strength less than 5 at the onset of motor impairment of the hemi-body according to the British Medical Research Council’s Muscle Score Scale, managed in the general medicine department and or seen out-of-town at the Ouahigouya Regional University Hospital Center during the period November 2015 to November 2018. All patients were examined by a neurologist from the region, the history of hemiplegia, the patients’ history, the mode Installation and evolutionary hemiplegia, muscle strength, were collected. Patients who expressed a notion of partial or total motor deficit spontaneously and totally regressed and not observed were excluded from the study. Patients with incomplete clinical records were not included.

2.3. Data Analysis

Patient consent was collected. The data was collected on an individual informa-

tion collection card. The data analysis was done on the software Stata 14.

3. Results

During the study period, 9960 patients were treated in the general medical service, all conditions combined. Our study population was studied in 196 hemiplegic patients (1.97%). The study population consisted of 128 men (65.3%) and 68 women (34.7%). The average age of the patients was 58.66 years and a standard deviation of 13.41 with a minimum of 5 years and a maximum of 82 years (**Figure 1**). One hundred and eighty-eight (188) patients (95.9%) had a right side and 8 patients (4.1%) left-side.

The motor deficit occurred on exercise in 112 patients (57.1%) and unknown in 84 (42.9%) patients. It was abrupt in 121 patients (61.7%) and progressive in 75 patients (38.3%). The admission time to the hospital was 24 hours in 10 patients (5.1%), 24 to 72 hours in 25 patients (12.8%) and more than 72 hours in 161 patients (82.1 %). The main vascular risk factors were arterial hypertension present in 140 patients (71.4%), tobacco consumption in 101 patients (51.5%), diabetes, and human immunodeficiency virus type 1 infection. and/or type 2 respectively in 65 patients (33.2%). Hypertension was complicated by cardiac disease in 86 patients (43.9%). The hemiplegia was of right localization in 108 patients (55.1%), left in 72 patients (36.7%) and bilateral in 16 patients (8.2%).

The neurological examination at admission revealed vigilance disorders (GCS score between 12 and 8) in 78 patients (39.8%), deglutition disorders in 124 patients (63.3%), cognitive impairment in 111 patients (56.6%) and hypoesthesia in 94 patients. **Table 1** represents the socio-demographic and clinical characteristics of patients.

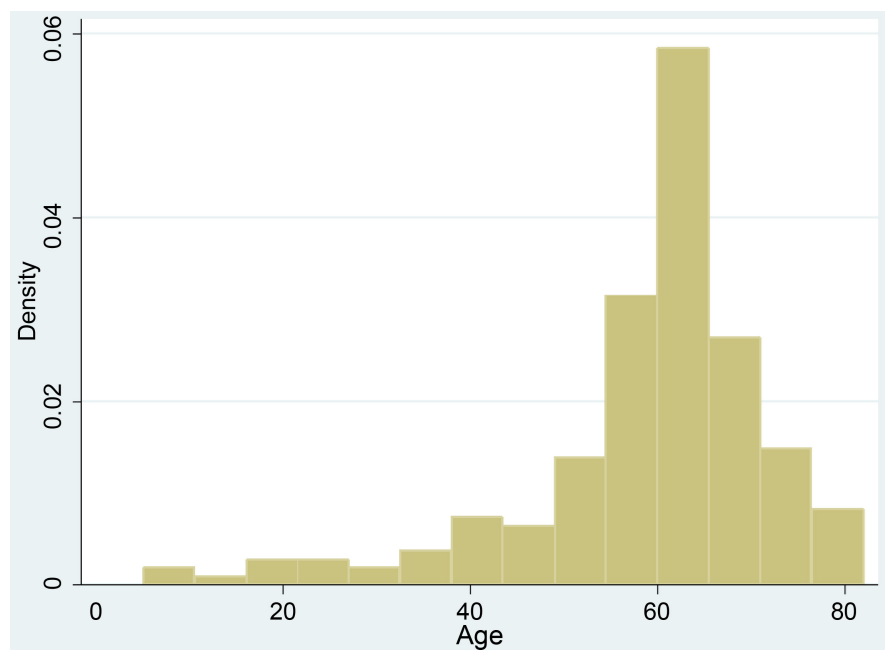


Figure 1. Age distribution of patients. Age in years; Density in percentage.

Table 1. Socio-demographic and clinical characteristics of patients.

Sociodemographic and clinical characteristics	Population study (N = 196)
Age group (year)	
<10	5 (2.6%)
11 - 20	3 (1.5%)
21 - 30	11 (5.6%)
31 - 40	14 (7.1%)
41 - 50	22 (11.2%)
51 - 60	32 (16.3%)
61 - 70	56 (28.6%)
71 - 80	43 (22%)
>80	10 (5.1%)
Male	128 (65.3%)
Married	102 (52%)
Educated	79 (40.3%)
Unschooling	117 (60.7%)
Laterality right	186 (95.9%)
Left laterality	8 (4.1%)
Risk factors	
Hypertension	140 (71.4%)
Diabetes mellitus	65 (36.7%)
Obesity	3 (1.5%)
Cigarette smoking	101 (51.5%)
Chronic alcohol consumption	65 (33.2%)
Sickle cell disease	10 (5.1%)
Human Immunodeficiency Virus 1/2	65 (36.7%)
Hypertensive heart disease	86 (43.9%)
Brutal hemiplegia	121 (61.7%)
Progressive hemiplegia	75 (38.3%)
Hemiplegia right	108 (55.1%)
Hemiplegia left	72 (36.7%)
Bilateral hemiplegia	16 (8.2%)
Deglutition disorder	124 (63.3%)
Cognitive disorder	111 (56.6%)

The brain scanner was performed in 46 patients (23.5%) in the city of Ouagadougou located 180 km from the hospital site. The stroke was diagnosed in 27 patients (58.7%) including 17 cases of ischemia (37%); 10 cases of haemorrhage (22%) and 3 cases of cerebral venous thrombosis (6.5%). **Table 2** represents the etiologies involved.

The clinical course was marked by death in 18 patients (9.2%). Hemiplegia persisted at discharge in 178 patients (90.8%). One hundred and three patients (52.6%) were lost to follow-up.

Functional rehabilitation was performed in 58 patients (29.6%). According to the MIF scale used in the functional independence measure, the mean MIF score was improved at the exit from 69.5 at admission to 89.8 at the exit.

4. Discussion

From this study, it appears that the hemiplegia constitutes 1.97% of all the complaints of the patients treated in the department of general medicine at the regional university hospital Ouahigouya. Hemiplegia is of more and more interest

Table 2. Distribution of patients who performed the CT scan by etiology of hemiplegia and sex.

	N (%)	Male	Female
ICVA	17 (37)	10 (41.27)	7 (31.8)
CVAH	10 (22)	6 (25)	4 (18.2)
CVT	3 (6.5)	1 (4.2)	2 (9.1)
Cerebral toxoplasmosis	7 (15)	2 (8.3)	5 (22.7)
Brain Tuberculosis	3 (6.5)	1 (4.2)	2 (9.1)
Intracranial tumor process	6 (13)	4 (16.6)	2 (9.1)
Total	N = 46	24	22

ICVA: Ischemic Cerebral Vascular Accident; CVAH: Cerebral Vascular Accident Hemorrhagic; CVT: Cerebral Venous Thrombosis.

to young people, as our series shows. Male predominance (65.3%) is found in several series [1]-[10]. The majority of the patients had the right laterality that would be related to the severity of hemiplegia according to the literature. Indeed, this is explained by the involvement of the left major hemisphere in these patients, which includes the motor area of language. This results in language disorders with a need for speech therapy 39.8% of patients were in a coma by diffuse cerebral involvement of ascending reticular formations. The effort was the most recovered context during the installation of 51.1% hemiplegia which led to a hemorrhagic stroke. Right hemiplegia was predominant with 55.1% of patients associated with different language disorders. Arterial hypertension with 71.4 cases and smoking with 51.5% of cases were the most represented risk factors also found in the literature [4]-[11]. Patients (33.2%) were HIV-1 and/or 2 in the northern region with a seroprevalence of 1.2%. The brutal mode of occurrence was predominant in 61.7% of cases, which was the discriminating character of vascular waiting for other types of non-vascular involvement. If 5.1% of patients were seen before the first 24 hours, the majority of patients were seen beyond 72 hours or 82.1%. This delay is due to the problems of transportation of patients to hospitals, which strike the short-term prognosis of patients. The most associated disorders were swallowing disorders, which also signify the severity of hemiplegia in 63.3% of cases. The difficulties encountered during the study are the lack of tomodesitometry at the regional university hospital center as well as the high cost when it is possible to evacuate the patient more than 180 km from the University hospital of Ouahigouya, 23.5% of patients were able to perform the CT scan as well as the absence of therapy complementary to the rehabilitation and the insufficiency of the functional evaluation [4] [6] [8] [12] [13] [14]. The hemiplegia has various causes with cerebrovascular accidents with 57.8% ischemic mechanism with 37% prevailed with a bleeding mechanism with 22% of cases. These results corroborate with those of the literature [14] [15] [16]. The infectious processes were seen in 21.5% of cases in a febrile context with a body temperature taken in the armpit greater than 38° Celsius and an alteration of the

general condition. Ninety percent (90%) of patients still had hemiplegia at discharge. Improvement of the motor deficit is obtained at the cost of several intensive functional rehabilitation sessions [3] [5] [7] [8] [10] [13] [15] [16] [17] [18].

5. Limitations

Our study has limitations because of the unavailability of certain actors in the hemiplegia and CT scan in health facilities in the northern region. All the patients included in the study could not benefit from the CT scan. Also, not all our patients have benefited from an exhaustive assessment of etiological research of hemiplegia. The records of some patients were poorly maintained and incomplete, we tried to reduce this bias by taking only well-kept and complete records.

6. Conclusion

Hemiplegia is a more or less total loss of half-body motricity. It reflects an impairment of the central nervous system. Ischemic or hemorrhagic stroke is the main etiology of sudden hemiplegia and the leading cause of disability. It requires multidisciplinary care, involving a neurologist, a radiologist, a resuscitator, a neurosurgeon, a physiotherapist, a speech therapist, an orthoptist, an occupational therapist and a psychologist.

Conflicts of Interest

The authors declare that they have no link of interest.

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