STUDY ON IMPROVING THE LIPID PROFILE OF PATIENTS AFFECTED BY STROKE USING COMPLEMENTARY THERAPY WITH RESVERATROL

Fodor Ilona Katalin [*], Drăgan Felicia [*],Pallag Annamaria*, Lazăr Liviu[**]
[*]Oradea University, Faculty of Medicine and Pharmacy, 23 N. Jiga St., Oradea, Romania, e-mail: katifodor@yahoo.com
[**]Oradea University, Faculty of Medicine and Pharmacy, 10 Decembrie 1 St., Oradea, Romania, e-mail: lvlazar@yahoo.com

ABSTRACT

Stroke (CVA) is among the leading causes of death and disability affecting both the elderly and the middle-aged population and even the young ones in developed countries. Oxidativ stress can be considered one of the main reasons and causes of the increasing incidence of cerebral attacks. This case study relates to the possibility of improving the lipid profile of patients who have suffered strokes and are at various stages of recovery in specialized clinics. Knowing the lipid profile of patients affected by this disease is useful in further study regarding the possibility of recovery of these patients by coadministration with allopathic treatment of this disease - stroke –the characteristic natural antioxidant molecules, in our case resveratol. The determinations were made while registring for study the patients, respectively after 6 months.The study group consists of patients who have suffered stroke and were admitted to the Rehabilitation Hospital Felix.

Key words: stroke, free radicals, resveratrol, lipid profile

INTRODUCTION

Oxidative stress results from an imbalance between pro - oxidant factors and protective antioxidant systems, the balance being in favor of the first component.

Oxidative stress represents all oxidative damage caused by free radicals in the cell or the whole body and is responsible for many inflammatory, degenerative, neoplastic, cardiovascular desease. This imbalance leads to oxidative changes on the cellular targets such as proteins, lipids, DNA structure, resulting in oxidative status dependent of signalization pathways. The finalization of the process is complete of apoptotic and cell necrosis meaning cell death. (Aurelia Nicoleta Cristea, 2005)

Free radicals are highly reactive molecules with unpaired electrons (or "free") on the external orbital, imbalance condition which turns these fragmented molecules into very unstable and dangerous biochemical agents. (Denham Harman, MD,2008-2009) The harmful effects of free radicals in the body are: damage or destruction of cell structures leading to their death, cell aging, malignant transformation of the cells.

Antioxidants are molecules that form the first target in the path of free radicals, being oxidized or converted into other less harmful radicals.

The antioxidants molecules are stable structure with additional electrons or the ability to receive additional electrons. (Tache S.,Muresan, 2006)

Antioxidants are the body's natural defenders when free radicals attack in human's everyday life. Defending the body involves protecting cell structures and the DNA preventing free radicals to capture electrons. Most antioxidants are substances with redox characteristics that works by capturing an electron or a free radical and becoming itself a free radical. (E.Cadenas,1999) Electron capturing by free radicals is prevented by antioxidant molecules, thus rezulting the neutralization of the radicals and meantime the end of the cascade effect of oxidation. (Esterbauer H., Gebicki J.,1992) Free radicals are not created only in the environment, but also in the human body, with a very well established human body's own antioxidants such as: superoxide dismutase, catalase, glutathione peroxidase. (CORDTS, M. Ridenour, N. Hickey, MK 2008). For health and longevity, it is essential to have a continuous supply of antioxidants, which can be ensured by healthy eating behavior and a balanced lifestyle.

Antioxidant supplementation of the human body is achieved by using natural antioxidants in food or pharmaceutical technologies, thus providing promising alternative methods of prevention and mitigation of oxidative stress. (Frémont, L.,2000)

MATERIAL AND METHOD

In the present study we have examined the effect of resveratrol on the lipid in the case of patients suffering from stroke, and then after using of antioxidants - resveratrol in this case, for a period of six months in the same time with typically allopathic treatment of the disease retaking the test to determine each lipidic profile. Each patient was administrated the same amount of resveratrol 100mg/day.

We have studied 164 patients hospitalized after stroke in the Rehabilitation Hospital Felix, during 2010-2013. To follow the influence of antioxidants on lipid fractions HDL -cholesterol and LDL -cholesterol, they were divided into two groups : the first group consists of 78 patients received adjunctive type antioxidants like resveratrol 100 mg/day and the second batch consisting of 86 patients did not receiving this therapy.

Patients were determined HDL and LDL cholesterol at the registration and after 6 months.

Table 1

Characteristics of the groups

Parameter	**With antioxidant**	**Without antioxidant**
Masculin	60,26%	59,30%
Urban	56,41%	54,65%
Averange age (years)	65,03±8,26	64,52±8,60
Ischemic stroke	82,05%	83,72%

Most patients from both groups were male (60.26 % vs 59.30 %), from urban environment (56.41 % vs 54.65 %), average age about 65 years (65.03 vs 64 52 years) and 80 % had an ischemic stroke (80.05 % vs 83.72 %). From the point of view of features there are no significant differences between the two groups ($p > 0.05$)

.

RESULTS AND DISCUSSIONS

Table 2

The average values for the parameters

1 PARAMETER	**With antioxidants**		**Without antioxidants**	
	Initial	**After 6 months**	**Initial**	**After 6 months**
	Mp±DS	**Mp±DS**	**Mp±DS**	**Mp±DS**
HDL-cholesterol (mg/dl)	39,16±5,26	44,07±5,28	38,88±5,27	40,07±5,18
LDL-cholesterol (mg/dl)	142,22±15,31	125,50±13,10	143,27±16,51	137,82±13,73

On initial evaluation, there were no significant differences between the two groups, both in the case of HDL cholesterol and LDL - cholesterol ($p > 0.05$) .

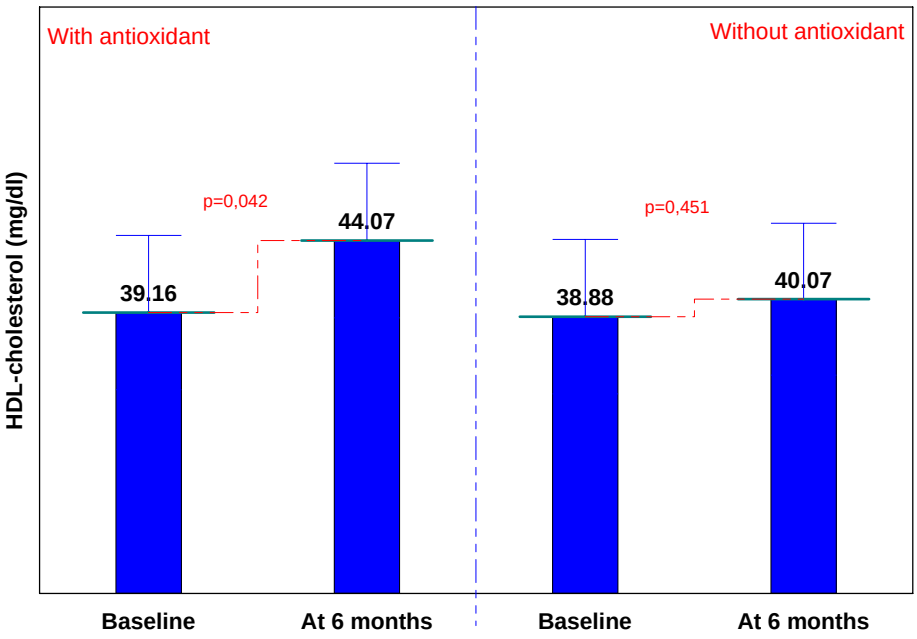

Fig. 1. The mean HDL - cholesterol

After six months, HDL- cholesterol decreased in both groups through the hygienic-dietary regime imposed to postAVC patients. In the group receiving anti-oxidants we note an increase in HDL - cholesterol values from 38.16 to 44.07 mg / dL resulting in a growth of the effect of ES = 0.93, whereas in the group without antioxidants the effect was only ES = 0.23 (from 38.88 to 40.07 mg / dl).

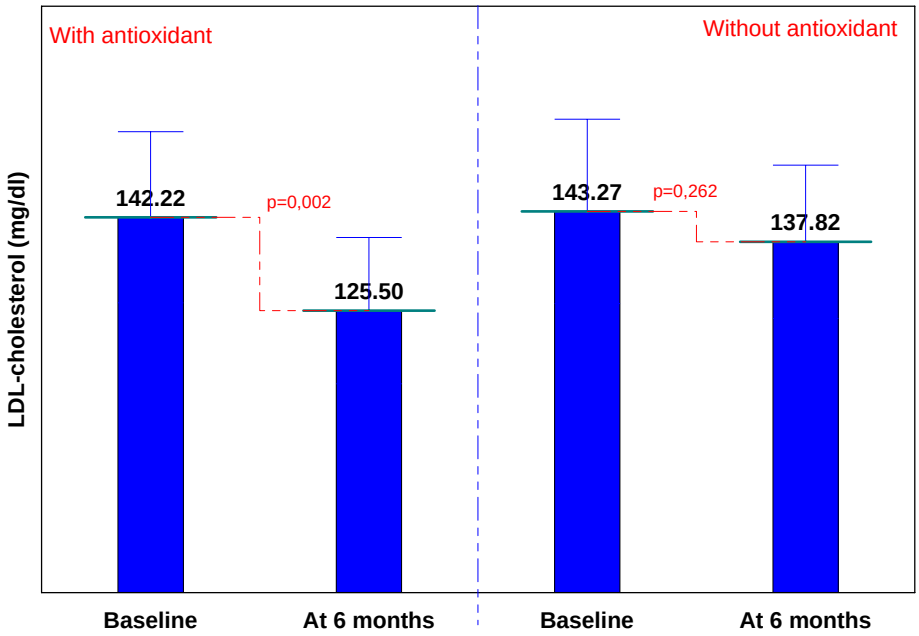

Fig. 2. The mean LDL - cholesterol

Regarding LDL- cholesterol this decreased after six months in both groups. In the group receiving anti-oxidants we note an increase of LDL - cholesterol values from 142.22 to 125.50 mg / dL resulting in a growth of the effect of ES = 1.09, while in the group without antioxidant the effect was only ES = 0.33 (from 143.27 to 137.82 mg / dl).
We note that there weren't registered any kind of side effects in patients who undergo therapy with antioxidants.

CONCLUSIONS

In conclusion we can say that the administration of antioxidants as resveratrol 100mg/day for patients suffering stroke has a beneficial effect on the lipid profile.

REFERENCES

1.Denham Harman, M.D., Ph.D.: Pioneering aging research for five decades". Health. University of Nebraska at Omaha. 2008-2009. Retrieved 2010-02-13
2. Tache S. Oxidanţii şi antioxidanţii; Cap 1 în Mureşan A, Tache S, Orăsan R (sub red.) Stresul oxidativ în procese fiziologice şi patologice, Ed. Tedesco, Cluj-Napoca, 2006, 1-2).
3. E.Cadenas,Annual Rev.Biochem.58,79,1999
4.Esterbauer H., Gebicki J., Puhl H., Jurgens G.. The role of lipid peroxidation and antioxidants in oxidative modification of low density lipoproteins. Free Radic Biol Med 1992; 13: 341-390.
5. Frémont, L. Biological effects of resveratrol. Life Science 66:663-673, 2000.
6. Aurelia Nicoleta Cristea, Tratat de farmacologie, Editura Medicală Bucureşti, 2005
7. Cordts, M., Ridenour, N. şi Hickey, M.K. (2008) The Properties of Enzymes: A study of catalase, Cornell University.