

The prevalence of arterial hypertension (AH) at the oil refining complex, even considering the selection of individuals for work with occupational hazards, is quite high and comparable to the prevalence of this disease in the general population. In this regard, studying the influence of adverse occupational and other significant factors on the development of AH among industrial enterprise workers is a pressing issue in modern medicine.

Aim — to identify significant risk factors for the development of AH among oil refining industry workers and to evaluate the effectiveness of preventive measures.

Materials and methods. A 10-year prospective study (2004/2005–2014/2015) was conducted involving 1,431 employees of JSC “Naftan”. Among 986 individuals with normal baseline blood pressure (BP), 664 worked under conditions of exposure to unfavorable occupational factors (UOF). Standard questionnaires, anthropometry, determination of the taste sensitivity threshold to table salt, electrocardiography, and biochemical blood analysis (lipid profile, glucose, creatinine) were used.

Results. According to the follow-up results, the incidence of AH was 31.5% among individuals without UOF and 40.1% among those exposed to UOF ($p < 0.05$). The most significant association was found with psychophysiological factors determined by labor intensity. A multifactorial predictive model was constructed ($\chi^2 = 227.3$; $df = 15$; $p < 0.001$) with a sensitivity of 80.2% and specificity of 86.5%. The model included: age, sex, presence of unfavorable occupational factors, sum of $SV_1 + RV_{5-6}$ amplitudes ≥ 24 mm, alcohol abuse, salt taste sensitivity threshold $\geq 0.25\%$, diastolic BP ≥ 80 mmHg, low physical activity, body mass index ≥ 25 kg/m², glucose > 6.4 mmol/L, triglycerides ≥ 2.0 mmol/L, total cholesterol ≥ 5.2 mmol/L, suboptimal glomerular filtration rate (< 88 or ≥ 100 mL/min), smoking, and high-density lipoprotein cholesterol ≤ 1.25 mmol/L. Preventive measures implemented at a health resort showed effectiveness primarily in the high- and moderate-risk groups among workers exposed to UOF.

Conclusion. Thus, a high incidence of AH was identified among oil refining industry workers, primarily under exposure to UOF. The developed multifactorial model allows for the identification of risk groups for targeted prevention. The implementation of preventive measures demonstrated high effectiveness in the high- and moderate-risk groups for AH development among workers exposed to UOF, as well as in the high-risk group for AH development among workers without hazardous working conditions.