

## Characteristics of Computerized Tomography Findings of Male Alcoholics Treated on Department of Psychiatry Tuzla from 01.01.2005 to 31.12.2009

Mevludin Hasanovic<sup>1,3</sup>✍, Izet Pajevic<sup>1,3</sup>, Abdurahman Kuldija<sup>1,3</sup>,  
Nermina Kravic<sup>1,3</sup>, Amra Delic<sup>2</sup>, Nerminka Aljukic<sup>1,3</sup>

<sup>1</sup>Department of Psychiatry, University Clinical Center Tuzla, 75000 Tuzla, Bosnia-Herzegovina

<sup>2</sup>Primary Health Care Center "Dom zdravlja" Tuzla, 75000 Tuzla, Bosnia-Herzegovina

<sup>3</sup>School of Medicine, University of Tuzla, 75000 Tuzla, Bosnia-Herzegovina

### Abstract:

**Introduction:** Consequences of alcohol dependence may be complex, and difficult for treatment, thus complex diagnostic procedures are needed.

**Aim:** To assess the prevalence of silent brain strokes and cortical cerebral atrophy amongst male inpatient alcoholics.

**Methodology:** We analyzed 86 file records of males treated from 01 January 2005 to 31 December 2009 year on Tuzla Psychiatry Department, who had dismissed diagnosis Alcohol dependency (F 10.2) according ICD-10, with computerized tomography (CT) of brain, related to age, war engagement, brain trauma, employment, smoking, psychological findings and presence of silent stroke and cortical brain atrophy according CT diagnosis.

**Results:** The mean age of observed patients was 50.1±6.6 years. Amongst them (70.9%) were active soldiers in Bosnia-Herzegovina Army during 1992-1995 war. There were 71 (72.6%) with atrophy of brain cortex, 27 (31.4%) had ischemic silent stroke. In the sample, 61 (70.9%) of inpatients met criteria for PTSD according ICD-10, 53 (61.6%) had cognitive disturbances, 29 (33.7%) had psychotic symptoms, 50 (58.1%) of them had clinically manifested depression, 47 (54.7%) had difficulties in social contacts, 23 (26.7%) had somatic disorders. Age of inpatients was in positive correlation with duration of work, presence of silent ischemic stroke and brain cortex atrophy. Presence of PTSD was in positive correlation with involvement in the combatants, with cognitive disturbances, with depressiveness and somatic complains. Atrophy of brain cortex positively correlated with silent stroke and glucose blood level.

**Conclusion:** Brain cortical atrophy and silent brain stroke were frequent CT findings amongst male alcohol dependants clinically treated in Psychiatry department.

**Key Words:** silent brain stroke, brain cortex atrophy, alcoholism, hospital treatment, PTSD, Bosnia-Herzegovina

### Introduction

Treatment of alcoholics is complex and difficult, very often it demands complex psycho-pharmacotherapy. Alcohol addiction is a major public health problem, and the fourth leading cause of disability in the world (1). Many studies suggest that chronic alcohol consumption causes atrophy of brain tissue, especially the brain cortex (2, 3). According to Mochizuki et al., the atrophy of the white substance is cause of the cognitive damage in chronic alcoholic dependant individuals (5). Furthermore, the research of those traumatized individuals who are suffering from PTSD also showed signs of brain cortex atrophy on the CT findings of the brain (6-9). Some studies have described the co-morbidity between PTSD and alcohol misuse, possibly in the process of self-medication (10). Thus, co-morbidity between PTSD and alcoholism is very high and complicated by depression and other mental disorders (8). All this

mentioned above is the cause of the complexity of the treatment of alcoholism and co-morbid conditions, and consequences of poly-pharmacy in the treatment of such clinical conditions (10).

There are no previous researches about this problem in postwar Bosnia-Herzegovina.

Our aim is to investigate characteristics of Computerized Tomography (CT) findings of male alcoholics treated on Department of Psychiatry Tuzla from 01.01.2005 to 31.12.2009 related to age, war engagement, brain trauma, employment, smoking, psychological findings and presence of silent stroke and cortical brain atrophy according CT diagnosis.

### Subjects and Methods

We investigated 86 record files of inpatients that were treated from 01.01.2005 to 31.12.2009 year on Psychiatry Department, who had dismissed diagnosis



Mevludin Hasanovi (Correspondence)

hameaz@bih.net.ba

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Alcohol dependency F 10.2 according ICD-10, to whom computerized tomography of brain has been done during hospitalization. Targeted variables were: age, marital status, working status, involvement in war fighting's, CT diagnosis, psychological findings, laboratory findings and characteristics of psychopharmacotherapy. Observed variables were: age, marital and employment status, participation in military actions, CT diagnosis, psychological findings and laboratory findings. The following standardized measuring instruments for the psychological assessment were used: MMPI, the

scale of post-traumatic stress disorder (PTSD) and to assess cognitive abilities WB-sp test were used.

We used descriptive statistics, ANOVA and Pearson's correlation test, "r". The statistical significance of differences was set up at  $p < 0.05$ . The data were processed by SPSS 10.0 program.

### Results

We found that the average age of patients studied was  $50.1 \pm 6.6$  years (34.2-69.9 years), there was no difference in the average age related to years of hospitalization (ANOVA,  $F = 0.675$ ,  $p = 0.57$ ).

**Table 1** The frequency and distribution of socio-demographic characteristics of CT diagnosis and psychological findings in 86 alcohol addicts treated at the Department of Psychiatry in Tuzla, 2005-2009 year.

Sociodemographic data	Yes	No
Married	72 (83.7%)	14 (16.3%)
Unemployed	45 (52.3%)	41 (47.7%)
Active involvement in homeland defending	61 (70.9%)	25 (29.1%)
Diagnoses towards brain CT scans		
Atrophy of brain cortex	71 (72.6%)	15 (27.4%)
Ischemic multilacunar cerebrovascular silent stroke	27 (31.4%)	59 (68.6%)
Psychological findings		
PTSD related to ICD 10	61 (70.9%)	25 (29.1%)
Cognitive impairments	53 (61.6%)	33 (38.4%)
Depression related to ICD 10	50 (58.1%)	36 (41.9%)
Disordered social contacts	47 (54.7%)	39 (45.3%)
Psychoticism	29 (33.7%)	57 (66.3%)
Somatic problems	23 (26.7%)	63 (73.3%)

Of 86 observed patients 72 (83.7%) were married, 45 of them (52,3%) were unemployed unemployed at the Labor Office, 34 (39.5%) were employed. Among them 61 (70,9%) were actively involved in defending the homeland in Army of Bosnia-Herzegovina government. Of these 86 patients with brain CT can 71 (72.6%) had brain cortical atrophy, while 27 (31.4%), had both Ischemic multilacunar cerebrovascular silent stroke and brain cortical atrophy. In 67 patients with positive CT findings we found changes in both hemispheres, while the left and right localization we found in the five inpatients.

In the sample we examined 61 (70.9%) of patients met the criteria for PTSD according to ICD 10, 53 of them (61.6%) had cognitive impairments, 29 (33.7%) had psychotic symptoms, 50 of them (58.1%) had clinically manifest depression, 47 (54,7%) had impaired social contacts, 23 (26.7%) had Somatic disorder.

**Table 2** Pearson's correlation coefficient CT diagnosis and psychological findings in 86 alcohol addicts who shot CT of the brain treated at the Department of Psychiatry in Tuzla from 01.01.2005 to 31.12.2009 year.

CT diagnosis and psychological findings		Brain cortical atrophy	Cerebral vascular ischemic silent strokes	PTSD	cognitive impairments	Psychotic symptoms	depression	Social contacts disorders
Cerebral vascular ischemic silent strokes	r	<b>0.337</b>						
PTSD	r	0.062	-0.075					
cognitive impairments	r	0.044	-0.055	<b>0.260</b>				
Psychotic symptoms	r	-0.122	-0.076	-0.072	-0.008			
depression	r	-0.167	-0.027	<b>0.340</b>	<b>0.296</b>	<b>-0.241</b>		
Social contacts disorders	r	0.026	0.146	0.146	<b>0.297</b>	<b>0.245</b>	0.114	
Somatic disorders	r	-0.017	-0.043	<b>0.339</b>	0.042	-0.053	0.213	-0.143
	p	0.890	0.730	<b>0.005</b>	0.735	0.670	0.087	0.267

r = Pearson's correlation coefficient  
p= level of significance difference

### Discussion

According to our results, patients who consume alcohol have an increased incidence of cortical atrophy, which was expected and confirmed in similar studies like García-Valdecasas-Campelo et al. (4). In regard of examination of association of PTSD and co-morbidity, our study confirmed the results of our previous studies (7-9) and studies of others, that the two leading disorders with PTSD were cognitive dysfunction and depression (12,13).

Age of inpatients was in positive correlation with duration of work, with the presence of silent ischemic stroke and with the presence of brain cortex atrophy. Presence of PTSD was in positive correlation with involvement in the combatant operations, with cognitive disturbances, with depressiveness and somatic complains. Brain cortex atrophy positively correlated with silent stroke and glucose blood level (7, 8).

### Conclusion

We may conclude that the treated alcoholics whom we recorded brain CT in the reporting period, there are very frequent atrophy of the cerebral cortex, and

lacunars ischemic brain brain lesions. The most common psychological findings that we observed amongst participants were PTSD, cognitive impairments, depression, disturbed social contacts, psychotic symptoms, and somatic problems.

### Limitations

This study is limited because of small sample and because of regional character. To make study with more confidential insight in the problem of male alcoholics it could be helpful to realize similar study on the area of whole Bosnia-Herzegovina.

### Conflict of Interests

We as the authors of the manuscript are declaring that we have not any direct financial relation with the commercial identities mentioned in the paper that might lead to a conflict of interests.

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