

Psychosocial and Economic Evaluation of Stroke Management in Elderly Subjects and their Caregivers: A Prospective Study in the Neurology Department of the CHNU of FANN-Dakar

Mbaye Khalifa Ababacar^{1*}, Sall Assane², Mbacké Serigne Saliou¹, Cissé Ousmane¹, Touré Kamadore¹ and Koume Mamadou²

¹Neurology Department, CHU/FANN, Senegal

²Geriatric Service, CHU/FANN, Senegal

*Corresponding Author: Mbaye Khalifa Ababacar, Neurology Department, CHU/FANN, Senegal.

DOI: 10.31080/ASMS.2022.06.1270

Received: March 14, 2022

Published: May 06, 2022

© All rights are reserved by Mbaye Khalifa Ababacar., et al.

Abstract

In recent years, studies have brought to light preclinical evidence of the ability of cannabinoids to reduce tumor growth in animal models, and clinical trials have been designed to study this activity in patients with glioblastoma. The data in animal models show promising results. So far it has been seen that the administration of THC is safe, and can be carried out without psychoactive effects. These molecules act through receptors coupled to the G protein, which are part of the endocannabinoid system and which have been called CB1 and CB2. THC can attenuate tumor progression in some patients, and appears to have a positive effect on survival, similar to that generated by other chemotherapeutic agents. More trials are needed to validate this antitumor action, both in combination with other therapies, and independently. At this time there is not enough scientific evidence to be able to conclusively affirm that cannabinoid treatment can contribute improve current therapies given to patients with brain tumors or other types of tumors.

Introduction

Stroke is a public health problem with numerous socio-economic and psychological impacts, and constitutes a major public health problem due to its incidence and morbimortality [1]. The current situation on the continent is characterised by a lack of human and material resources in stroke management [2]. In Africa, most studies focus on the direct cost of stroke management and its psychological impact on patients [3,4]. The objective of our study was to evaluate the psychosocial and economic aspects of stroke management in elderly patients and their caregivers at the Fann University Hospital.

Methodology

We conducted a prospective, cross-sectional, descriptive study over a 16-month period from May 2019 to September

2020. We included in our study subjects aged 60 years and over without distinction of gender, able to answer the questionnaire, having consulted for stroke, accompanied by a primary caregiver and having given their consent. Elderly subjects with impaired consciousness, aphasia or incomplete medical records were not included in our study. Caregivers without a direct socio-economic impact or without consent were also excluded. We used a survey form with 3 parts

- Data on the patient, the disease, the carer and the indirect costs
- ZARIT scale (in caregivers)
- Geriatric Depression Scale (GDS).

The evaluation of the indirect financial cost focused on 2 elements:

- Estimation of the financial losses related to the caregiver’s work stoppage : to do this, we estimated the daily earnings of the main caregiver, which we multiplied by the number of days lost as a result of providing assistance to elderly stroke victims; as a result, caregivers who are not employed and those working for the public service with a fixed monthly salary are not concerned in this section.
- Travel costs (physiotherapy and neurovascular consultations) : this section estimates the costs of transport to neurovascular consultations and the costs of travel for physiotherapy sessions. Expenditures related to the performance of complementary examinations were not taken into account in our study.

Outcome

We collected 60 patients over a period of 16 months. The mean age was 71.46 years (± 7.79 years) with extremes of 60 and 90 years. The most represented age group was 65 to 70 years old (23%) (see Figure 1). A predominance of females was noted (58.30%) with a sex ratio of 0.71. Most of our patients were married under the polygamous regime (38,30%), followed by widowers (35%) (see Table 1). The majority of patients came from the Dakar region, 86.70% and 13.30% outside Dakar. In our study 38.30% of our patients had attended Koranic school and 31.70% had not attended school. Of the 18 patients who had attended a French school, only 5 had reached university (8.30%) (see Figure 2). We noted more unemployed patients (55%), followed by workers (28.30%) and 16.70% of retired people. In terms of medical expenses, 75% of the patients had medical coverage compared to 25% who did not. The SESAME plan represented the main medical coverage with 64.44%, followed by the IPRES (24.44%) and the national pension fund (11.11%). The 65-70 age group contained the largest number of SESAME users with 31%.

Figure 1: Distribution of patients by age group.

Figure 2: Distribution of patients by education level.

Marital status	Number	Percentage %
Monogamy	11	18,30
Polygamy	23	38,30
Single	2	3,30
Widowed	21	35
Divorced	3	5
Total	60	100

Table 1: Marital status of patients.

The caregivers were dominated by the patients’ children (50%), followed by spouses (25%), siblings (13.33%) and nephews/nieces (11.66%) with a clear female predominance (32 women or 54.20%). The average age of the caregivers was 42.64 years (standard deviation 11.78 years) with extremes ranging from 22 to 75 years. The main caregivers were often working (70%), followed by retired people (16.66%) and the unemployed (13.33%). Among employed caregivers, 47.61% had changed jobs, 28.57% had changed their work schedule and 23.80% had stopped working. Ischemia strokes were overwhelmingly encountered (98.30%). The clinical manifestations of stroke found in the acute phase in our patients were a motor deficit (96.70%) and dysarthria (25%). Physiotherapy was effective in 56% of patients. The average number of physiotherapy sessions was 23.54 (standard deviation 27.45) with extremes of 2 and 96 sessions. Of the patients who had a motor deficit, most had retained sequelae (55.20%).

The psychological impact of the caregivers was assessed using the ZARIT score and the burden was mild to moderate in 45% of caregivers. The mean ZARIT score was 2.65 (standard deviation

1.52) with extremes of 0 and 5.5 (see Figure 3). For the geriatric depression scale, the mean was 5.26 (standard deviation 2.89) with a range of 0 and 13. The majority of patients were not depressed (60%), however 30% of patients were mildly depressed and 6% were severely depressed (see Figure 4). For the economic impact we evaluated the average duration of work stoppage of the main caregiver, which was 23.86 days (standard deviation 64.53 days) with extremes ranging from 0 to 365 days. The average cost of financial losses related to the work stoppage of the main caregiver was 120,016.94 FCFA or 206.92 USD (standard deviation 338,237.34 FCFA or 583.16 USD) with extremes of 0 and 1,800,000 FCFA (3103.44 USD). The average cost of travel for neurovascular consultations was 83,396.61 FCFA or 143.78 USD (standard deviation 192,279.08 FCFA or 331.51 USD) with extremes of 0 FCFA and 350,000 FCFA (603.44 USD). For physiotherapy, the average cost of travel was 240,710 FCFA (415.01 USD) with extremes of 20,000 FCFA (34.48 USD) and 960,000 FCFA (1655.17 USD). In sum, the average total indirect cost was 444,123.55 FCFA (standard deviation 389,893.23 FCFA) or 765.73 USD (standard deviation 672.97 USD).

Figure 3: Psychological impact on the main caregiver (MINI ZARIT score).

Figure 4: Psychological impact on patients (GDS geriatric depression scale).

Discussion

Our patients ranged in age from 60 to 90 years with an average age of 71.46 years. In our study, the most represented age group was 65-70 years and we noted a low percentage of subjects over 85 years. Our results are similar to those of Yangatimbi E and Aribi L [5,6]. The majority were female (58.30%) with a sex ratio of 0.71, which was similar to the literature [5,7].

All our patients had family support. The main caregivers were mostly the patients' children (40%), followed by their spouses (9%). Mpandzou GA, *et al.* had similar results [7], however Bucki, *et al.* found that the main caregivers were the spouses of stroke patients [8].

We found a majority of women among the main caregivers (54.20%), for a sex ratio of 0.84. Our results are in line with those found in the literature [8,9]. Among the main caregivers, 70% were employed, mostly men, and 13.33% were unemployed, mostly women, which was similar to the work of Bucki B [8]. In our study 47.61% of the caregivers changed their job, 28.57% had modified their work schedule and 23.80% had stopped working, which was higher than the data in the literature [10].

We thus found 30% of high probability of depression and 6% of patients almost always in depression, for a total of 36% of depression this result was lower than that of Aribi, *et al.* who had found 27.50% [4]. In the literature depression is very common after stroke according to a meta-analysis of 61 cohorts including 25,488 patients, 31% of patients developed depression at any time up to 5 years after a stroke [11].

In their review of the literature on indirect costs associated with stroke, Heesoo J., *et al.* include two main categories of indirect costs, namely loss of productivity and the cost of informal care [12]. In our study, the indirect cost assessment was limited to the transportation of elderly stroke patients and the monthly loss of the main caregiver. Thus, the financial losses related to the caregiver's work stoppage in our study were 120,016.94 FCFA (206.92 USD) on average. The average cost of travel was 83,396.61 FCFA or 143.78 USD. In the end, the average total indirect cost was 203,413.559 FCFA (standard deviation 389,893.23 FCFA) or 350.71 USD (standard deviation 672.97 USD). Afitap., *et al.* estimated the indirect costs of lost productivity due to stroke in Turkey to be 9,357.10 Turkish Liras (standard deviation 10,195.60 Turkish Liras), or 4,068.30 USD (standard deviation 4,432.86 USD)

[13]. These results are also much lower than those found in the literature by Heesoo, *et al.* [12], Mapoure, *et al.* [14] in Cameroon and Togo (in a study of 104 patients the authors reported a cost of 387453FCFA/patient) [15].

Conclusion

Stroke is common in the elderly and management remains limited in Africa. The functional prognosis is most often compromised with psycho-social and economic consequences for both patients and their caregivers. Early treatment and socio-professional support are a key element in the management of stroke.

Conflict of Interest

The author(s) declare(s) that they have no relationship of interest.

Bibliography

1. Adoukonou T, *et al.* "Stroke management in sub-Saharan Africa". *Review on Neurology* 166.11 (2010): 882-893.
2. Aarli JA, *et al.* "Neurology in sub-Saharan Africa: a challenge for the World Federation of Neurology". *Neurology* 69.17 (2007): 1715-1718.
3. K Touré, *et al.* "Evaluation of the cost of stroke management in Dakar, Senegal". *Médecine Tropicale* (March) 65.5 (2005): 458-464.
4. Thierry Adoukonou, *et al.* "Direct hospital cost of stroke in Parakou, northern Benin". *Pan African Medical Journal* 16 (2013): 121.
5. Yangatimbi E, *et al.* "Epidemiology of ischemic stroke in elderly patients at the neurological clinic of CHU de Fann, Dakar-Senegal". *Journal of Neurology-neurosurgery-psychiatry* 2.16 (2017): 27-34.
6. Aribi L, *et al.* "Depression after stroke in the elderly: a cross-sectional study about 40 cases". *Psychiatric Information* 89.10 (2013): 843-850.
7. Mpandzou GA, *et al.* "Evaluation of the caregiver's burden after a stroke at the Brazzaville University Hospital". *AJNS* 37.1 (2018).
8. Bucki B, *et al.* "Caring for people after stroke : emotional reactions of male and female informal carers" 2.24 (2012): 143-156.
9. Macrae HM. "Women and Caring: Constructing Self Through Others". *Journal of Women and Aging* 7 (1995): 145-167.
10. Michèle Baumann and Pierre Aiach. "L' Aidant Principal Face A L' AVC D' UN PROCHE". *Médecine* 5.4 (2009): 184-188.
11. Hackett ML and Pickles K. "Part I: frequency of depression after stroke: an updated systematic review and meta-analysis of observational studies". *International Journal of Stroke* 9 (2014): 1017-1025.
12. Heesoo J, *et al.* "A literature review of indirect costs associated with stroke". *Journal of Stroke and Cerebrovascular Diseases* 23.7 (2014): 1753-1763.
13. Afitap İ, *et al.* "Economic burden of stroke". *Turkish Journal of Physical Medicine and Rehabilitation* 63.2 (2017): 155-159.
14. Mapoure YN, *et al.* "Cost of Cerebrovascular Accidents at the Douala General Hospital" 15.3 (2013): 1-7.
15. Balogou AAK, *et al.* "Cost price of a hospitalization in the neurology department of the CHU of Lomé (Togo) Cahiers d'études et de recherches francophones/santé". 14.2 (2004): 109-114.