

# The Prevention of the Risk of Depression at Metabolic Syndrome Patients by Making a Minimum Hepatic Investigation

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*Depression is a mental disorder characterized by a deep change state of the thymus, disposition, in the sense of sadness, suffering and moral inhibition psychomotor generally associating with psychoactive substance dependence. An association in particular alcoholism and other psychiatric disorders was noticed more decades. Obesity many of the SML may determine, outside taps organ important psychological imbalances, linked both to aesthetics. If the connection between S M and cardiovascular disease has been studied in detail, the correlation between S M and the emergence of depressive episodes prospects remains an NIS. The aim of the study was to determine a minimum package Biochemical investigations of liver function in patients with MS need notice for preventing risk of depression, the study objective was to demonstrate the involvement consumption both alcohol and depressive episodes in the development of steatosis hepatic. Consuming Alcohol was shown to be the central element both in depression and Development Department hepatic steatosis, MS patients have increased risk of developing hepatic steatosis by lipid metabolic changes involve them this nosological entity. Additional alcohol is a factor that can increase the risk of steatosis and depression.*

**Keywords:** depression, risk factors, alcohol use, metabolic syndrome, hepatic steatosis

The metabolic syndrome (MS) is a metabolic anomaly with high risk in cardio vascular disease. Its definition is at a constant change. Its 2009 definition has as diagnosis criteria high abdominal circumference, high blood pressure and blood sugar, HDL cholesterol low. The MS epidemiology is an essential state in the evaluation of cardio vascular risk. Both obesity and diabetes as components of S. M both are growing in prevalence worldwide and in Romania. It is estimated that the current population of the western quarter is diagnosed M.S

Depression is a mental disorder characterized by a profound change of thymic state, disposition, in the sense of sadness, suffering and moral inhibition psychomotor generally being associated with anxiety. It maintains patient global impression of helplessness painful, fatality and sometimes drives subdelirant ruminations on the subject of culpability, self appreciation which could lead to consideration of suicide and sometimes to achieve this [2]. Feelings of worthlessness, guilt may include assessments of negative self-worth substandard. Major depressive disorder in adults ranged between 5 and 9% of women and 2 to 3% for men. The risk of a major depressive episode throughout life, it reaches 12% in men and 25% women. (DSM-IV-TR). Depressive Disorder remains the most common psychiatric disorder in elderly people [9, 10]. The prevalence of depressive disorders in patients over 65 years inclusive is 10% -18% is a severe condition in 3% of cases. Pair psychoactive substance addiction and alcoholism in particular with other psychiatric disorders was noticed by several decades [1, 3]. Alcoholism anxiety can occur both in posture due - causing alcohol abuse as a result of known anxiolytic effect of alcohol - and effect - the most characteristic example is the anxiety of withdrawal states [3, 5]. Obesity in the S M can cause organ outside interferences important psychological

imbalances, linked to both the aesthetics and the disease itself. Not infrequently depressive disorders may be related to the aesthetics of S M and the socializing issues. If the connection between S M and cardiovascular disease has been studied in detail, the correlation between S M and the emergence of depressive episodes remains a topic of research perspectives [4, 8].

Psychological approach argues that overweight is a major source of dissatisfaction, depression or frustration. In turn depression may be a risk factor for developing memory disorders and dementia. Dr. Luppino and his team conducted an analysis based on data of 15 studies showing that obesity increases by 55% the risk of depression in initially healthy people considered mentally while depression increases by 58% the risk that a person with normal weight to become obese. Also, another recent study by the National Institute of Mental Health showed that one in four cases of obesity is associated with anxiety disorders. Obesity appears to cause more than minor depression and proves to be one of the triggers of clinical depression. *Overweight and obesity may induce own body dissatisfaction and poor self-esteem*, says dr. Luppino, *especially in Western states where thin bodies are often considered a beauty ideal*. In addition, depression can lead to weight gain and the side effects of antidepressants, which interacts with the endocrine system. Further analysis showed that the link between obesity and the occurrence of depression is more pronounced among Americans than among Europeans. In this context it is necessary the intervention of therapeutic implies, on the one hand the fair treatment of components S, Met. and on the other lifestyle changes to avoid a negative body image. Education, balanced diet and adequate physical exercise are essential, along with pharmaceutical treatments S M [6, 7].

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## Experimental parts

### Materials and methods

The main purpose of the study was to determine a minimum package of biochemical investigations of liver function in patients with MS need Notice for preventing the risk of depression,

The object of the study was to demonstrate the involvement of alcohol in both depressive episodes and development of hepatic steatosis. Our WAS study conducted in Geriatrics and Gerontology the Fifth Medical Clinic, Between 2013 and 2014, with the Approval of the ethics commission of C.F. Hospital in Iasi, and with Patients' Informed consent. Our study was conducted in the Fifth Medical Geriatrics and Gerontology Clinic, between 2013 and 2014, with the approval of the ethics commission of C.F. Hospital in Iasi, and with patients' informed consent. We complied with the Law 46/2003 on personal data protection and free circulation. By this procedure, we have not studied an individual with precise identity, but a subject with certain demographic features, who accepted to be part of our study, by signing a free and informed consent. Legislative stipulations on confidentiality of personal data of each individual have been complied, as well as the ones stipulating that during the entire period of study, the individual is not subject to techniques of treatment that affect the quality of life. 365 patients with MS have been selected, who have been clinically and paraclinically evaluated. MS diagnosis was set based on the association of HTN with sugar diabetes, dyslipidemia, respectively, enlargement of abdominal girth. These patients were subject to the following biochemical investigations: TGO TGP GGT. Depression was determined with BECK questionnaire and alcohol consumption was anamnestic, taking into consideration the particularities of the risk factors depending on gender and age, we divided the patients into two subgroups: subgroup I - adults, and subgroup II - elderly.

## Results and discussions

Application of Beck depression tests revealed the presence of light or medium episodes of depression in a total of 46.66% of the patients with S M.

The study of the clinical forms of depressive episodes revealed a total of 55.35% patients with mild depressive

### DEPRESSIVE EPISODES

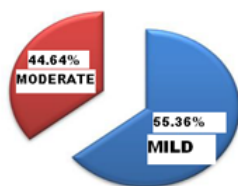


Fig. 1. Distribution of patients with S V M hospitalized in the Medical Gerontology and Geriatrics in the period July to December 2012 based on the severity of depressive episodes

episodes and 44.64% of patients with depressive episodes environments (fig. 1).

For the study we determined the presence of liver damage hepatocytolysis syndrome by determining serum transaminases: glutamtransaminaza glutampiruvică transaminases (ALT) and gamma-glutamyl transpeptidase (GGT). To this was added the study showed that ultrasound of the liver steatosis or suffering chronic liver changes.

The distribution of patients with S V M hospitalized in the Medical and geriatrics, for a period of one year (January-dec.2011), according to the mean values of the groups studied GGT.

In our study, the average value of GGT in patients with B M was as follows:

-at Lot I - Adults average value of GGT was 44.84 U / l (SD = 76.94);

-the group II - GGT elderly average value was 42.27 U / l (SD = 69.48) (fig.2).

Analysing the two groups statistically compared with the values S M GGT we appreciate that there is no evidence statistically significant differences ( $p = 0.758$ ).

At Group I - adults found that the minimum value of GGT was 9.7 U / l and a maximum of 537 U / l, SD = 76.94 and the Lot II - Elderly minimum was 2 U / l and a maximum of 587 U / l, SD = 69.48 (table 1).

We further analyzed serum transaminase levels, taking into account the possibility of involving patients S M hepatic steatosis or nonalcoholic chronic hepatitis.

In our study, the average value of S M TGO patients was as follows:

-at Lot I - TGO adults average value was 32.67 U / l (SD = 21.05);

-at Group II - older average value of TGO was 40,41U / l (SD = 35.93) (fig. 3)

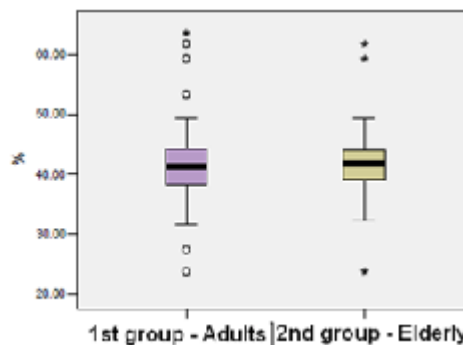


Fig.2 The distribution of patients with S V M hospitalized in the Medical and Geriatric- Gerontology, for a period of one year (January-dec.2011), according to the average values of GGT batch

Table 1

INDICATORS ON AVERAGE VALUES S M GGT IN PATIENTS HOSPITALIZED IN THE V OF MEDICAL GERONTOLOGY AND GERIATRICS-FOR A PERIOD OF ONE YEAR (JANUARY-DEC.2011), ACCORDING TO THE GROUPS STUDIED

Group	N	Average	Standard Deviation	Standard Error	Confidential interval		Min	Max	p
					-95% CI	+95% CI			
Group I Adults	245	44.84	76.94	4.92	52.16	71.52	9.70	537.9	0.758
Group II Elderly	120	42.27	69.48	6.34	46.71	71.83	2.00	587	
TOTAL	365	60.99	74.48	3.90	53.33	68.66	2.00	587	

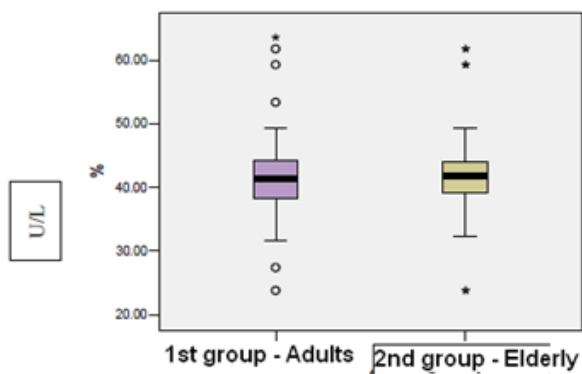


Fig.3 The distribution of patients with S V M hospitalized in the Medical and Geriatric- Gerontology, for a period of one year (January-dec.2011), according to the mean values of the groups studied TGO

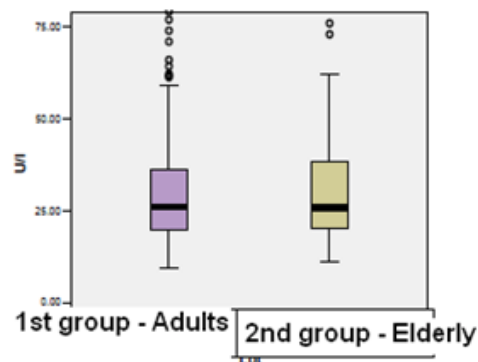


Fig.4 The distribution of patients with S V M hospitalized in the Medical and Geriatric- Gerontology, for a period of one year (January-dec.2011), according to the mean values of the groups studied TGP

**Table 2**

INDICATORS ON THE DISTRIBUTION OF PATIENTS WITH S V M HOSPITALIZED IN THE MEDICAL AND GERIATRIC- GERONTOLOGY, FOR A PERIOD OF ONE YEAR (JANUARY-DEC.2011), ACCORDING TO THE MEAN VALUES OF THE GROUPS STUDIED TGO

group	N	Average	Standard Deviation	Standard Error	Confidential interval		Min	Max	p
					-95% CI	+95% CI			
Group I Adults	245	32.67	21.05	1.34	30.02	35.31	9.30	134	0.010
Group II Elderly	120	40.41	35.93	3.28	33.92	46.901	11.0	194	
TOTAL	365	35.21	27.06	1.42	32.43	38.00	9.30	194	

**Table 3**

INDICATORS ON THE DISTRIBUTION OF PATIENTS WITH S V M HOSPITALIZED IN THE MEDICAL AND GERIATRIC- GERONTOLOGY, FOR A PERIOD OF ONE YEAR (JANUARY-DEC.2011), ACCORDING TO THE MEAN VALUES OF THE GROUPS STUDIED TGP

Lot	N	Average	Standard Deviation	Standard Error	Confidential interval		Min	Max	p
					-95% CI	+95% CI			
Group I Adults	245	38.88	25.59	1.63	35.66	42.10	11.5	165.7	0.261
Group II Elderly	120	42.85	41.23	3.76	35.39	50.30	7.00	224.0	
TOTAL	365	40.18	31.59	1.65	36.93	43.44	7.00	224.0	

Indicators on the distribution of patients with S V M hospitalized in the Medical and Geriatric- Gerontology, for a period of one year (Jan. dec.2011), according to the mean values of the groups studied TGO. In our study we found that TGO values are significantly higher mean age geriatric patients from adults (32.67 vs 40.41 U / L) (p = 0.01) (table 2).

In our study, the average value of ALT levels in patients with B M was as follows:

-at Group I - adults TGP average value was 38.88 U / l (SD = 25.59); 97

-at Lot II - TGP elderly average value was 42.85 U / l (SD = 41.23) (fig. 4).

In our study we found that TGP also recorded slightly higher averages in patients with MDES geriatric age (42.85 vs 38.88 U / l) compared to the group of adult patients, with no significant differences between the two groups (p = 0.261) (table 3).

The study status of liver damage in patients with S V M hospitalized in the Medical and Geriatric- Gerontology, for a period of one year (Jan. dec.2011).

Status of liver damage was considered in patients with GOT, GPT and GGT which was added steatosis or echocardiographic changes of chronic hepatitis. Next, we studied the number of patients (27 patients) causing their incidence over the total number of patients with S.M

Out of 365 patients with S M that we studied I found the presence of liver disease at a rate of 7% (27 patients) (fig.5). Met., The study groups and by gender, studying the statistics and indicators.

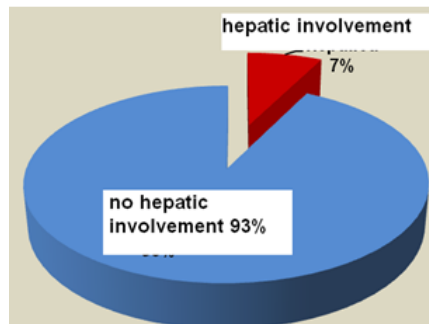


Fig 5 The distribution of patients with hepatic impairment compared to the number of patients hospitalized in the M S V-Geriatric- of Medical and Gerontology, for a period of one year (January-dec.2011)

Out of 365 patients with S M that we studied I found the presence of liver disease at a rate of 7% (27 patients) (fig. 5).

The distribution of patients with hepatic impairment compared to the number of patients with S V M hospitalized in the Medical Gerontology and Geriatrics-for a period of one year (January-dec.2011)

Our study revealed the existence of liver disease in a lower percentage of patients with S M Lot I - adults compared with group II - the elderly. Thus, 4% (11 patients) of adult patients with severe hepatic S M presents and 13% (16 patients) of elderly patients with S M presents this change (fig. 6).

The distribution of patients with liver S M and the V-hospitalized in the Medical Gerontology and Geriatrics-for a period of one year (January-dec.2011) depending on the groups studied (age parameter)

Our study showed that in Group I - adults, women with hepatic impairment percentage was 1.2% (3 patients), and in men the proportion was higher, ie 3.3% (8 patients). Analyzing Group II - older, we found a 5% women (99patients) who had liver damage, while the percentage

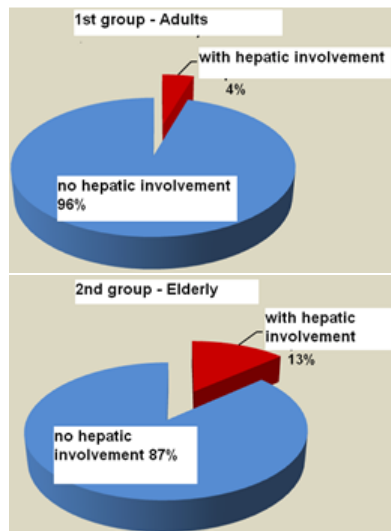


Fig. 6. Distribution of hepatic impairment in both study groups, adults and elderly

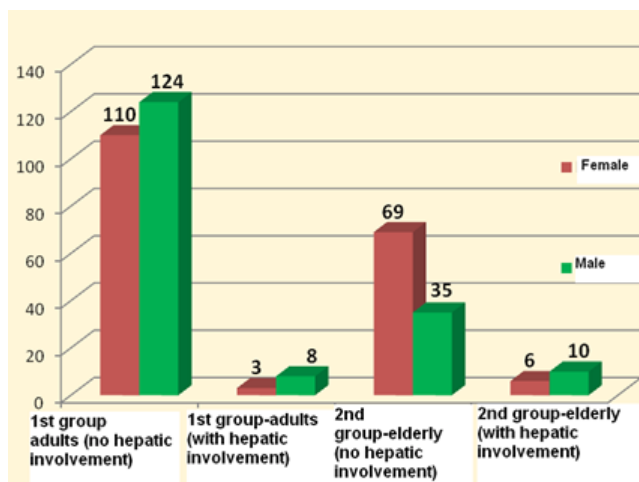


Fig 7 The distribution of patients with liver S M and the V-hospitalized in the Medical Gerontology and Geriatrics-for a period of one year (January-dec.2011), according to the groups studied (age parameter) and sex

of men was increased respectively 8.3% (10 patients) (fig7).

In our study we found no statistically significant differences in terms of liver disease to two groups of patients studied (p = 0.110) (table 4).

Table 4

INDICATORS ON THE DISTRIBUTION OF PATIENTS WITH S M AND THE V-HOSPITALIZED IN THE MEDICAL GERONTOLOGY AND GERIATRICS - FOR A PERIOD OF ONE YEAR (JANUARY-DEC.2011), ACCORDING TO THE MEAN VALUES OF THE GROUPS STUDIED (AGE PARAMETER) AND SEX

Group	N	Average	Standard Deviation	Standard Error	Confidential interval		Min	Max	p
					-95% CI	+95% CI			
Group I Adults	245	44.84	76.94	4.92	52.16	71.52	9.70	537.9	0.758
Group II Elderly	120	42.27	69.48	6.34	46.71	71.83	2.00	587	
TOTAL	365	60.99	74.48	3.90	53.33	68.66	2.00	587	



The distribution of patients with S. Met. V hospitalized in the Medical Gerontology and Geriatrics-for a period of one year (January-dec.2011) by alcohol.

Alcohol consumption in contemporary society remains a risk factor in cardiovascular diseases such as the metabolic and progressive disease in the context of debilitating comorbidities.

Studying the incidence of drinkers reported in 365 patients diagnosed with S. Met. there is a 7% (25 patients) who consume frequently and 22% (81 patients) who consume alcohol occasionally. We found a 71% (259 patients) of the total of 365 cases that were studied with no alcohol (fig. 6). Taking into consideration that the patients studied showed a complex pathology in S. Met., Consider the percentage obtained increased.

#### *Correlation analysis consumption of alcohol-SM-hepatic steatosis-depression*

Analysis of correlation between parameters included in the study next to relevant correlations statistically significant ( $p < 0.001$ ) and between the presence of strong alcohol and SM between MS and depression, depression and alcohol and depression and steatosis hepatic . Analyzing regression applied for depression MS patients showed as a parent predictors of major depressive episodes and transaminases are having an important share in a study. In TGP conclusion we can say that the investigation of minimal hepatic function in patients with MS can be a predictor of future episodes depression.

#### **Conclusions**

Our study revealed an increased incidence of light and medium depressive episodes in patients diagnosed with S M (46.66%).

Liver damage in our research study was based on a minimum of laboratory investigations, namely the determination of GGT, SGOT and SGPT supplementing it with ultrasound liver.

The incidence of liver disease in patients with MS was 7%, being highlighted more frequently in elderly adults (13% vs. 4%), and for men and women (3.3% vs. 1.2% Group I - adults; 8.3% vs. 5% - older Group II). It follows that the relative risk of developing liver disease is higher in men and the elderly (RR = 1.18 vs. 1.01).

The complexity of the study panel S M want to contribute to a responsible approach to these patients, which should be investigated and treated multidisciplinary. Clinical examination and laboratory investigations steps performed in patients enrolled in this study should become a *basic package* in the management of patients with S M.

The existence of statistically significant correlation between the presence and strong alcohol and SM between MS and depression, depression and alcohol and depression

and hepatic steatosis, minimal investigation demonstrates the need liver function in patients with transaminases SM. Determination proved to be an important predictor depression. consumption; Alcohol has been shown to be central to both the Development Department depression and hepatic steatosis, MS patients have increased risk of developing hepatic steatosis through changes metabolism lipid them involving this entity alcohol is an additional factor that can increase the risk of steatosis and depression.

In conclusion we can say that the investigation of minimal hepatic function in patients with MS can be a predictor of future depressive episodes.

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