POST-VACCINATION IMMUNITY TO MEASLES IN CHILDREN WHO HAVE HAD COVID

Kenjayeva Dilorom Toshtemirovna
Termez branch of Tashkent medical academy

Rationale. Patients with juvenile idiopathic arthritis (JIA) may have low protective levels of antibodies to vaccine antigens due to the immunologic features of the disease, disrupted vaccination schedules, and use of immunosuppressive medications.

The purpose of the study was to study the state of post-vaccination immunity and determine the factors associated with the preservation of the protective level of antibodies in patients with JIA.

Methods. The cross-sectional study included patients with JIA aged 2 to 17 years who were vaccinated before the age of 2 years (before the development of JIA) against measles, rubella, mumps, hepatitis B and diphtheria. IgG levels to vaccine antigens were determined by enzyme immunoassay. The minimum protective level for measles IgG was considered to be 0.18 IU/ml, for antibodies to the rubella virus - 10 IU/ml, for mumps - positivity rate > 1.0, for hepatitis B - 10 mME/ml, for anti-diphtheria antibodies - 0.09 IU/ml.

Results. The study included 90 patients with JIA (71% girls) aged (median) 11.3 (7.5; 14.9) years. The age of onset of JIA was 6.0 (4.0; 8.0) years, the duration of the disease was 4.0 (2.0; 7.3) years. 24/88 (27%) patients received glucocorticosteroids in the past or at the time of inclusion in the study, methotrexate - 81/88 (92%), genetically engineered biological drugs - 54/89 (61%). A protective level of antibodies against the measles virus was detected in 45 (50%) children with JIA, against the rubella virus - in 88 (98%), mumps - in 68 (76%), hepatitis B - in 49 (54%), and diphtheria toxoid - in 45 (50%). The duration of JIA and therapy with glucocorticosteroids (against diphtheria), as well as an incomplete set of vaccinations (against measles), were associated with a decrease in the intensity of post-vaccination immunity.

Conclusion. A significant proportion of children with JIA are not protected from measles, mumps, hepatitis B or diphtheria. The high risk of developing vaccine-preventable infections in such children requires the development of individual vaccine prevention programs.

Children with JIA treated with systemic corticosteroids generally maintained minimal protective antibody titers after vaccination, but their geometric mean levels may have been lower compared to patients who did not receive such treatment. In general, there was no significant effect of glucocorticosteroids on the levels of post-vaccination antibodies against mumps, measles and rubella, tetanus and diphtheria, but it is important to consider the duration of this therapy and the cumulative doses of drugs. Children with JIA who received therapy with glucocorticosteroids and methotrexate and were vaccinated against hepatitis B had an adequate immune response.

Literature:

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