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Statistical Data on Patients Registered With Cerebral Infarct in Strumica, Republic Of North Macedonia in the Period from 2015 To 2020

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Abstract
Stroke is a neurological disorder characterized by occlusion of blood vessels in the brain as a result of thrombi or emboli, which block laminar blood flow.Stroke is the third leading cause of death (after heart disease and cancer).For the realization of this research, a descriptive epidemiological method was applied, as well as a retrospective analysis of a total of 1132 patients with cerebral infarction from Strumica from the Statistics Department of the Center for Public Health at PHI General Hospital - Strumica. A comparison was made in terms of gender, age and age groups, morbidity rate. Most of the patients were hospitalized in 2016 (21.4%), the majority of the respondents are aged 65-74 years (35.0%), while the men have the higher risk of developing the disease (57.6 %). The average age at hospitalization is 68 years, 66.8 for males and 69 for females. The average morbidity rate per 10,000 inhabitants in the Strumica region is 14.3, while in the whole country is 14.7.There is a continuous decrease in the number of hospitalized patients from 2016 to 2020, which in 2020 decreased by 50% compared to 2016.The incidence of stroke increases with age, reaching a peak in the seventh and eighth decades of life.

Key words: *cerebral, infarct, statistics, Strumica*

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I. Introduction

Stroke is a neurological disorder characterized by occlusion of blood vessels in the brain as a result of thrombi or emboli.Clogging of the arteries and veins can also lead to their rupture, which causes bleeding, which in turn leads to a stroke resulting in unexpected death of nerve cells due to lack of oxygen.Globally, stroke represents the second leading cause of death. It affects about 13.7 million people and ends in death in about 5.5 million a year. Approximately 87% of strokes are ischemic heart attacks, a prevalence that increased significantly between 1990 and 2016,while primary bleeding is the cause of the majority of hemorrhagic strokes, secondary bleeding is the cause of slightly less, ie with 10-25% of the overall percentage of heart attacks. The highest reported incidence of stroke is in China, where an estimated 331–378 people per 100,000 inhabitants. The second highest rate is in Eastern Europe with around 181-218 per 100,000 inhabitants, and the lowest rate in Latin America with 85-100 people per 100,000 inhabitants.

The most important risk factors that contribute to the development of stroke are: hypertension, atrial fibrillation, cholesterol, diabetes mellitus, chronic renal failure, cigarette smoking (active and passive), excessive alcohol consumption, drugs, poor physical activity, obesity, physical activity, of processed meat products, as well as unhealthy diet, medications.

Signs and symptoms of stroke include:difficultiesin speaking and understanding what others are saying, paralysis or numbness of the face, arm or leg, headache, problem in walking - stumble or lose your balance, blurred or blackened vision in one or both eyes, or double seeing.

For the diagnosis of stroke, in addition to laboratory analysis of atherothrombotic infarction, non-invasive techniques may be used like: ultrasonography, magnetic resonance imaging (MRI), computed tomography (CT)

Patients with ischemic strokethey should first be treated with reperfusion therapy acute ischemic stroke at overtime intervals.Next, supportive therapy is continued, including neuroprotective measures and it starts with secondary prevention of recurrent ischemic stroke. That is, starting antiplatelet therapy in the first 24-48 hours after the onset of symptoms. Drugs used are aspirin, clopidogrel, or dual antiplatelet therapy, with a combination of aspirin and clopidogrel for 21 days.

In patients with haemorrhagic stroke, treatment is focused on maintaining adequate ventilation, controlled hyperventilation of PCO2 from 25 to 30 mmHg, and monitoring of intracranial pressure.Surgical treatment includes hematoma evacuation and decompression craniotomy.

Every stroke is different, and recovery and its complications depend on its size, localization, cause, and age of the patient. [1-6]

II. Material and Methods

In the realization of the set goals, a descriptive-epidemiological method was applied, retrospective analysis of the patient register with statistical processing of the obtained data.The data obtained from the Department of Social Medicine of the Center for Public Health at the PHI General Hospital - Strumica for patients with acute cerebral infarction from Strumica and the surrounding settlements in the Southeast region were analyzed.In 1132 people diagnosed with the disease who were hospitalized, a comparison was made in terms of gender and number of hospitalized patients, age and age groups, including the average age of diagnosis, the rate of hospital morbidity per 10,000 inhabitants and the duration of treatment patients with cerebellar infarction in hospital-inpatient activity. Appropriate statistical methods were used to display the processed data, with graphical representations of the results.

III. Results and Discussion

Regarding the year of hospitalization of patients with male cerebral infarction in the General Hospital - Strumica, the highest number was recorded in 2015, ie 132 (20.3%) patients, and the lowest, ie 69 (10.5%) patients. were recorded in 2020. In 2016 the number of patients was 129 (19.8%), in 2017 the number was 119 (18.4%), in 2018, 101 (15.4%), while in 2019 the number of hospitalized with stroke was 103 (15,7%).There is a continuous decrease in the number of hospitalized patients from 2015 to 2020, while in 2020 there is a decrease of 47.7% compared to 2015, ie the number (69) of hospitalizations in 2020 is halved compared to the number (132) of hospitalizations in 2015.

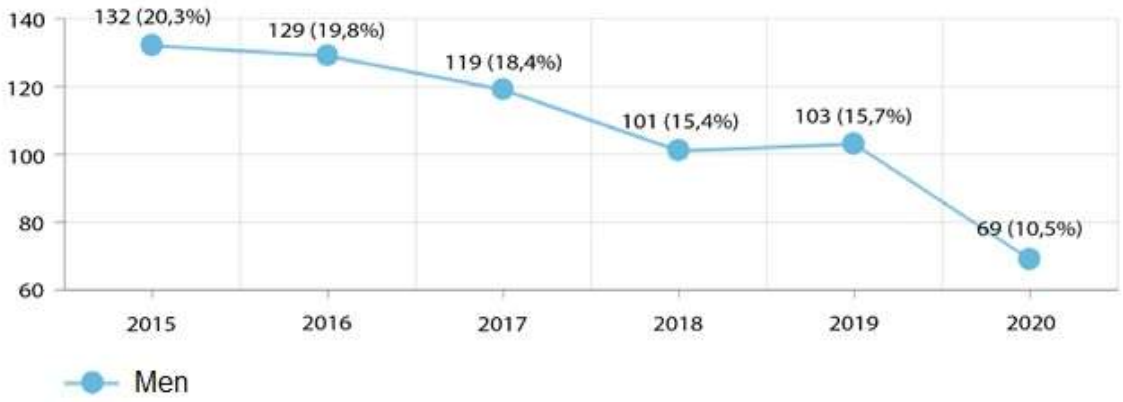

Chart 1. Stroke in Strumica and surrounding places. Distribution sorted by the number of hospitalized male patients in the period 2015-2020.

Regarding the year of hospitalization of patients with female stroke in the General Hospital - Strumica, the highest number was recorded in 2016, ie 112 (23.4%) patients, and the lowest, ie 56 (11.7%) patients. were recorded in 2020.In 2015 the number of patients was 94 (19.7%), in 2017 the number was 83 (17.4%), in 2018, 66 (13.7%), while in 2019 the number of hospitalized with stroke was 68 (14,1%). There is a continuous decrease in the number of hospitalized patients from 2016 to 2020, which in 2020 decreased by 50% compared to 2016, ie the number (56) of hospitalizations in 2020 is halved compared to the number (112) of hospitalizations in 2016.

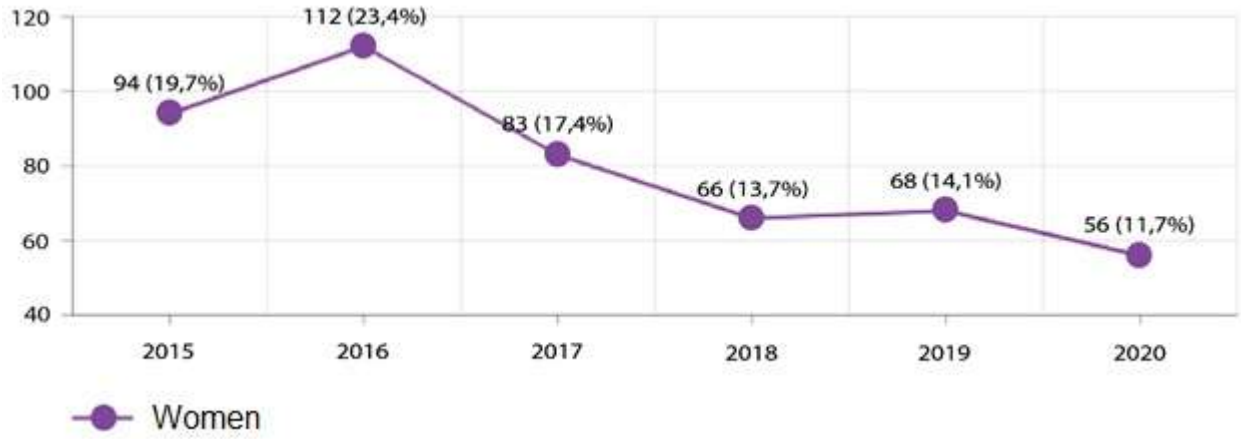

Chart 2. Stroke in Strumica and surrounding places. Distribution sorted by the number of hospitalized female patients in the period 2015-2020.

Out of a total of 1132 people hospitalized and completely cared for in the General Hospital in Strumica, most of the patients, namely 396 are aged 65-74 years (35.0%). It is followed by 354 patients over the age of 74 (31.3%), 262 patients aged 55-64 (23.1%), 90 patients aged 45-54 (8.0%), 21 patients aged 25-44 (1.8%) and only two cases (0.2%) recorded at the age of 24 years.The incidence of this disease in males is highest between the ages of 65-74, while the incidence in females is highest after 74 years, indicating that women are most susceptible to stroke at a slightly older age.In the age group of 55-64 years, the number of male patients hospitalized is almost twice as high as the female ratio at 1.9:1 in favor of the male, which is not the case with the other age groups examined.

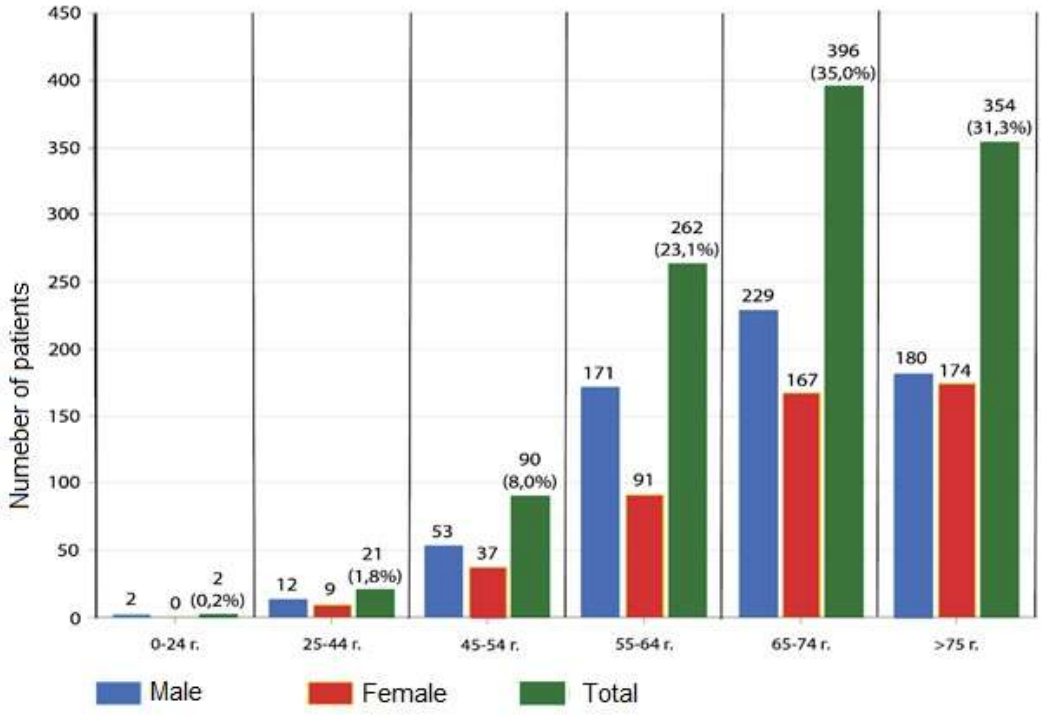

Chart 3. Stroke in the period from 2015 - 2020 in Strumica and surrounding places. Distribution by gender and age groups.

Regarding the morbidity expressed per 10,000 inhabitants of the hospitalized patients with cerebral infarction in the General Hospital - Strumica, the highest morbidity rate of 14.4 was recorded in 2016 and 2019, and the lowest, or 14.1 was recorded in 2018, and in 2015 and 2017 the morbidity rate of hospitalized stroke patients per 10,000 inhabitants was 14.3. There is a stable continuous morbidity rate in Strumica in the examined period.

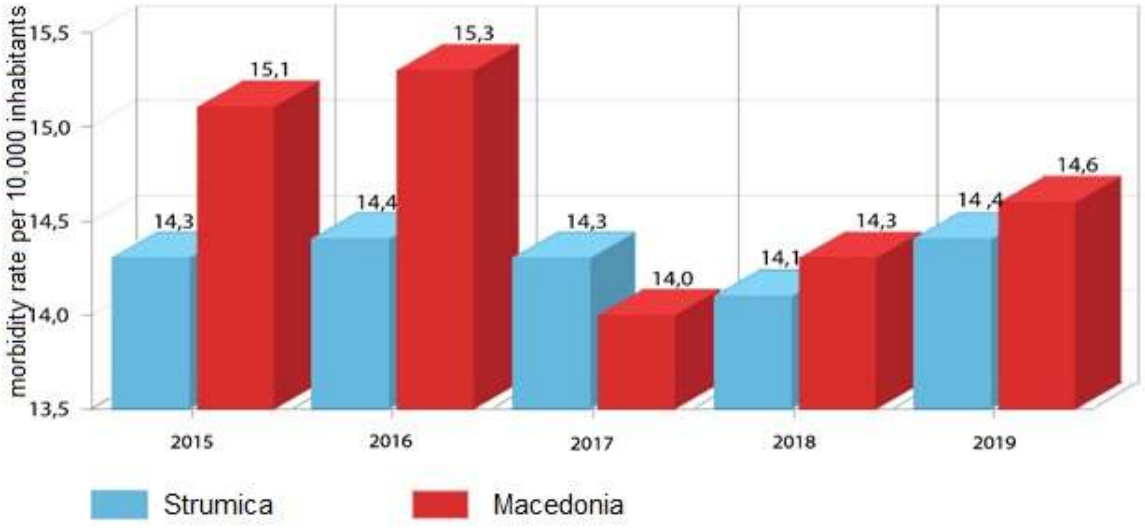

Chart 4. Stroke in the period from 2015 - 2019 in Strumica and Macedonia. Distribution by morbidity rate per 10,000 inhabitants.

Regarding the gender of the hospitalized patients in the period from 2015 to 2020 in the General Hospital - Strumica, 653 (57.69%) patients belong to the male sex, while 469 (42.31%) patients are female.

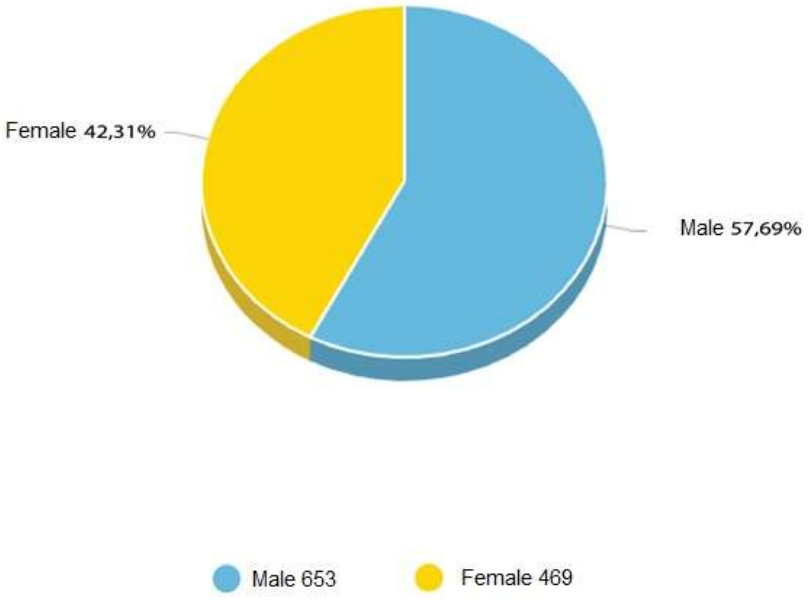

Chart 5. Stroke in the period from 2015 - 2020 in Strumica and surrounding places. Distribution by gender percentage in hospitalization

The average age of hospitalized patients in the period from 2015 to 2020 in Strumica is 68 years. The average age for males is 66.8 years, and for females it is 69 years. In males, the lowest average age of hospitalization is 66 years in 2018 and 2020, and the highest is 68 years in 2016. For women, the lowest average age of hospitalization is 68 years set in 2018, and the highest is 70 years in 2019.

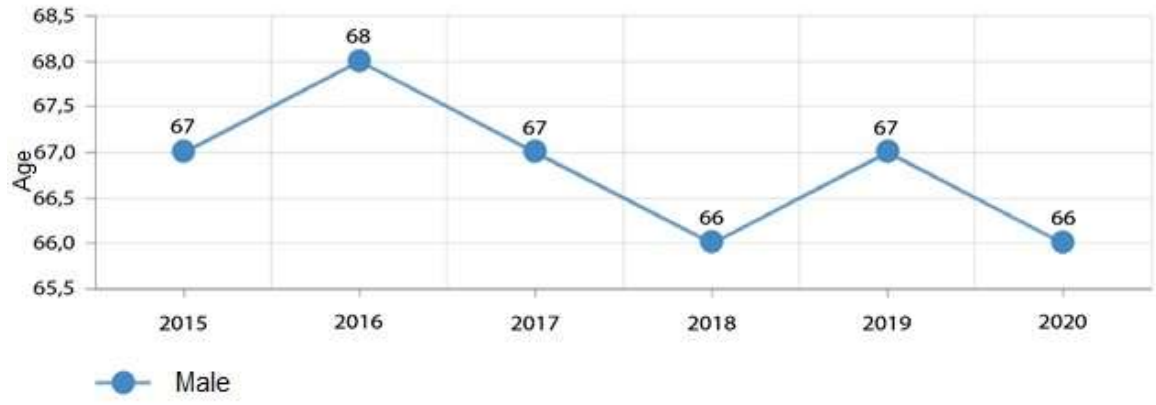

Chart 6. Stroke in the period from 2015 to 2020 in Strumica and surrounding areas. Distribution according to the average age of males at hospitalization.

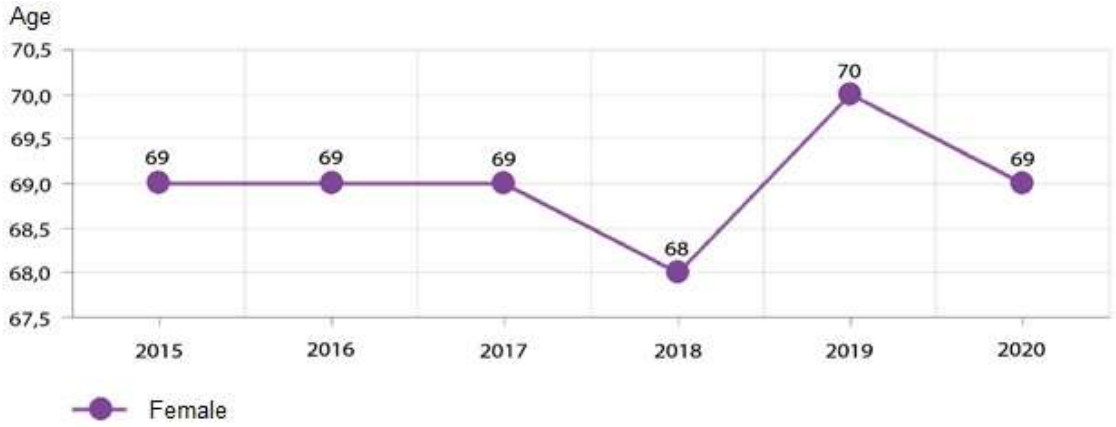

Chart 7. Stroke in the period from 2015 to 2020 in Strumica and surrounding areas. Distribution according to the average age of females at hospitalization.

IV. Conclusion

Stroke is one of the most common vascular diseases in the Republic of Macedonia and the Strumica region in the period 2015-2020 and the second most common circulatory disorder in Macedonia with the most hospital days, after angina pectoris in the study period.Local risk factors in the Strumica region do not have a greater impact on the pathogenesis of stroke, and that probably the same risk factors that act in Strumica, act in the rest of Macedonia.

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