

Vaccination of Immunocompromised Children

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Summary of recommendations for vaccination of immunocompromised children

This article summarizes the recommendations for vaccination of immunocompromised children, as detailed in the 1997 Red Book: Report of the Committee on Infectious Diseases, 24th ed., by the American Academy of Pediatrics.

Children with Langerhans (LCH) are considered to have altered immune function, based upon the following: 1) hypergammaglobulinemia at diagnosis, 2) altered T- and B- lymphocyte responses to mitogens, and 3) elevated cytokine expression in the lesions of LCH. There have been no specific reports of adverse reactions to immunizations in children with LCH, either while on therapy or off.

The experience of this author and other experts suggests that for LCH patients who are off steroids or chemotherapy for three to six months, or who have received only radiation therapy for single lesions, all immunizations should be safe. For those LCH patients on steroids and chemotherapy, the recommendations of the Report of the Committee on Infectious Diseases should be followed.

Many patients with LCH are treated with steroids. What doses or forms of steroids are the most immunosuppressive?

Topical steroid applications that do not cause evidence of systemic immunosuppression (resulting in lymphopenia) should not be a contraindication for vaccine use.

When an LCH patient receives the usual prednisone dose of 40 mg/M2/d (>2 mg/kg/d) for a month or more, this is a "high dose," relative to considerations for immunization. Such patients should not be given live-virus vaccinations: oral polio (OPV) or measles-mumps-rubella (MMR) for at least a month after stopping the prednisone. Most LCH patients will also be receiving Velban or VP-16 in conjunction with prednisone or other chemotherapeutic agents. It is probably wise to wait at least three to six months after stopping these chemotherapeutic drugs before giving a live-virus vaccine.

There is no data in LCH patients to document whether they develop an adequate protection against various vaccines, but the recommendations are to give the following vaccinations to any immunocompromised child with no alteration in the immunization schedule for normal children: inactivated polio virus (IPV), diphtheria-tetanus-acellular-pertussis (DTaP), hepatitis B, Haemophilus influenzae B (HIB), and pneumococcal vaccines.

It would be prudent to check the adequacy of titers a month or two after vaccination to judge the need for re-immunization at a later date. Hepatitis A, MMR, OPV, rotavirus, and varicella zoster vaccine should not be given to immunocompromised children.

The influenza vaccine is recommended in the fall prior to the start of influenza season to all immunosuppressed children and their household contacts. It is preferable that patients have lymphocyte and granulocyte counts, greater than 1000/mm³.

Siblings of a child receiving high-dose prednisone should not receive the OPV, because the vaccine strain is transmissible to the immune-deficient contact. The live MMR and varicella vaccines are safe for siblings, since transmission of the vaccine strains does not occur, or in the case of varicella, results in a mild disease. If the sibling develops a rash from the varicella vaccine, that child should avoid contact with the immunocompromised sibling until the rash is gone. If contact occurs, it is not necessary to give the zoster-immune globulin to the susceptible child.