Epidemiological Study of Stroke patients admitted to hospitals in Touggourt, Algeria

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Abstract

The Goal of the present study is to evaluation of the epidemiological variations with relation to stroke in the Touggourt population. Our epidemiological study was carried out on 605 stroke patients admitted to hospital Sliman Amiratin the period (January 2015 to August 2019) in Touggourt region. In Results for 506 cases of stroke recorded , 42% of the patients were aged between 50-70 years, 42% of the patients are aged more than 70 years, 15% patients are ages between 30-50 years and 1% patient are aged less than 30 years. In the other hand, 47% of cancer patients are men versus 53% are women. In this study, 60% of the patients had a ischemic stroke whereas 15% of the people were affected by hemorrhagic stroke. Concerning length of stay, the majority cases 80% stay in hospital less to 10 days of a total cases study. Hence epidemiological studies are needed to understand and improve facilities and implement effective treatment measures to control the disease and thus help to reduce mortality in the society associated with the disease.

Keywords: Stroke, hemorrhagic, ischemic, Epidemiology, Touggourt.

Introduction

Cerebrovascular accident is a disease that affects the system of brain vasculature[1]. Stroke is one of the most devastating worldwide neurological disorders[2] because a gradual increase in the number of people have a stroke worldwide which threatens the general health of society on the economic and medical side[3], in addition stroke causes several neuronal problems such as neurological disability in the long term which causes several deaths worldwide[4]. The main definition of stroke according to the World Health Organization (WHO) is the medical signs of focal brain changes with appearance of symptoms during 24 hours which can lead to the death of the patient. Which is diagnostic by radiological examination like nuclear magnetic resonance imaging[5]; Stroke (cerebrovascular accident) is classified into two major types; ischemic which presents (85%) and hemorrhagic (15%)[6,7]. Concerning the ischemic type, in which one finds cell injury and cell death caused by impaired blood circulation system in the brain which causes neurological disorders as a symptom[8], but in the type of hemorrhagic stroke, cell death occurs due to a lack of blood supply to the brain by bursting of a blood vessel[9]. Lifestyle plays an important role in the etiology of this disease, including diet[10]. Several known risk factors for stroke include cardiovascular disease, obesity, diabetes mellitus, smoking, and dyslipidemia[11]. Oxidative stress is an abnormal condition caused by an excess production of oxidants compared to the antioxidant[12], it has been considered as the main cause of several pathologies[13] including acute ischemic stroke[14]. The number of stroke patients is gradually increasing worldwide, with an estimated 5.71 million people with stroke in 2004 According to the World Health

Organization (WHO), this number is expected to reach 7.8 million in 2030[15]. This article is about statistical study for stroke hospital cases admitted to hospital Sliman Amirat Touggourt from January 2014 to August 2019.

Materials and methods

The stroke reports of 605 patients from hospital of Sliman Amiratin Touggourt were collected and information such as the patient's name, age, sex, type of stroke, region of patients and during of hospitalization was noted. The data was compiled to get the percentage distribution and graphs were drawn for the individual data.

Results and discussion

The objective of this study is to find out the distribution of stroke patients admitted to hospital Sliman Amirat from January 2014 to August 2019 in Touggourt. The statistical data can help in the effective prediction of the future trends of stroke in Touggourt which will help in improving the various treatment options and facilities available for stroke patients.

In this study it was found that man's accounted for 47% of the stroke population and women's accounted for 53%. In this study, stroke occurs to be most commonly affecting the females when compared to the males (Figure-1,2). Research conducted until 2004 found a result opposite the rate of the men more than the women, 51% were men and 49% were women[16]. Risk factor for stroke is significantly differentiated and imbalanced between women and men in favor of women[17]. The sex hormones

especially in the reproductive periods, plays an important role in the difference in risk of stroke between women (which present

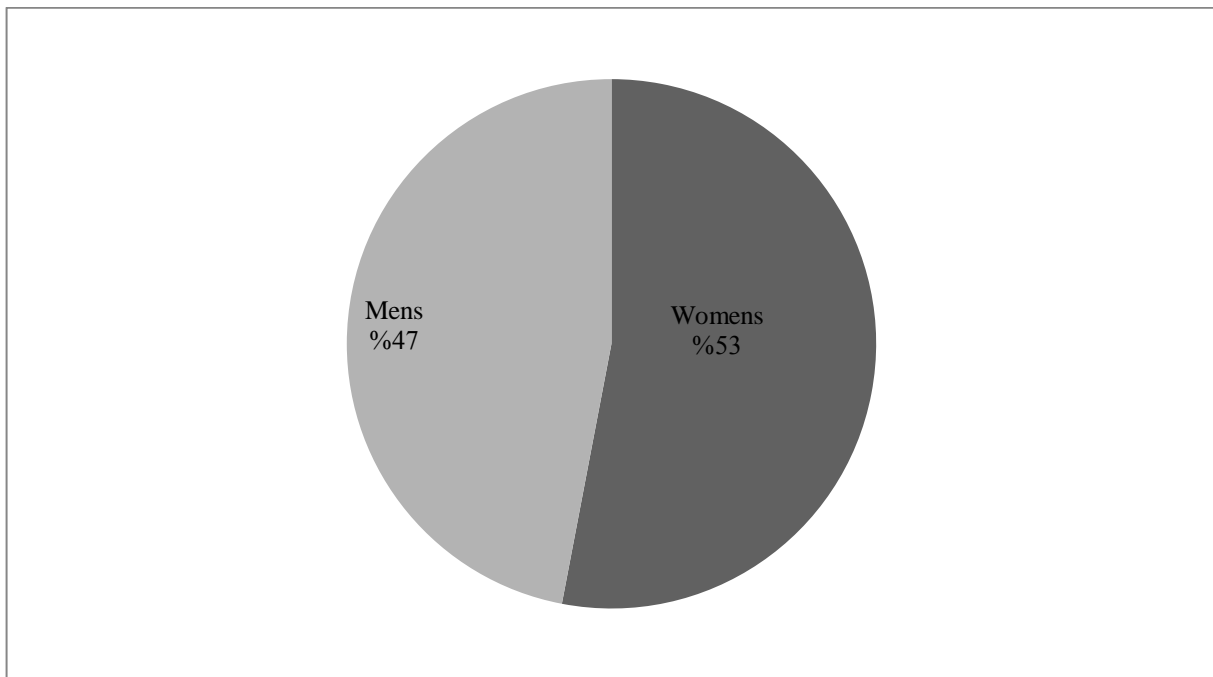third cause of death) and men (presents the fourth leading cause of death in the world)[18,19].

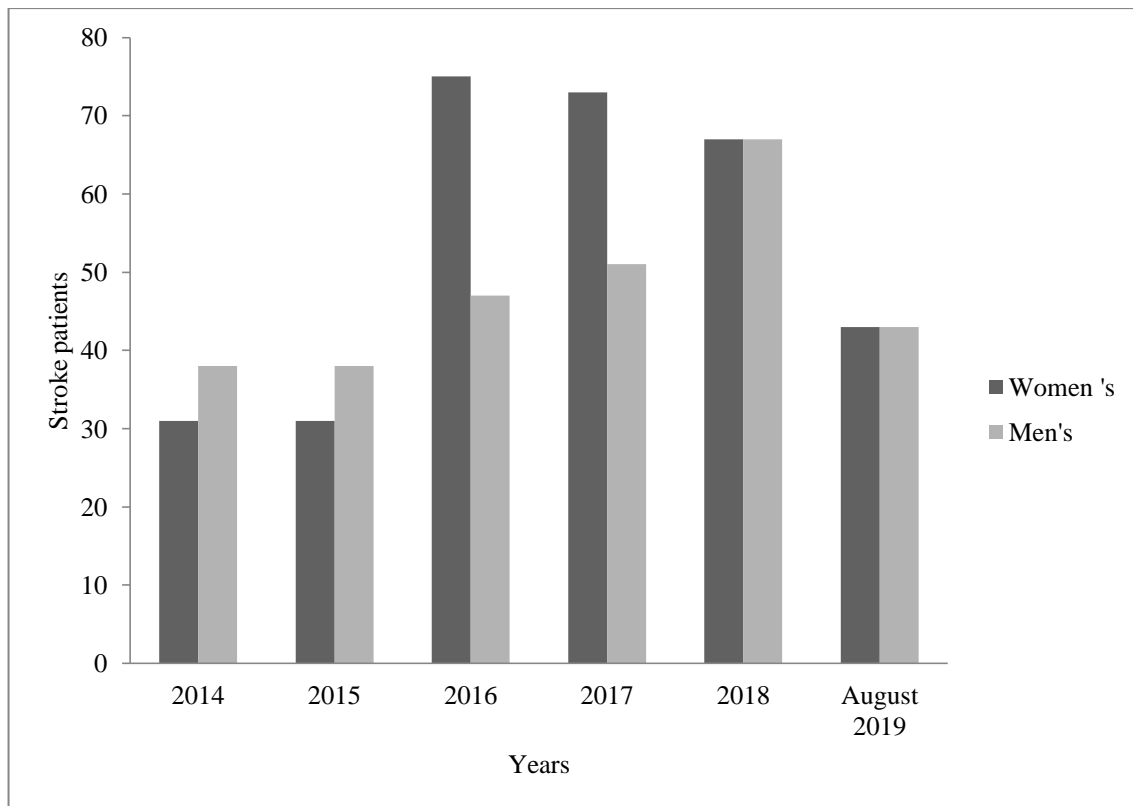**Figure-1:** Distribution of the hospital stroke patients among women's and men's.

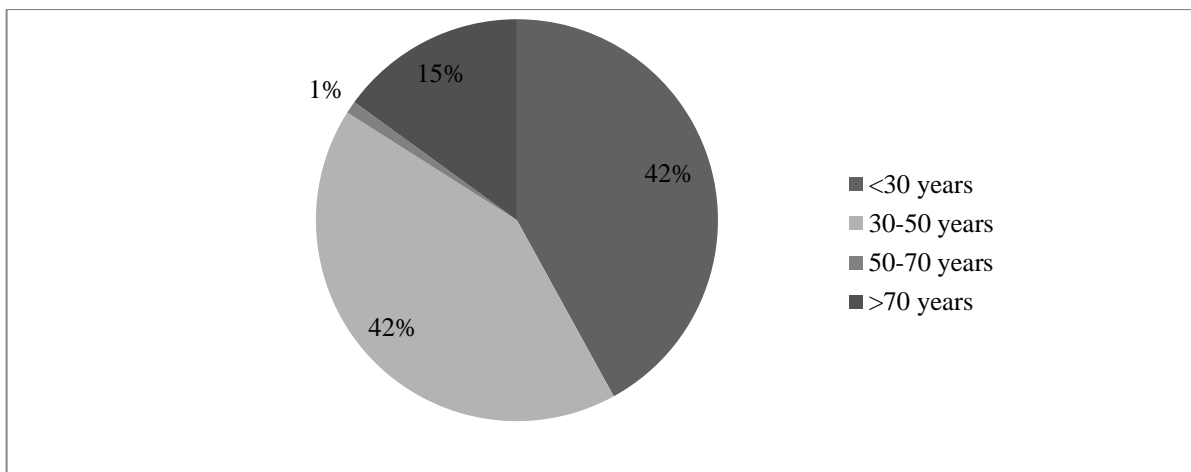**Figure-2:** Distribution of the hospital stroke patients among women's and men's by years.

Figure-3: Distribution of the hospital stroke patients according to the age group.
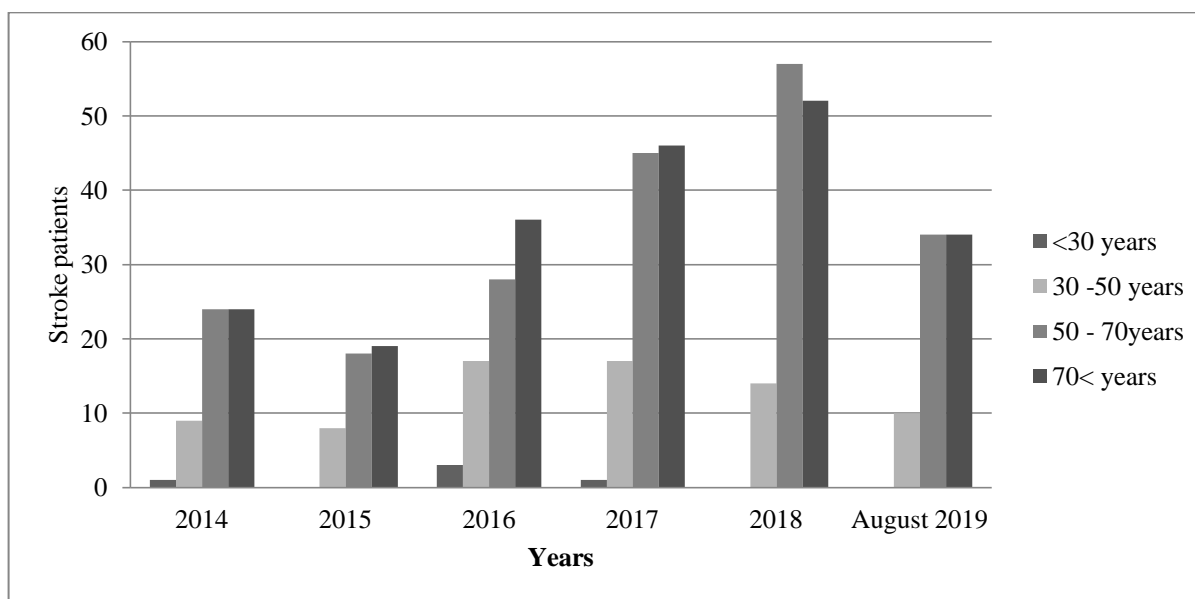

Figure-4: Distribution of the hospital stroke patients according to the age group in each year.

It was found that there were low stroke patients (1%) between the age groups 0-30 years of age. 15% of the people between 30-50 years, 42% of the people between ages 50-70 years, 42% of people have more than 70 years were found to be affected by stroke in Touggourt population (Figure-3,4). which similar with a study conducted in the period 1993 and 2005 on the age of stroke patients showed that the average age of patients with stroke is decreased by 71.2 years to 69.2 years, with 65 years this is the average age of 80% of patients with ischemic stroke[20,21]. In addition, no study has shown the relationship between age less than 65 years and the number of mortality among stroke patients but this number is increased with age[22]. This last result deferent of our study because was eliminated the age range between 50 and 60 years**,** there after because it has been reported that immune system dysfunction is associated with aging, especially with respect to T-cell function[23]. In fact, recent research results show that the blood-brain barrier is altered by systemic inflammation with no related with the size of the infarct[24].

The most common type of stroke in this study was found to ischemic stroke type with a distribution of 60% when compared to stroke hemorrhagic with 18% and uncertain type with a percentage distribution of 22% (Figure-5,6). The results obtained in this study is in concurrence with the study conducted by study of Shichao et al., in a study of 21,684 patients, more than 86% of cases of ischemic stroke showed the dominance of this type of stroke[24]. In the same study, age is a major risk factor for this type of stroke for more than 80%[25].

In the hospital of Sliman Amirat Touggourt in the period (from January 2014 to August 2019) the majority hospital stroke patients are from Touggourt (72%) represented of a total cases with summit in 2018 (89 patients from Touggourt), the

following stroke patients regions in this hospital are Temacine and Outside of Touggourt represented 11% and 11% of a total

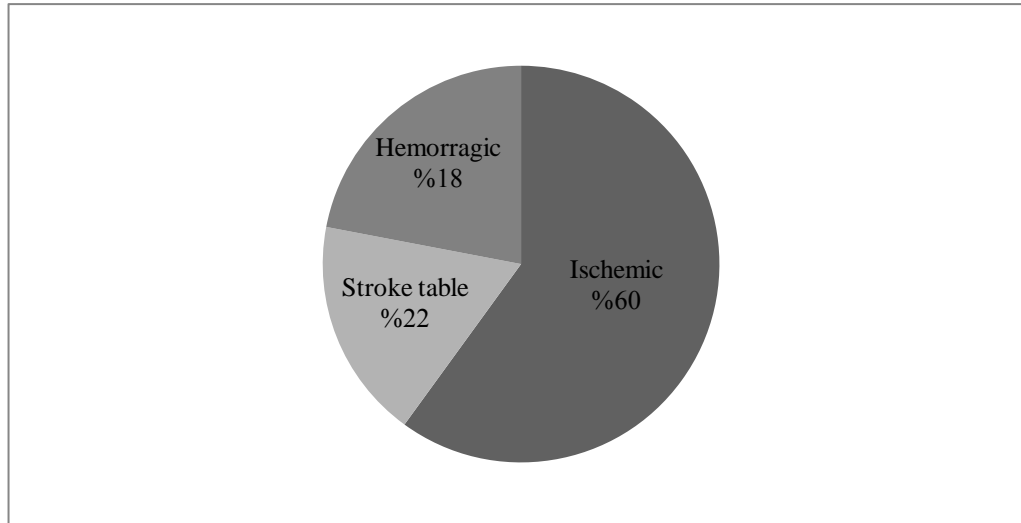cases in the last enumeration patients is the Megarine region represented 6% of total cases (Figure-7,8).

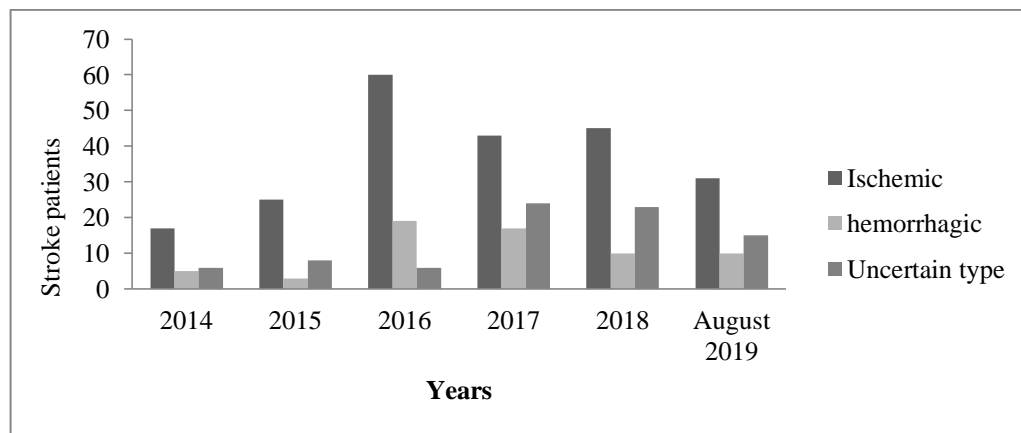**Figure-5:** Distribution of the hospital stroke patients according to the stroke type.

Figure-6: Distribution of the hospital stroke patients according to the stroke type in each year.
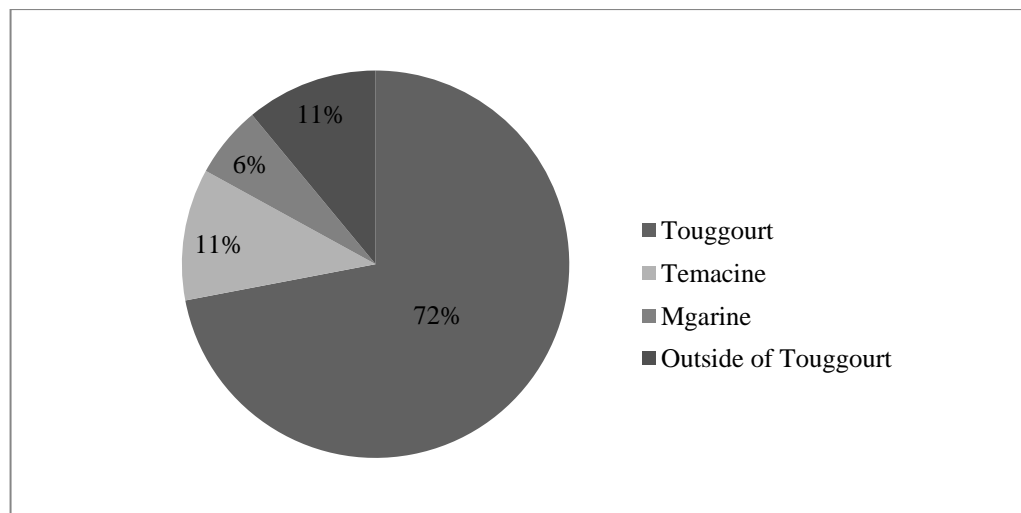

Figure-7: Distribution of the hospital stroke patients according to the region.
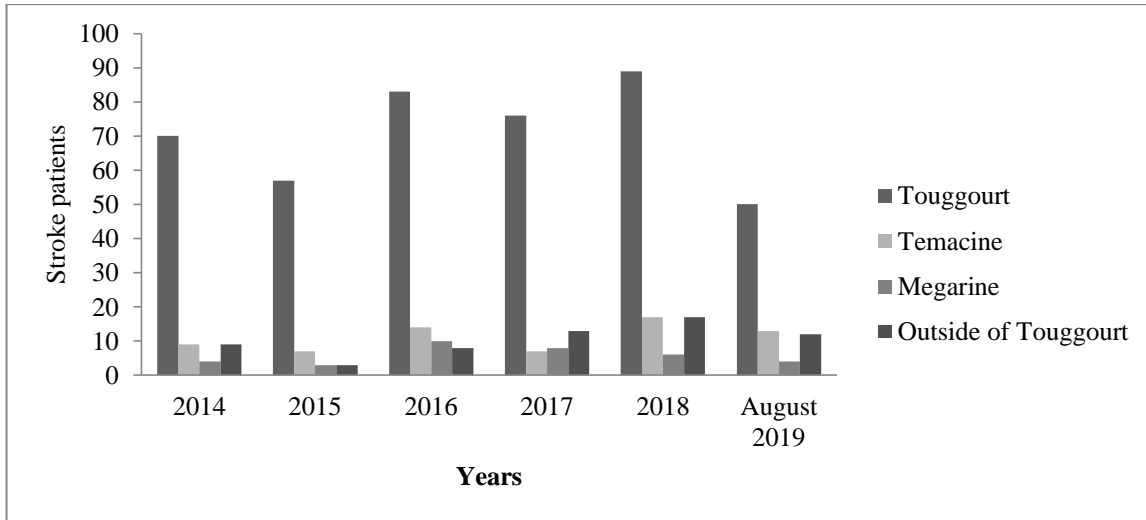
Figure-8: Distribution of the hospital stroke patients according to the region in each year.
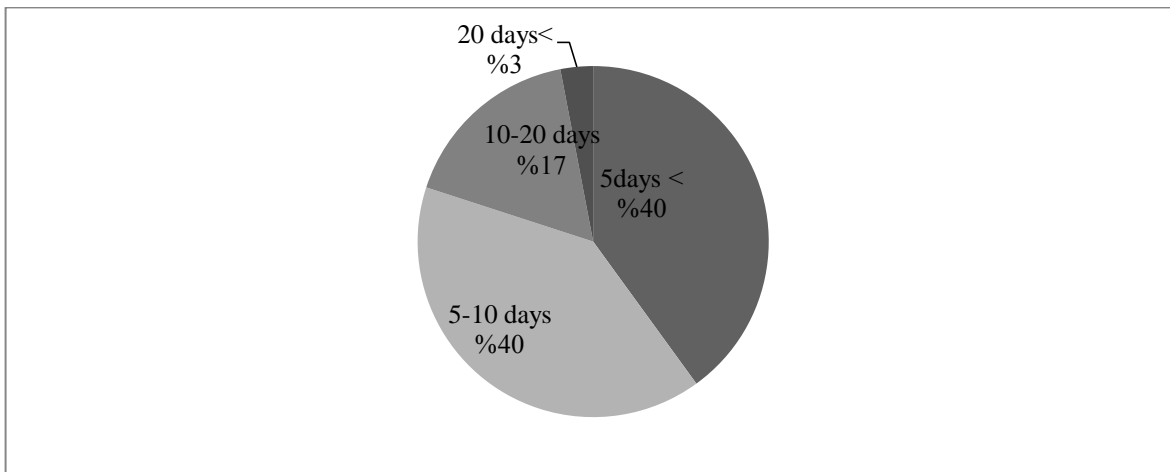

Figure-9: Distribution of the hospital stroke patients according to the hospitalization during.
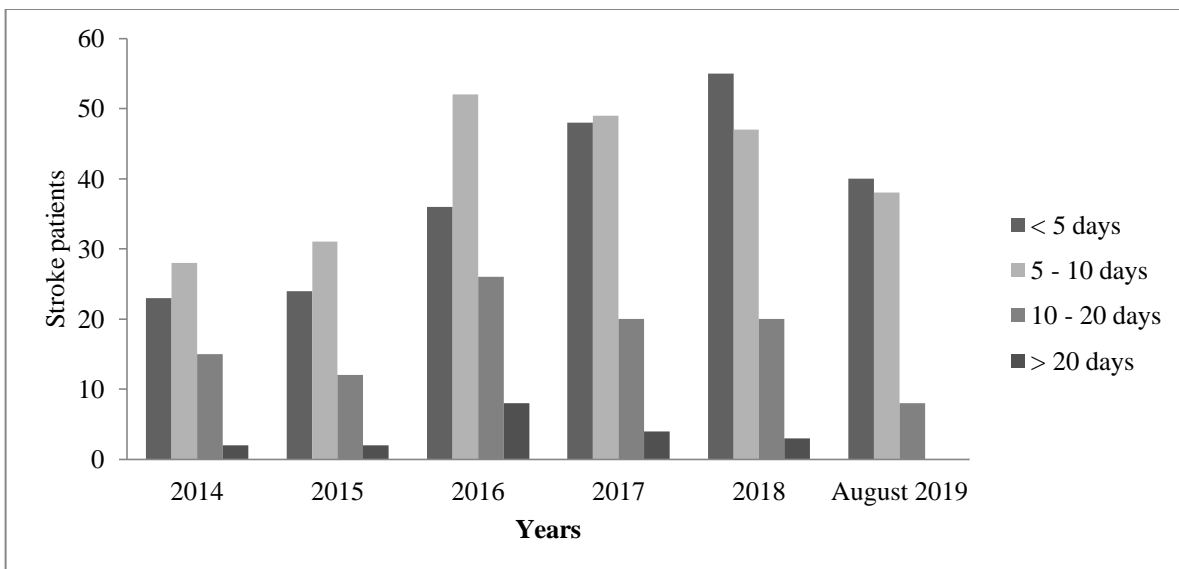

Figure-10: distribution of the hospital stroke patients according to the hospitalization during between 2014 and 2019.

The hospitalization period in Sliman Amirat Touggourt of stroke patients is deferent according to the patient from less to 5 days until more than 20 days (Figure-9, 10); the majority cases stay in hospital less to 5 days or between 5 and 10 days represented 40% of a total cases, in second order the patients who are hospitalized between 10 and 20 days represented 17%, finely with a few number of patients who are hospitalized more than 20 days represented 30% of a total cases. Results of our study is close to results of the study realized in the United States during 2009 to 2011 which indicated that hospitalization is more than 4.2 days for both groups studied[26] but in author cases the hospitalization during may be 14-day[27] until 30 day of hospitalization which were dominated by cerebrovascular diseases[28].

Conclusion

This study examines the distribution of cerebrovascular accident patients admitted to hospitals in Touggourtin order to improve facilities and implement effective treatment measures to control the disease and thus help to reduce mortality in the society associated with the disease.

Acknowledgement

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