

Which vaccinations are indicated after splenectomy?

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EVIDENCE-BASED ANSWER

Immunization against encapsulated bacterial pathogens decreases the incidence of post-splenectomy sepsis. Pneumococcal, meningococcal, and *Haemophilus influenzae* (Hib) vaccinations are indicated for patients after splenectomy. These immunizations should be given at least 14

days before a scheduled splenectomy, or given after the fourteenth postoperative day (strength of recommendation [SOR]: **A**, based on systematic review of RCTs for the pneumococcal vaccine; SOR: **B**, based on systematic review of clinical trials for meningococcal and Hib vaccines).

CLINICAL COMMENTARY

Don't forget those on prednisone, immunosuppressants, or undergoing chemotherapy

This is an important and often overlooked component of preventive care—what to do with an asplenic patient? Individuals with functional asplenia from sickle-cell disease or other causes should also probably be included in this vaccination/revaccination schedule.

Another patient group that may require a more considered approach is those residing in long-term care facilities. Attention to immunizations may be even more important to a frail elder's health in an institutional setting: vaccinations historically

have been overlooked in this group, and certainly revaccination could be even more easily missed. I have occasionally discovered I was caring for an asplenic patient in the nursing home upon reviewing that patient's medical history with a close family member or caregiver.

Additionally, elders on chronic immunosuppressant therapy or prednisone for rheumatoid arthritis or other autoimmune disorders, and those on chemotherapy for malignancies should also be revaccinated with pneumococcal vaccine approximately every 5 years.

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Evidence summary

Asplenic individuals are known to be at an elevated risk for infection with encapsulated bacteria. The lifetime risk of post-splenectomy sepsis is estimated to be approximately 1% to 2%. The overwhelming majority of these cases are caused by *Streptococcus pneumoniae*, *Haemophilus influenzae*, and *Neisseria meningitidis*.¹⁻⁴

In 2 recent RCTs, the 23-valent pneumococcal polysaccharide vaccine was tested on patients 1, 7, 14, and 28 days after splenectomy.^{1,2} The studies demonstrated that the immunogenicity of the vaccine was best when given at or after day 14 after the operation. In both studies, patients immunized at day 14 had immunoglobulin G (IgG) antibody levels

FAST TRACK**Those vaccinated with Hib within 14 days (before or after) splenectomy had a significantly higher need for revaccination**

approaching those of control subjects with intact spleens. There were no differences in antibody levels among those patients immunized at day 14 compared with those immunized on day 28. However, those subjects immunized on days 1 and 7 had significant lower antibody levels than the control subjects or those immunized on day 14.

In another study, 130 asplenic individuals were compared with 48 age-matched controls after receiving a meningococcal vaccine.³ The majority (93%) achieved bactericidal immunoglobulin levels following immunization. This study demonstrated the need to have antibody titers drawn to ensure immunization response, as 20% of the subjects required a second dose of vaccine to achieve adequate levels. No clear evidence supports the timing of the meningococcal vaccine post-splenectomy.

Two recent studies look at the immunogenicity of the Hib for asplenic patients. The first study demonstrated increased antibody titers to Hib at 2, 6, 12, 24, and 36 months after immunization.⁴ Fifty of the 57 patients in the study (88%) maintained adequate antibody titers 3 years after immunization. No symptomatic infections were observed during the 3-year study period. In a study of 561 Danes, those vaccinated within 14 days of splenectomy (before or after) had a significantly higher need for revaccination than those who were vaccinated more than 14 days before or after surgery.⁵

Recommendations from others

The most common infections occurring among asplenic patients are due to encapsulated organisms. The incidence is 10 to 50 times higher than in the general population.

The Advisory Committee on Immunization Practices for the Centers for Disease Control and Prevention (CDC) and the Society of Surgery for the Alimentary Tract recommends all patients that undergo splenectomy have the pneumococcal polysaccharide vaccine.⁶⁻⁷ In addition, this organization also recom-

mends that all asplenic patients receive meningococcal vaccination and be considered for the Hib vaccine. Both groups recommend that these vaccinations occur at the same time as the pneumococcal vaccine.⁶⁻⁸

The CDC also recommends annual influenza vaccine in addition to the pneumococcal, meningococcal, and Hib vaccines, because secondary bacterial infections can lead to severe disease in this patient population. Boosters are recommended for all the bacterial vaccines every 5 years for asplenic patients.

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