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THE IMPACT OF ANIMAL FATS IN THE CASE OF STROKE OCCURENCE

Diana UIVAROSAN, Liviu LAZAR*, Annamaria PALLAG
University of Oradea, Faculty of Medicine and Pharmacy

ABSTRACT. The main objective of the study was to report a predisposition to occurrence of stroke in patients who consume substantial quantities, above normal limit of animal fats. The study was conducted on two groups of patients. The first batch of patients noted with 1 and batch number 2. Part of the first batch were 50 patients and batch 2 was made up of 70 patients. The study duration was one year. The whole process had to demonstrate that patients in the study who consumed animal fats on a given period of time showed an increased risk of stroke occurrence or other illness that incriminates animal fat. After statistical evaluation resulted the fact that patients in batch 2 who consumed excessive animal fats are much more likely to have a stroke in their lifetime.

Keywords: animal fats, stroke, study, impact, prevent

INTRODUCTION

Stroke is one of the main causes of mortality and morbidity worldwide (Lopez A.D. et al., Lancet 2006,367; 1747-1757), being the second cause of dementia, a common cause of depression and the most common cause of epilepsy in the elderly people.(Lancet 2005; 366,1773-1783, Lancet Neurol 2003,2,89-98)

To prevent the occurrence of a stroke in asymptomatic individuals is needed to be done as good as possible. A healthy lifestyle consisting of: regular physical activity, healthy diet, moderate alcohol consumption, the weight kept at the lower limit of the normal values, abstinence from smoking, are associated with a significant reduction in the incidence of stroke.(Kurth T.et al., Arch intern Med 2006;166;1403-1409)

Knowing the risk factors is of great importance of which we mention as being primordial the blood pressure. High blood pressure (>120/80mmHg) it is considered a major risk factor for vascular and general mortality without the evidence of any value - limit (Lewington S. et al.,-Lancet 2002; 360; 1903-1913). The decrease of the blood pressure mostly reduces the risk of stroke depending on the magnitude of the decrease (Neal B. et al-Lancet 2000; 356; 1995-1964/Gueyffier F.et al-Lancet 1999;353;793-796), a decrease to the value of 140-85mmHg or below these values being beneficial (Maneia G et al 2007; 28; 1462-1536) requiring a more aggressive treatment to the diabetic (Mancia G. et al., 2007; 26 Suppl.1; S7-12)

Diabetes is an important risk factor and after thorough studies it was determined that the treatment with statins reduces the risk of major cardiovascular events, including stroke (Colhoun H.M –Lancet 2006 367-1747-1757)

Hyperlipidemia is another major risk factor for stroke, in a synthesis of 26 studies with statins, the incidence of stroke was reduced site from 3.4% to 2.7% (Amarenco P. et al –Stroke 2004; 35; 2902-2909)

Massive alcohol consumption (>60g/day) increases the risk of ischemic and hemorrhagic stroke and moderate consumption (<12g/day) is associated with a reduction of all types of stroke. Consumption of red wine is associated with the lowest risk compared to other drinks. (Mukamal K. J. et al-Ann intern Med. 2005, 145; 11-19)

Observational studies have shown that smoking is a risk factor for stroke in both men and women. (Abbott RD et al Engld Jmed.1986; 315; 717-720/Iso H. et al., An J. Epidemial 2005 161, 170-179)

In a review of studies, people with intense physical activity have a lower risk of stroke or death compared to those with low physical activity. Similarly, people with moderate physical activity have lower risk of stroke compared to sedentary people. (Lee C. Et al-A meta-analysis stroke 2003; 34-2475-2485)

In observational studies, high intake of fruits and vegetables was associated with lower risk of stroke compared to low intake. (Joshipura KJ.Jama 1999; 282; 1233-1239)

Whole grain intake was associated with a reduction of cardiovascular diseases, but not for stroke. (Mellen PB et al-2007; 85; 1495-1502)

The risk of ischemic stroke was also decreased in individuals who consume fish at least once a month. (Hek.et al -2004; 35; 1538-1542)

CA intake of dairy products was associated with a greater lifespan and lower mortality from stroke in the Japanese population (Umsawa M, - 2006; 37; 20-26)

An increased body weight (BMI>25), is associated with an increased risk of stroke in men (Kurth T, 2002; 162; 2557-2562) si femei (Kurth T, et al 2005; 111; 1992-1998)

Abdominal fat is a risk factor for stroke in men but not in women (Hu G. et al 2007; 167; 1420-1427)

In the case of the vitamins intake it has been studied as a low intake of vitamin D is associated with an increased risk of stroke, however calcium supplements containing vitamin D do not reduce the risk of stroke (Hsia J, et al 2010; 115; 846-854)

***Correspondence:** Liviu Lazar, University of Oradea, Faculty of Medicine and Pharmacy, email: lazarlv@yahoo.com
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It was also revealed that tocopherol and beta-carotene supplements do not reduce the risk of AVC (Tornwall ME, et al 2004; 35; 1908-1913)

A study that includes taking supplements with vitamin E showed that the mortality may rise when it is used in high doses, (meaning <400 Ui/zi). (Miller ER et al 2005; 142; 37-46). Eating healthy is part of stroke prophylaxis. Stroke occurs when the blood flow to the brain is interrupted or diminished, so the brain no longer receives oxygen and nutrients intake and in a few seconds the cells begin to die. Excessive eating and excessive consumption of foods that contain saturated fat and cholesterol lead to the narrowing of the arteries and finally the occurence of stroke. A healthy diet, low in animal fats improves blood vascularization, lowers cholesterol and blood pressure.

MATERIALS AND METHODS

The methods used have met all methodological requirements and were used to demonstrate the importance of adopting a healthy lifestyle with a balanced diet low in animal fats.

The study was conducted on two parallel sides of patients. Patients entering the study were evaluated in four stages, namely: a first initial assessment, an assessment at three months, six months evaluation and a final evaluation at one year.

Participating in the study were only the patients considered healthy who revealed no associated diseases. Another exclusion criteria were patients who participated in other clinical studies, or patients in lactating period. Patients included in the study were aged between 41 and 71 years. In all four assessments were performed laboratory tests, EKG, ultrasound and internal consulting. Batch number one lead a healthy lifestyle with a balanced diet low in animal fats. Batch number two excessively consumed foods containing lots of animal fats. The initial evaluation revealed that both the patients in group one and patients in group number two had normal laboratory values according to age and sex. Differences between the two groups began to emerge at the six months assessment when the batch number two, who consumed fats, presented differences in laboratory tests, ultrasound and internal consulting. The Group 1 contain 55 subjects with diet low in animal fat and Group 2 contain 70 subjects with diet high in animal fat. The characteristics of groups taken in this study were presented in Table 1.

Table 1. Characteristics of groups

	Group 1		Group 2	
Sex	No.	%	No.	%
Female	30	54.5	39	55.7
Male	25	45.5	31	44.3
Mediu				
Urban	32	58.2	43	61.4
Rural	23	41.8	27	38.6
Age				
40-50 years	21	38.2	26	37.1
51-60 years	23	41.8	31	44.3
61-70 years	11	20.0	13	18.6

RESULTS AND DICUSSIONS

Laboratory analysis of total cholesterol, triglycerides, HDL- and LDL-cholesterol between two groups, at the start of experiments, and then during 6 and 12 months are shown in Table 2.

Table 2. Evolution of lipid status

	Baseline	At 6 months	At 12 months
Group 1			
Total Cholesterol	191.1±20.4	190.3±21.3	185.6±20.5
Triglycerides	101.0±11.4	98.9±10.5	98.6±10.6
HDL-cholesterol	52.0±6.0	52.2±5.4	53.0±5.1
LDL-cholesterol	119.0±12.7	117.3±12.3	116.1±12.2
Group 2			
Total Cholesterol	192.8±21.8	205.6±23.2	224.0±23.3
Triglycerides	104.0±12.6	122.7±12.8	136.3±14.6
HDL-cholesterol	51.5±5.7	48.0±5.4	44.4±5.1
LDL-cholesterol	118.6±13.2	123.0±15.3	133.2±14.4

In Figure 1, are presented the value of total cholesterol during one year from both groups. In the Group 1, that have a low fat diete, the value of total cholesterol has no significant value during one year. Instead, in the group 2, that have hight fat diete, the values of cholesterol between the start experiment and after 12 months are significantly high (192.8 vs.224.0).

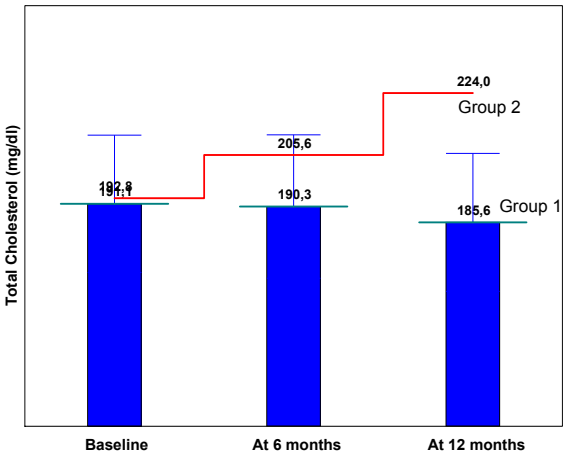

Fig.1. Evolution of total cholesterol

Figure 2 illustrate the evolution of triglycerides in both groups. During one year, the value of triglycerides decrease from 101.0 to. 98.6 mg/dl in patients with low fat diete, an increase in patient with high fat diete, from 104.0 to 136.3 mg/dl.

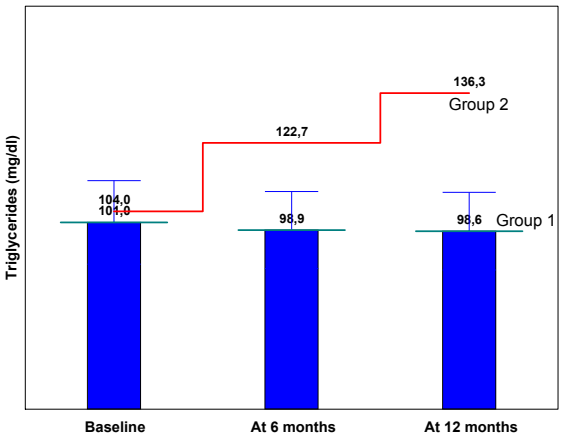

Fig.2. Evolution of triglycerides

Regarding the evolution of the value of HDL-cholesterol during one year, our results reveals that they have increased in Group 1 from 52.0 to 53.0 mg/dl, and discreased in Group 2 from 51.5 to 44.4 mg/dl (figure 3).

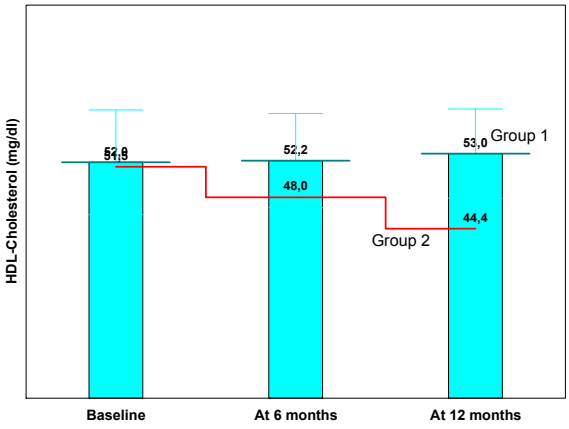

Fig.3. Evolution of HDL-cholesterol

During one year, the value of LDL-cholesterol decrease from 119.0 to. 116.1 mg/dl in patients with low fat diete, an increase in patient with high fat diete, from 118.6 to 133.2 mg/dl (figure 4).

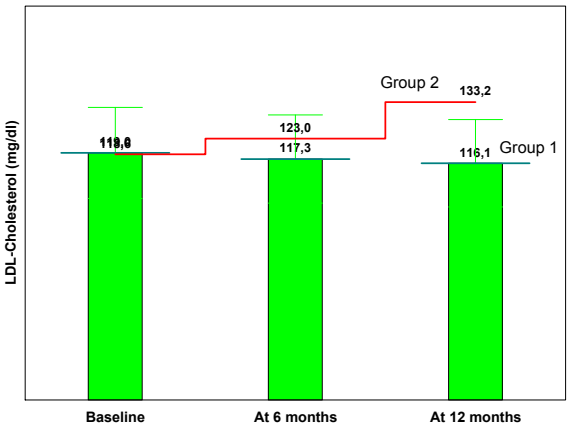

Fig.4. Evolution of LDL-cholesterol

The results obtained in our study during a year, show that a low fat diete has a slow improvement in lipid status, mean of total cholesterol, triglycerides and LDL-cholesterol lowering slightly, with 2.4-5.5 mg / dl and HDL-cholesterol with 1 mg / dl. Instead, a fatty diet leads to accelerated degradation of lipid parameters, the increase is between 14.6-32.3 mg/dl in total-colesterol, triglycerides and LDL-cholesterol, and decrese is 7.1 in HDL-cholesterol

A supportive prevention policy to focus on control of risk factors is the key element needed to reduce the incidence of stroke which in Romania is the main cause of mortality. Besides some prevention measures such as keeping weight and cholesterol level under control, blood pressure monitoring, smoking cessation, exercise, can help reduce the risk of stroke.

As recommended foods, eating foods that were predominantly associated to group number one of patients in the study include: almonds rich in vitamin E, blueberries with antioxidant capacity due to the high concentration of anthocyanins, apples rich in quercetin, fish such as salmon and tuna containing large amounts of omega3 and 6 fatty acids that help reduce blood cholesterol, apricots, kiwi fruit contains large amounts of vitamin C, potassium, magnesium and antioxidants, fiber and rice taritele that help regulate cholesterol.

Batch number two consumed large quantities of so-called forbidden foods and incriminated as risk factors in the development of vascular disease, namely, consumption of fats exceeding 40-70 gr./ day. In the category of fats and oils associated with stroke occurence wemention: butter, margarine, fried foods, coconut, mayonnaise, fat meat consumptiont, precooked foods, giblets, canned meat, fast food, eating dairy category namely, condensed milk, cream, ice cream, cream cheese, consumption of bakery products like white bread, pastries and cereals with added sugar.

Most of these foods contain high amounts of trans fats that once reached in the body through the food pass into the bloodstream where they raise bad cholesterol level and lower that of good cholesterol.

Trans fats are also called hydrogenated or partially hydrogenated fats. Recent studies have shown that women who eat everyday no more than seven grams of trans fat have a 30 times higher risk of stroke during the lifetime than those who avoid these products.

CONCLUSIONS

The analysis of laboratory results of the two groups showed a difference between batch number one that did not consume large amounts of fats and batch number two that consumed large amounts of foods with high fat content.

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