

IMMUNE RESPONSE TO INFLUENZA VACCINE IN HEMODIALYZED PATIENTS DEPENDING ON GENDER, AGE AND DURATION OF HEMODIALYSIS

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Influenza is a viral infection that can be life-threatening in patients with reduced immune resistance (for example, chronically ill patients), due to the heavier impact and increased risk of complications. The risk groups include patients with chronic renal failure being treated with chronic hemodialysis. Hence, vaccination against influenza is recommended in these patients, although the immunological response in this group of patients is often weaker than in healthy people. The aim of this study was to assess the impact of various factors, such as gender, age of the patients and the duration of the chronic hemodialysis on the degree of immunological response to vaccination against influenza in hemodialyzed patients. The study analyzed the antibody levels to neuraminidase and hemagglutinin antigens in a group of 71 hemodialyzed patients (48 men, 23 women); average age 65.4 ± 14.5 years; average duration of chronic hemodialysis 38.9 ± 31.7 months. The patients received a single dose of Agrippal influenza vaccine (Novartis), registered and authorized for marketing in Poland, which is a subunit-type vaccine. One dose of the vaccine contains 15 μ g of haemagglutinin from three different strains of influenza virus in a volume of 0.5 mL: A/Brisbane/59/2007/H1N1/, A/Brisbane/10/2007/H3N2/, B/Brisbane/60/2008. From each vaccinated patient, a sample of blood (10 mL) was collected into a clotting tube twice, before the vaccination and 1 month after the vaccination, in order to obtain sera for immunological studies. For the performance of the study, the authors gained approval of the Bioethics Committee of the Medical University in Wroclaw. The study analyzed the GMT (antibody geometric mean titers) parameter in the test group before and after vaccination against influenza. We found statistically higher GMT of antibodies before vaccination against the A/H3N2/ was found in patients under 40 and over 60 years of age (6.03 in a group patients up to 40 years of age; 1.96 in a group of patients at the age of 40-59; 5.95 in the group of patients over 60; $p = 0.008$). No statistically significant differences were found in the GMT in the studied groups 1 month after vaccination. No statistically significant differences were found in case of GMT of antibodies against A/H1N1/ and B. No statistically significant differences in the GMT of antibodies before and after vaccination were found between the group of women and men. Analyzing the impact of the duration of chronic hemodialysis, statistically higher GMT in terms of A/H1N1/ and A/H3N2/ antibodies was found in the group of patients hemodialyzed over a period of 1-10 years (A/H1N1/): the group of patients hemodialyzed up to 12 months: 1.0; 1-10 years: 2.17; above 10 years: 1.0 ($p = 0.019$); A/H3N2/: up to 12 months 2.04; 1-10 years: 5.44; more than 10 years: 1.0; $p = 0.019$). No statistically significant differences in GMT were found in these groups 1 month after the vaccination. In conclusion, no influence of age on the level of immune response was found. There was also no impact of gender on the immune response. There was no impact of the duration of chronic hemodialysis on the immune response. In 5.6% of vaccinated patients (4 persons), Adverse Event Following Immunization (AEFI) were registered (most often low-grade fever).