



MEDICAL EXPERTISE ON APPLICANTS FOR MILITARY SERVICE WITH DRUG ABUSE

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ABSTRACT

The Bulgarian Armed Forces require anyone who enters to be medically fit to serve worldwide. The standards apply to all military applicants and officer candidates undergoing initial medical examination. With drug use incompatible with military service, the expanded testing is meant to ensure readiness by admitting only the most qualified people. In our study analysis and discussion of toxicology screening results are presented. A total of 1164 candidates was examined – 686 and 478 for years 2016 and 2017, respectively. An express test for immunochemical analysis was used to quickly determine the most commonly used and controlled substances as well as their major metabolites.

It was shown that approximately 4.15% of all candidates give drug positive results (1.9% for female and 4.65% of male participants). Most frequent abuse includes cannabinoids, amphetamines and cocaine intoxications. Identification of more than one drug type occurred in 10 to 15% of positive samples. History of drug abuse is incompatible with military life and does not meet military standards in accordance with Bulgarian Medical Standards for Induction in the Military Services.

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INTRODUCTION

The Bulgarian Armed Forces require anyone who enters to be medically fit to serve worldwide. New entrants undergo intensive training, which is both physically and mentally demanding. The Armed Forces medical authorities have to be aware of the medical history of applicants and of any conditions that may affect their performance as a serviceman. Applicants who do not meet the required medical standards may be rejected. The medical screening process of the Department of Military Medical Expertise is designed to select those potential recruits who are healthy and have no medical conditions that prevent service in the Bulgarian army. Presenting to the medical selection process implies consent to a medical examination and investigation to confirm the medical status of candidates for military service.

Drug abuse is condition that preclude entry in the Army. As part of the medical certification, individuals are subjected to non-invasive screening-analysis with a poly screen drug test. In case of a positive result, a confirmatory test is performed by gas chromatography methods.

Toxicochemical screening is implemented as one of the first steps in the medical certification procedure for individuals

because it is easy and has an express character, the results are produced in series, within a few minutes. For candidates in which the sample is positive (i.e. a psychotropic or narcotic substance is found in the urine) and did not agree to conduct a toxicochemical confirmation by gas chromatography method, the medical certification procedure is completed. This saves time and money because they do not engage highly specialized medical staff and diagnostic equipment for the rest of the mandatory cabinet examinations and laboratory tests.

Purpose

The aim of this article is to conduct a detailed analysis of the frequency of abuse of psychotropic, drug and narcotic substances among civilian candidates for military service.

MATERIALS AND METHODS

The survey covers a total of 1164 civilians: 686 (576 men and 110 women) for 2016 and 478 (376 men and 102 women) for 2017. The ratio of men: women in the two analyzed years is relatively close - 5.2: 1 for 2016 and 3.7: 1 for 2017. All candidates for military service are between 19 and 28 years of age. Everyone has completed secondary education. An express test for immunochemical analysis (ALL TEST™, MedNet GmbH, Germany, manufacturer: Hangzhou All Test Biotech Co., Ltd., PR China) was used to quickly determine the most commonly used and controlled substances as well as their major metabolites (Table1).

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Table 1 Target groups of psychotropic, narcotic and narcotic substances and limits of detection.¹⁰

Type	Group	Calibrator	Cut-off, ng mL ⁻¹
AMP	Amphetamine	D-Amphetamine	1000
COC	Cocaine	Benzoylecgonine	300
THC	Marijuana	11-nor- Δ^9 -THC-9 COOH	50
BZO	Benzodiazepines	Oxazepam	300
TCA	Tricyclic Antidepressants	Nortriptyline	1000
BAR	Barbiturates	Secobarbital	300
MET	Methamphetamine	D-Methamphetamine	1000
MOP	Morphine	Morphine	300
MTD	Methadone	Methadone	300
MDM A	Methylenedioxymethamphetamine	D, L-Methylenedioxymethamphetamine	500

RESULTS

The frequency of abuses by years and sex is presented in Table 2.

Table 2 Distribution of results by years and sex

Year	Sex	RESULTS		
		Total	Positive	%
2016	Men	576	29	5.0
	Women	110	2	1.8
	TOTAL	686	31	4.5
2017	Men	376	16	4.3
	Women	102	2	2.0
	TOTAL	478	18	3.8

The frequency of abuses by type of illicit substance for 2016 and 2017 is presented in Table 3.

Table 3 Relative frequency of abuses by group of substances for 2016 and 2017

Substances	2016	2017
THC	61.80%	47.60%
AMP+	14.70%	4.80%
COC	2.90%	23.80%
OPI	11.80%	4.80%
BZD	5.90%	9.50%
TCA	-	9.50%
BAR	2.90%	-

DISCUSSION

History of drug abuse is incompatible with military life and does not meet military standards in accordance with Bulgarian Medical Standards for Induction in the Military Services. Examined samples for 2016 and 2017 are significant in numbers and affect civilian youths of both sexes in working age. From the summarized results presented in Table 2, it is clear that the incidence of drug abuse among male candidates is significantly higher and reaches 5%, while for women it does not exceed 2% over the period under study. The average rate of abuse, regardless of sex, is 4.5% for 2016 and 3.8% in 2017.

Of particular toxicological interest is the distribution of abuses in regard to controlled substances, i.e., which is the most common group from the following psychotropic, narcotic and drugs. In this respect, the leading role of cannabis (marijuana) is clearly noticed - the intoxications from this group account for about half of all cases of abuse for the whole study period (Table 3). Amphetamines and cocaine are the second most common. Considerably less common cases of abuse of benzodiazepines, opiates, antidepressants and barbiturates that they are indeed isolated cases.

The data received are consistent with the results of the 2015 and 2016 United Nations Office on Drugs and Crime (UNODC) Annual Report.^{11,12} According to these documents, the most common group of illicit drugs in Europe is cannabinoids (THC), which corresponds to the picture obtained in the sample survey. Also, these reports indicate that opiates (OPI) are second in frequency of use in Eastern and Southeast European countries, while the study shows the prevalence of amphetamine (AMP) and cocaine (COC) substances. In this respect, the sample of candidates is more similar to that of the Western European countries. The U.S. National Institute on Drug Abuse report that in 2015, 49% of 12th grade respondents reported using an illicit drug within their lifetime.^{2,8} A report from March 2017 of the U.S. Department of Defense says that about 279400 applicants are processed for entry into military service each year, with roughly 2400 of them testing positive for drugs.⁴ Common sense tells us that many applicants with a history of drug use will not report that history, and a waiver process exists for those applicants who do report their history.

Frequency of cross-border abuses

One of the worrying trends in modern society is the use of multiple drugs at the same time (cross-over, multivalent abuse). Such a trend has been noticed in epidemiological studies of other target groups.^{5,9} In our study polyvalent intoxications are observed in a relatively high proportion of all reported cases - 9.7% for 2016 and 16.7% in 2017. The most common components of these cross-abuses are cannabis, amphetamines and cocaine.

Our results show once again the importance of the toxicochemical screening and the reason for this study to be made at the very beginning of the medical expertise procedure. This is not allowed to enter the army of people willing to use psychotropic substances. Applicants need to be aware of the standard we hold our service members when they join the service. Only for the two-year study period, 49 unfit candidates were removed and, as a consequence, equally specialized research (such as clinical-laboratory diagnostics, ECG, ultrasound and X-ray examinations, specialist examinations) were saved at the Bulgarian Military Medical Academy.

CONCLUSION

An epidemiological study was conducted on the frequency and type of drug abuse in a specific group - candidates for military service. This study is of interest both in the general social plan and the needs of the Ministry of Defense. The results obtained show a significant share of drug use among applicants, which reaches 4% - a magnitude that can't be neglected in the course of medical expertise.

The appearance of a medical examination of candidates after recent drug use indicates that they are either unaware of the medical expertise procedure (ignorant attitude), consider the abuse to be of minor importance (irresponsible attitude) or incorrectly estimate how long it takes to clear the body from the accepted drug. Significant is the proportion of concurrent use of multiple drugs at the same time. These outcomes maintain the legitimacy of the military medical enterprise and ensure that the military services will continue to recruit the upstanding service members.

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