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A preliminary study assessment of the nutritional status of alcohol dependent inpatients – cigarette smokers and non-smokers

Ocena stanu odżywienia pacjentów uzależnionych od alkoholu leczonych odwykowo – palaczy tytoniu i niepalących. Badania wstępne

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ABSTRACT

Introduction. The abuse of alcohol as well as smoking affects behaviour related to nutrition and nutritional state. The aim of the research was to assess the nutritional status of alcohol dependent patients, smokers and non-smokers, assigned to subgroups by age and clinical variables.
Material and Method. The examined group was composed of 49 alcohol-dependent males undergoing inpatient treatment aged 27–69 (17 non-smoking and 32 tobacco smokers). A number of socio-demographic and clinical interviews were carried out with the patients, and anthropometric measurements and blood samples were taken for laboratory tests.
Results. The anthropometric research indicated that the subjects who abused alcohol and smoked cigarettes had BMI (Body Mass Index), FM% (percentage body Fat Mass) and WHR (Waist/Hip Ratio) scores below the norm. The AMC (fat-free Arm Muscle Circumference) variable score was similar for subjects who were both smokers and non-smokers.
Discussion. The metabolic processes that regulate the nutrition status of alcohol dependent subjects are complex. Therefore, besides use of nicotine as a factor of body mass reduction, we could look for other variables such as age, length and intensity of alcohol dependence, quantity of alcohol doses or liver function. However, research results show that nicotine smoking especially leads to decrease of body mass.
Conclusion. Smoking is an important factor affecting the values of nutrition indicators among alcohol dependent persons.

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Słowa kluczowe:
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STRESZCZENIE

Wprowadzenie. Nadużywanie alkoholu i nikotynizm oddziałują, między innymi, na zachowania związane z odżywianiem się, a w konsekwencji – na stan odżywienia. Celem pracy była ocena różnic w stanie odżywienia osób leczonych z powodu uzależnienia od alkoholu, palących papierosy i niepalących, w wyodrębnionych podgrupach według wieku i wybranych czynników klinicznych.
Materiał i metoda. Grupę badaną stanowiło 49 mężczyzn w wieku 27–69 lat, uzależnionych od alkoholu, leczonych stacjonarnie odwykowo (17 niepalących i 32 palących). Od pacjentów zebrano dane socjodemograficzne, przeprowadzono wywiad kliniczny i wykonano pomiary antropometryczne oraz pobrano krew żylną do badań laboratoryjnych.
Wyniki. Pacjenci palacze uzyskali niższe wartości głównych parametrów odżywienia: BMI (wskaźnik wagowo-wzrostowy), FM% (odsetek tłuszczu w ciele), WHR (wskaźnik talia/biodro), niż osoby niepalące, niezależnie od wieku i charakterystyki klinicznej. Wyniki odżywienia białkowo-kalorycznego (AMC) były podobne u palących tytoń i niepalących.
Omówienie. Procesy metaboliczne regulujące stan odżywienia osób uzależnionych od alkoholu są złożone. Oprócz nikotynizmu przyczyną redukcji masy ciała mogą być inne czynniki, takie jak: wiek, czas trwania i głębokość uzależnienia od alkoholu, ilość spożywanego alkoholu czy funkcjonowanie wątroby. Badania wskazują jednak, że inhalowanie nikotyny szczególnie sprzyja redukcji masy ciała.
Wnioski. Palenie tytoniu jest istotnym czynnikiem wywierającym wpływ na wartości wskaźników odżywienia u osób uzależnionych od alkoholu.

Introduction

According to American research, 80% of alcohol dependent persons are cigarette smokers while Australian studies indicate a level of 51% [1]. Other research suggests that as many as 95% of alcohol dependents are also smokers [2]. It has been demonstrated that tobacco dependency is closely linked to alcohol abuse and the relation between the intensity of nicotine and ethanol dependency is directly proportional [1]. Nearly 70% persons with alcohol dependence syndrome smoke no less than one packet of cigarettes per day while the figure for the general population is 10% [3].

Nicotinism and alcohol abuse lead to numerous health problems, in particular when they occur simultaneously or take on the character of deep dependency [4]. Health complications associated with smoking tobacco and alcohol dependence include e.g. lipid, carbohydrate and protein metabolises disturbance [5–7], which may affect the state of the dependent person's nutrition. Retrospective study on obesity in a family doctor's group of patients indicated that, apart from body mass in the past, both tobacco smoking ("fact of smoking or giving up smoking") and "frequent drinking of various kinds of alcohol" exercise the strongest effect on actual body mass [8]. From the biochemical perspective, there is some evidence of the influence of ethanol and tobacco smoking on nutrition [9]. Kiefer considers that in the course of alcohol dependence there is an increase of leptins in blood serum, leading to a stimulation of appetite [9]. However, research on rats indicates that alcohol abuse reduces appetite and contributes to an inhibition of body mass growth independent of leptin levels [9]. Moreover, tobacco smoking is associated with higher energy expenditure. The effect of nicotine on the sympathetic nervous system and adrenal glands contributes to sympathicotonia and norepinephrine release causing periodical hyperglycaemia [10]. It is considered that cigarette smoking can lead to falling body mass through reduction of appetite or metabolic acceleration [11].

Research aim

The aim of this research was to determine the difference between the nutritional condition of males undergoing inpatient dependence therapy who smoked cigarettes, and those who did not smoke, divided into subgroups by age and selected clinical factors.

Material and method

The study was conducted on a group of 49 (average age 42±9) inpatient males in dependency therapy (17 non-smoking and 32 tobacco smokers). Persons studied in the first week of hospitalisation answered a questionnaire covering socio-demographic data (age, place of residence, marital status, level of education and source of income). They took part in a clinical interview describing how long they had been dependent on alcohol and amount of alcohol intake (standard drink) in one year prior to hospitalisation converted to one day on the assumption that patients drank blonde beer containing 5% alcohol, wine 12%, vodka 40% [12] and sweet vermouth 17%. Respondents also answered *Short Alcohol Dependence Data* (SADD) scale questions that served to assess the intensity of alcohol dependency. SADD results of 0 indicate a lack of alcohol dependence, 1-9 mild dependence, 10-19 moderate and 20–45 deep dependence [13, 14].

Anthropometric readings were based on height measurements (cm), body mass (kg), arm, waist and hips circumference (cm) as well as thickness of skin-fat folds (mm) over the biceps skinfold (BSF), the triceps skinfold (TSF), the subscapular skinfold (SCSF) and the suprailiac skinfold (SISF). The above results allowed the gaining of data on Body Mass Index kg/m^2 (BMI), Waist/Hip Ratio (WHR), protein/calorie nutrition – fat-free Arm Muscle Circumference cm (AMC) and percentage body Fat Mass (%FM) [15, 16].

In order to identify activity of asparagine aminotransferase, we took blood samples in dry test tubes from the elbow vein of patients, who had not yet eaten that day, in the first week of hospitalisation. The analysis was conducted in the hospital laboratory.

The study subjects were divided into groups by age, length of alcohol dependency, amount of alcohol consumption, depth of dependence according to the SADD scale as well as the activity of liver enzyme – asparagine aminotransferase (AspAT). In each of these groups, we separated cigarette smoking and non-smoking patients and assessed their nutritional state.

Statistical analysis was carried out with the aid of single factor analysis of variance (ANOVA) with a *post hoc* Sheffe test, a multivariate linear regression test with the aid of the SPSS 14.0 and IBM SPSS 21 statistical programmes. The level of significance was set $p \leq 0.05$. It was indicated that the statistical power of the selected subpopulations (probability of correct rejection of false H_0 at $p \leq 0.05$) during analysis of the differences of average anth-