

Streszczenie w języku angielskim

Current medical knowledge proves that the basis for the development of many diseases is chronic exposure to oxidative stress. Oxidative stress is the disorder of the homeostasis of the body consisting in the intensification of oxidation processes, while the current weakening the antioxidant properties of the body.

The factors causing the occurrence of oxidation processes are reactive oxygen species- those of its variants, which due to the unpaired electrons possessing in their atomic structure, are characterized by the ease of entering into chemical reactions with the building blocks of the body's cells. Disorders that are related to the chronic state of oxidative stress include atherosclerosis, hypertension, stroke, myocardial infarction, neoplasms, neurodegenerative diseases. Currently in Poland, we can observe a high number of people addicted to alcohol, which accounts for about 2% of the country's population.

Ethanol causes physical and psychological dependence. The harmful effects of alcohol are conditioned not only by the toxicity of ethanol and its metabolites, but also by reactive oxygen species, which are released in significant quantities during metabolism. Many of those addicted to alcohol are also have addicted to nicotine. Discussing the effects of smoking on the body, it is worth mentioning that a fired cigarette releases two phases of the substance. The first of these is the gas phase, which arises as a result of incomplete combustion of cigarette components. The second is the permanent phase, which is primarily tobacco tar. The content of free radicals in smoke and pitch is significant. The body regularly exposed to such huge amounts of reactive oxygen species may be in a state of oxidative stress.

The aim of the study was to evaluate selected parameters of oxidative stress in the blood serum of men addicted to alcohol and men addicted to both alcohol and nicotine. Specific objectives of the study were to determine the differences between the test group and control in CAT (Catalase) activity, GPx (Glutathione Peroxidase), SOD (Super Oxide Dismutase), GSH (Reduced Glutathione) concentration, TAS (Total Antioxidant Status), TOS (Total Oxidative Status), OSI (Oxidative Stress Index), AGE (Advanced Glycation Products), AOPP (Advanced Oxidation Protein Products) and MDA (Malondialdehyde). The correlations between oxidative stress parameters and bilirubin, ASPAT (Aspartate Aminotransferase), ALAT (Alanine Aminotransferase), GGTP (Gamma-glutamyl transpeptidase); length of alcohol dependence, duration of alcohol sequence, amount of ethanol consumed per day were also checked as well as length of nicotine addiction and the

daily amount of cigarettes smoked. The influence of the seven-day period of abstinence on the level of the examined parameters was also analyzed.

A male gender was subjected to the study because numerous scientific works in the field of toxicology confirm the importance of gender in the metabolism of alcohol. 100 men participated in the study. Men met the ICD-10 criteria for alcohol and / or nicotine addiction. The subjects did not have any other chronic or acute diseases. The study involved 19 men who were alcohol dependent people (ANS) with average age of 50 years and 25 men alcohol dependent smokers (AS) with an average age of 47 years. At the time of collecting the material for testing, men were between 1 and 3 days after the end of the alcoholic sequence. The duration of alcohol dependence was ± 22 years. The subjects consumed an average of ± 286 g ethanol per day. The duration of nicotine dependent was ± 28 years. Men smoked on average ± 21 cigarettes per day. 31 men without addictions (CNS) with an average age of 39 and 25 men addicted to nicotine also participated in the study . The average age was ± 37 years. People addicted to nicotine exhibited symptoms of addiction for ± 14 years and smoked ± 16 cigarettes per day.

Peripheral vein blood was collected from all study participants- about 2,7 ml from which serum was obtained. Samples were described and frozen at -80°C until laboratory testing. colorimetric methods were used in laboratory test.

As a result of the conducted research, the following conclusions were obtained:

1. Oxidative stress, tested in blood serum by TOS, is the result of chronic alcohol consumption mainly, not smoking.
2. Smoking alcohol dependent people have less active TAS than non-smoking.
3. Catalase (CAT) is an enzyme that actively participates in the antioxidant system of alcohol dependent smokers and non-smokers.
4. Superoxide dismutase (SOD) has less activity in people who drink alcohol and smoke cigarettes, suggesting its faster inactivation or "depletion of cellular resources" of the enzyme in those persons comparison to alcohol dependent non-smokers.
5. Oxidative stress causes significant damage / deregulation of protein, sugar and lipid components by reactive oxygen species.

6. The concentration of AGE only increases significantly in the case of synergistic effects of alcohol and cigarette smoking. The concentration of AOPP and MDA in alcohol drinkers and smokers is significantly increased, but AOPP is delayed, which may result from the protective action of sugar residues on proteins.

7. The one week period of abstinence from alcohol causes a decrease in the total oxidative status, which is evidence of a reduction in the oxidative stress level.