EPIDEMIOLOGY SECTION

CONNECTICUT EPIDEMIOLOGIST

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RACCOON RABIES IN CONNECTICUT

Two cases of raccoon rabies have been reported from the town of Ridgefield on the New York State border. The raccoon rabies epidemic is expected to spread rapidly across Connecticut over the next 6 months. For the foreseeable future, raccoon rabies will be a continuing problem that will draw on the resources of both the state and local health departments. Clinicians will increasingly face difficult decisions regarding postexposure prophylaxis.

Since the late 1970's, an explosive epidemic of rabies, especially affecting raccoons, has spread up the Atlantic Coast from focal points in Florida and Virginia. The epidemic reached New York in the summer of 1990. The rabies virus strain causing this is new to the Northeast and appears to be especially well adapted for spread among wildlife. Maryland and Pennsylvania went from no wildlife rabies to hundreds of cases within 1 to 2 years of the epidemic's onset, indicating the explosive nature of the problem.

Rabies has occurred among unvaccinated dogs and cats in states that have been affected by the raccoon rabies epidemic. In particular, a dramatic increase has been seen in the number of rabid cats as a result of exposure to infected raccoons. The occurrence of rabies in domestic animals is a very serious threat to human health. Rabid cats and dogs are the most likely sources of human exposure to rabies. Vaccinating domestic animals, both cats and dogs, against rabies places a barrier between the epidemic of rabies in wild animals and the human population. The best practical strategy to protect people is to ensure that cats and dogs are well vaccinated against rabies.

In 1984, a bill was passed mandating vaccination of dogs against rabies. This bill was introduced and passed in anticipation of the eventual arrival of raccoon rabies in Connecticut. In April 1991, a bill was passed mandating rabies vaccination of cats. The bill also requires that cat owners to keep vaccination certificates as proof of vaccination.

Until the recent isolation of raccoon rabies, bats had been the only species found rabid in Connecticut in the last twelve years. Three rabid bats were identified in 1990. The last terrestrial animal isolate of rabies occurred in 1978 and involved two foxes (Hartford County - 1) (New London County - 1). The last human case occurred in 1932, and the last rabid cat and dog in the state were reported in 1941 and 1949 respectively.

Additional information or technical assistance can be obtained by calling:

1. Your local health department,

2. Department of Health Services' Epidemiology Program at 566-5058 for questions concerning the management of human exposures. Emergency consultation after hours and on weekends can be obtained by

calling the Department's emergency telephone number (566-4800),

3. Department of Environmental Protection's Wildlife Division at 566-4683 or 566-2841 for questions concerning wild animals. Emergency consultation after hours and on weekends can be arranged by calling the DEP Communications at 566-3333, or

4. Department of Agriculture's Canine Control Division at 566-5924 or the State Veterinarian at 566-4616 for questions concerning domestic animals.

LABORATORY TESTING FOR RABIES

Animal rabies is diagnosed by examination of brain material from submitted animal heads. Animals suspected of being rabid (especially bats, raccoons, skunks, foxes, and unvaccinated cats and dogs) should be submitted to the State Virology Laboratory for rabies testing. Rodents (mice, rats, hamsters, squirrels, chipmunks) and rabbits have not been shown to carry rabies in Connecticut and are accepted for testing only when human exposure has occurred.

The direct fluorescent antibody and mouse inoculation tests for rabies are very reliable in diagnosing or ruling out rabies, and are performed without charge at the State Laboratory. This is the only laboratory in Connecticut that tests for rabies. Test results are available within 48 hours of submission and in most cases post exposure prophylaxis should be delayed until the results are known.

The necessity for testing should first be determined by the patient's physician or the physician on-call in the emergency room of the local hospital or medical facility. If additional information is needed, members of the Epidemiology Program staff (566-5058) are available for consultation. Emergency consultation after hours and on weekends can be arranged by calling the Department of Health Services' emergency telephone number (566-4800).

Testing of human sera for rabies immune status is no longer routinely done at the Centers for Disease Control. A list of laboratories performing this test can be obtained by calling the State Virology Laboratory (566-4776).

Instructions for Submitting the Animal:

1. The animal must be dead with its brain intact. If the animal is killed with a bullet, care should be taken NOT to shoot the animal in the head thereby destroying the brain.

2. The body of a small animal, such as a bat, or the head of a larger animal should be wrapped in a double plastic bag, sealed securely and refrigerated until delivery to the Laboratory on wet ice. Specimens should not be frozen.

3. All pertinent information (i.e. physician or veterinarian's name, address, and telephone number; name, address and telephone number of those exposed; animal information; and a brief description of the incident) should be attached to the outside of the container. Submission forms are available at the State Laboratory and veterinarians' offices.

4. Specimens must be hand delivered to the State Laboratory at 10 Clinton Street in Hartford and not mailed. The Virology Laboratory is open from 8:00 a.m. to 4:00 p.m. Monday through Friday and 8:30 a.m. to 12 noon Saturday. A guard is on duty weekdays and in the evening. For after hours delivery, there is a silver, refrigerated "rabies" box in the parking area under the east wing of the Laboratory.

5. Positive results are phoned to the veterinarian or physician involved and to an epidemiologist in the Epidemiology Program, State Department of Health Services.

NEW ACIP RECOMMENDATIONS

The revised recommendations of the Immunization Practices Advisory Committee (ACIP) on rabies prevention were recently published in the MMWR. Copies can be purchased from MMS Publications, CSPO Box 9120, Waltham, MA 02254. Telephone 1-800-843-6356.

Citation

Centers for Disease Control. Rabies Prevention - United States, 1991: recommendations of the Immunization Practices Advisory Committee (ACIP). MMWR 1991; No. RR-3) 1-19.

RABIES IMMUNIZING PRODUCTS

Clinicians frequently call the Epidemiology Program for information on the availability of rabies immunizing products. According to the ACIP, there are two types of rabies immunizing products for humans.

1. Rabies vaccines induce an active immune response that includes the production of neutralizing antibodies. This antibody response requires approximately 7-10 days to develop and usually persists for $\geq$ 2 years.

2. Rabies immune globulins (RIG) provide rapid, passive immune protection that persists for only a short time (half-life of approximately 21 days).

In almost all postexposure prophylaxis regimens, both products should be used concurrently.

Vaccines Licensed for Use in the United States

Two inactivated rabies vaccines are currently licensed for preexposure and postexposure prophylaxis in the United States.

Rabies Vaccine, Human Diploid Cell (HDCV)

HDCV is prepared from the Pitman-Moore strain of rabies virus grown in MRC-5 human diploid cell culture and concentrated by ultrafiltration. The vaccine is inactivated with betapropiolactone and is supplied in forms for:

1. Intramuscular (IM) administration, a single-dose vial containing lyophilized vaccine (Pasteur-Merieux Serum et Vaccins, Imovax* Rabies, distributed by Connaught Laboratories, Inc., Phone: 800-VACCINE) that is reconstituted in the vial with the accompanying diluent to a final volume of 1.0 ml just before administration.

2. Intradermal (ID) administration, a single-dose syringe containing lyophilized vaccine (Pasteur-Merieux Serum et Vaccins, Imovax* Rabies I.D., distributed by Connaught Laboratories, Inc.) that is reconstituted in the syringe to a volume of 0.1 ml just before administration.

Rabies Immunizing Products, United States, 1991

Human Rabies Vaccine		
Rabies Vaccine, Human Diploid Cell (HDCV)		
	Intramuscular	Imovax* Rabies
	Intradermal	Imovax* Rabies I.D.
Rabies Vaccine Adsorbed (RVA)		
Rabies Immune Globulin (RIG)		
Rabies Immune Globulin, Human (HRIG):		Hyperab*
		Imogam* Rabies

*registered trademark

A human diploid cell-derived rabies vaccine developed in the United States (Wyeth Laboratories, Wyvac* was recalled by the manufacturer from the market in 1985 and is no longer available.

Rabies Vaccine, Adsorbed (RVA)

RVA (Michigan Department of Public Health) was licensed on March 19, 1988; it was developed and is currently distributed by the Biologics Products Program, Michigan Department of Public Health. The vaccine is prepared from the Kissling strain of Challenge Virus Standard (CVS) rabies virus adapted to fetal rhesus lung diploid cell culture. The vaccine virus is inactivated with betapropiolactone and concentrated by adsorption to aluminum phosphate.

Because RVA is adsorbed to aluminum phosphate, it is liquid rather than lyophilized. RVA is currently available only from the Biologics Products Program, Michigan Department of Public Health. Phone: (517) 335-8050.

Both types of rabies vaccines are considered equally efficacious and safe when used as indicated. The full 1.0-ml dose of either product can be used for both preexposure and postexposure prophylaxis. Only the Imovax* Rabies I.D. vaccine (HDCV) has been evaluated by the ID dose/route for preexposure vaccination; the antibody response and side effects after ID administration of RVA have not been studies. Therefore, RVA should not be used intradermally.

Rabies Immune Globulins Licensed for Use in the United States

HRIG (Cutter Biological (a division of Miles Inc.), Hyperrab*; and Pasteur-Merieux Serum at Vaccins, Imogam* Rabies, distributed by Connaught Laboratories, Inc.) is an antirabies gamma globulin concentrated by cold ethanol fractionation from plasma of hyperimmunized human donors. Rabies neutralizing antibody content, standardized to contain 150 international units (IU) per ml, is supplied in 2-ml (300 IU) and 10-ml (1,500 IU) vials for pediatric and adult use, respectively.

*registered trademark

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