



ISIC-2022 International Scientific Interdisciplinary Conference



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Biomedical Sciences

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Preventive Medicine



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RISK ASSESSMENT OF HEPATITIS B VIRUS INFECTION AMONG HEALTH CARE WORKERS

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Actuality. Recently in Ukraine the incidence of acute parenteral viral hepatitis is decreasing, but the total number of chronically infected patients is increasing annually. According to the report of the Center for Public Health, the proportion of acute and chronic hepatitis B (HBV) had a ratio of about 0.86:1.11. The leading epidemiological significance belongs to artificial ways of transmission of the pathogen, which are implemented, in particular, during medical manipulations accompanied by damage to the skin or mucous membranes. Therefore, the risk of hepatitis B virus (HBV) infection among healthcare workers whose professional activities are associated with constant contact with blood (transfusion of blood or its components, organ or tissue transplantation, hemodialysis, parenteral interventions, etc). According to WHO, one health worker dies every day from hepatitis B, its complications and consequences. In Ukraine, hepatitis B ranks second in the structure of occupational diseases of health workers (39.5%). Studies conducted in this area show that only vaccination against hepatitis B for all categories of health workers can significantly affect the incidence in this professional group.

Aim. To determine the frequency of hepatitis B virus markers among health care workers.

Materials and methods. The study was conducted at the Regional Clinical Hospital in Kharkiv in September 2022. As part of the dispensary surveillance, 64 healthcare workers were examined for the presence of hepatitis B markers (HBsAg, HBsAb and HBsOrAb) in the blood serum by enzyme-linked immunosorbent assay (ELISA) using Wondfo diagnostic test systems for hepatitis B markers (HBsAg, HBsAb, HBeAg, HBeAb, HBcAb). HBsAb titer of 10 IU/L and above was considered as seroprotective concentration. The vaccination history of all examined employees was studied by interviewing and studying documentation.



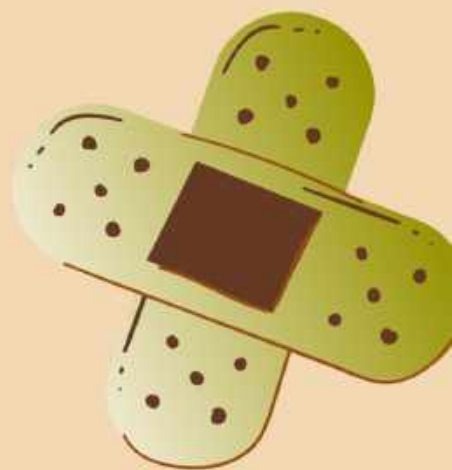
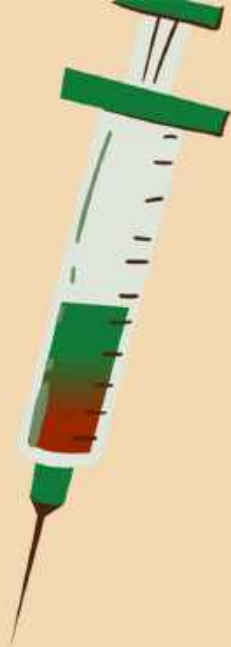
Results. According to the survey, 69% (n=44) of all subjects were vaccinated with three doses, 23% (n=15) with two doses, and 8% (n=5) with one dose. During the serological examination, it was found that in 75% of cases (n=48) HBsAb was detected in blood samples at a concentration of 10 mIU / ml or more, which corresponded to the data of the survey of the subjects about the completion of the full course of vaccination against hepatitis B. The intensity of post-vaccination immunity decreased with increasing period from the last vaccination. In the period from 2 months to 1 year, the proportion of seropositive individuals was 100%, after 2 years - 76.9%, after 3 years - 75%, and after 4 years - 64.7%. In 25% of cases the concentration of HBsAb was below 10 IU/ml. All subjects in this group were aged 50 years and older and were born before the inclusion of hepatitis B vaccination in the current vaccination schedule. Two health care workers from this group had HBsAg and HBcorAg, 10 (18.8%) had isolated HBcorAg, which in combination with biochemical and clinical data indicated the presence of chronic hepatitis B, in most cases latent. In 4 subjects there were no any markers of the disease, indicating the need for vaccination.

Conclusions.

1. The proportion of people with protective level of antibodies against HBV was 75%, which indicates the presence of a significant layer of susceptible individuals who are at risk of infection with HBV.
2. Four years after the end of the vaccination course, the protective titer of antibodies to HBV surface antigen (HBsAg) tended to decrease.
3. The incidence of HBV markers indicating current infectious disease in the examined workers was 18.8%, with a predominance of isolated HBsAg, which indicates a high risk of infection of health care workers in the performance of their professional duties and the implementation of pathways of transmission of the pathogen, which also dictates the need to improve compliance with infection control rules.



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