

## III-22 RABIES IMMUNIZATION

- I. Relevant Occupational Medical Service (OMS) Procedure Manual Sections
  - A. Immunizations, General Guidelines. Chapter III Section 7
  - B. Wound Care Guidelines. Chapter III Section 32
  - C. Animal Exposure Program. Chapter IV Section 1
- II. General: Rabies Vaccine Rabavert is used in OMS.
- III. Eligibility and Indications
  - A. Immunization is offered to employees who:
    - 1. Work with wild type rabies virus (RV), attenuated RV strains or RV-based vectors with recognized potential to cause rabies disease.
    - 2. Conduct field research with animals potentially infected with rabies.
    - 3. Have direct contact with quarantined animals potentially infected with rabies.
    - 4. Have exposure to potentially infected animal body organs or perform post mortem examinations on animals with a history of poorly defined neurological disorders.
    - 5. Have responsibility for capturing or destroying wild animals on campus.
    - 6. Frequently travel to, or have extended stays in, areas of the world where rabies immunization is recommended.
    - 7. Inspect rabies vaccine manufacturing facilities.
    - 8. Sustain a work-related exposure to rabies by the parenteral or mucosal route.
- IV. Contraindications/Precautions for Vaccination
  - A. Anaphylactic reaction to a previous dose or vaccine constituent (specifically chicken protein, neomycin, chlortetracycline, Amphotericin B or beta propiolactone altered human albumin).
  - B. A febrile illness.
  - C. Immunosuppression (including related to high-dose chronic corticosteroid use).
  - D. Pregnancy is not a contraindication for post-exposure prophylaxis. Pre-exposure prophylaxis is done prior to pregnancy, if possible.
  - E. Antimalarials should not be initiated until after completion of the pre-exposure immunization series.
- V. Administration
  - A. Pre-exposure immunization consists of three doses:
    - 1. Initial dose,
    - 2. Second dose (7 days following initial dose), and
    - 3. Third dose (21 or 28 days following initial dose).
    - 4. A titer is drawn 4 weeks after the third dose is administered.

### III-26. RABIES IMMUNIZATION

- B. A booster dose is administered when the antibody titer falls below protective levels. A value of 0.5 IU/ml or 1:5 by rapid fluorescent-focus inhibition testing (RFFIT) is considered protective. Routine serologic testing of RV neutralizing antibody titers is driven by the worker's estimated risk of exposure and the RV strain(s) or RV vector(s) he or she is working with.
  - 1. For "continuous" exposure serologic testing is performed every six months. At NIH, this designation is applied to employees performing high-risk work where aerosolization is possible. High risk work would include performing any of the following activities with infectious rabies strains:
    - a. Culturing the virus or similar work involving close contact
    - b. Concentrating the virus or working with concentrated viral preparations
    - c. Any other work that could potentially lead to aerosolization of the virus
  - 2. For "frequent" exposure testing is performed every two years, starting one year following completion of the primary immunization series. At NIH, this designation is applied to all other employees working with infectious rabies strains (i.e. excluding those categorized as "continuous" per V.B.1, above).
  - 3. Serologic testing for lower risk categories will be considered on a case by case basis.
- C. Dose of administration: 1.0ml intramuscular injection deltoid region.

#### VI. Post-Exposure Treatment

- A. Wound care is provided as described in the OMS Wound Care Guidelines (Chapter III, Section 36).
- B. If the individual was not previously immunized:
  - 1. Human Rabies immune globulin (HRIG) 20 I.U./kg body weight. The full dose is infiltrated at the site, if anatomically feasible; if not, one half of the dose is infiltrated at the bite site the remainder of the dose given IM in the deltoid area.
  - 2. RabAvert 1.0 ml IM is administered in the deltoid area at a site different from where the HRIG is given. The dose is repeated on days 3, 7, and 14.
- C. If the individual was previously immunized:
  - 1. HRIG is not administered.
  - 2. RabAvert 1.0 ml IM is administered in the deltoid area. The dose is repeated on day 3.

#### VII. Vaccine Side Effects

- A. Redness, pain, swelling and/or itching at the injection site.
- B. Mild systemic reactions such as headache, nausea, abdominal pain, muscle aches and dizziness.
- C. "Immune complex-like reactions" are more likely with booster doses than with primary immunization. Onset is 2 to 21 days post booster (~6%) and presents with generalized urticaria and may include arthralgia, arthritis, angioedema, nausea,

### III-26. RABIES IMMUNIZATION

vomiting, fever and malaise.

- D. There have been rare reports of a neurologic illness resembling Guillain-Barre syndrome and a focal subacute central nervous system disorder.
- E. There are uncommon reports of systemic allergic or anaphylactic reactions.
- F. The employee is advised to notify OMS if any serious side effects occur.

#### VIII. Documentation

- A. The nurse documents the administration of the vaccine in the employee's electronic medical record in CAM and in the progress notes as outlined in Immunization General Guidelines, Chapter III Section 7 and in the OMS computer Labs and Procedures module.
- B. Significant adverse effects (as listed in the package insert) are reported using the Vaccine Adverse Event Reporting System (VAERS) form or the FDA Med Watch form.

#### IX. References

- A. Centers for Disease Control and Prevention (CDC). (2008). Human rabies prevention—United States, 2008: Recommendations of the Advisory Commission on Immunization Practices (ACIP). *Morbidity and Mortality Weekly Report*, 57(RR-3).
- B. Centers for Disease Control and Prevention (CDC). (2010). Use of a reduced (4-dose) vaccine schedule for postexposure prophylaxis to prevent human rabies: Recommendations of the Advisory Commission on Immunization Practices (ACIP). *Morbidity and Mortality Weekly Report*, 59(RR-2) .
- C. Rabies Vaccine RabAvert Rabies I.D. Package Insert- Novartis Vaccines and Diagnostics GmbH & Co KG Marburg, Germany; distributed by-Novartis Vaccines, 2012.
- D. Centers for Disease Control and Prevention (CDC). *CDC Health Information for International Travel 2014: The Yellow Book (2013), Chapter 3, Rabies:* <http://wwwnc.cdc.gov/travel/yellowbook/2014/chapter-3-infectious-diseases-related-to-travel/rabies> (accessed 02/07/2014)