ACIP recommends four-dose rabies vaccine series for most persons

Joseph A. Bocchini, Jr.

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New recommendations for the use of rabies vaccine for postexposure prophylaxis have been approved by the Advisory Committee on Immunization Practices (ACIP) of the Centers for Disease Control and Prevention (CDC). These recommendations, posted on July 10, 2009 (www.cdc.gov/vaccines/recs/provisional/downloads/rabies-July2009-508.pdf), are considered provisional until approved by the CDC and published in the CDC’s Morbidity and Mortality Weekly Report.

A four-dose regimen of rabies vaccine begun as soon as possible after possible rabies exposure is now recommended for previously unvaccinated persons who are not immunosuppressed; immunosuppressed patients continue to warrant five doses of vaccine. Recommendations for use of rabies immune globulin (RIG) remain unchanged. Rabies vaccine should be given intramuscularly on days 0, 3, 7, and 14.

ACIP’s decision was based in part on an extensive review of published and unpublished studies of rabies virus pathogenesis, experimental animal studies, human clinical trials and epidemiologic surveillance data, which was initiated due to the tenuous supplies of human rabies vaccine since 2007. In clinical trials of rabies vaccination, all healthy individuals developed detectable rabies virus neutralizing antibodies by day 14. No significant differences in maximum neutralizing antibody levels were documented between a four- vs. five-dose rabies vaccine schedule.

The World Health Organization has utilized a four-dose rabies vaccine regimen for a number of years. In the United States, there have been no treatment failures during the 30 years since modern cell culture vaccines and RIG have been used, and the ACIP found no reports of failures attributable to an absence of the fifth and last vaccine dose on day 28. Models from laboratory rodents and nonhuman primates demonstrate that the absolute number of doses of a potent vaccine is not critical if timely intervention occurs after experimental infection and includes the combined use of immune globulin.

The ACIP concluded that the evidence suggests that no rabies case would result from reducing the postexposure vaccination schedule from five doses to four doses.

Because persons with immunosuppression may not respond adequately to the rabies vaccine, these individuals should continue to receive a fifth dose of vaccine on day 28. Vaccine recipients who are immunosuppressed also should be tested for the presence of rabies virus-neutralizing antibodies using the rapid fluorescent focus inhibition test to document an adequate response.

Exposure to rabies results from a break in the skin caused by the bite of a rabid animal or by contamination of scratches, abrasions or mucous membranes with saliva or other potentially infectious material from a rabid animal. The decision to immunize a potentially exposed person should be made in consultation with the local health department. The immediate objective of postexposure prophylaxis is to prevent virus from entering neural tissue. Prompt and thorough local treatment of all potentially contaminated lesions is essential. All wounds should be flushed thoroughly and cleaned with soap and water. RIG should be given along with the first dose of vaccine. As much of the dose of RIG as possible should be used to infiltrate the wound(s), if present. Any remaining amount is given intramuscularly.

Additional information about rabies and postexposure prophylaxis can be found in 2009 Red Book, pages 552-559 and in the May 23, 2008, issue of MMWR (http://www.cdc.gov/mmwr/PDF/rr/rr5703.pdf).

Dr. Bocchini chairs the AAP Committee on Infectious Diseases.
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