Louisiana

DEPARTMENT OF HEALTH
AND HUMAN RESOURCES
OFFICE OF HEALTH SERVICES
AND ENVIRONMENTAL QUALITY

MONTHLY MORBIDITY REPORT

Provisional Statistics

REPORTED MORBIDITY
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from the

OFFICE OF PUBLIC HEALTH STATISTICS

Recommendations of the Public Health Service
Advisory Committee on Immunization Practices

Rabies

INTRODUCTION

Although rabies rarely affects humans in the United States, every year thousands of persons receive rabies prophylaxis. Managing those who have possibly been exposed to rabies infection is of paramount importance. The following is an interpretation of both the risk of infection and the efficacy of treatment. It incorporates many current concepts of the World Health Organization Expert Committee on Rabies.

The problem of how to treat persons bitten, scratched, or otherwise exposed to rabies by animals suspected of being infective is a perplexing one for physicians. All available methods of systemic treatment are complicated by instances of adverse reactions, a few of which have resulted in death or permanent disability. Furthermore, decisions on management must be made immediately, because the longer treatment is postponed, the less likely it is to be effective.

Data on the efficacy of active and passive immunization after rabies exposure have come principally from studies with animals. Because rabies has occasionally developed in humans who had received antirabies postexposure prophylaxis, the efficacy of vaccine has been questioned. Evidence from laboratory and field experience in many areas of the world, however, indicates that postexposure prophylaxis is usually effective when appropriately used.

Rabies in the United States

Rabies in humans has decreased from an average of 22 cases per year in 1946-1950 to only 1-3 cases per year since 1960. The number of cases of rabies in domestic animals has decreased similarly. In 1946, for example, there were more than 8,000 cases of rabies in dogs, compared with 129 in 1975. Thus, the likelihood of human's being exposed to rabies by domestic animals has decreased greatly, although bites by dogs and cats continue to be the reason for giving the majority of antirabies treatments.

The disease in wildlife — especially skunks, foxes, raccoons, and bats — has become increasingly prominent in recent years, accounting for more than 70% of all reported cases of animal rabies every year since 1968. Wild animals constitute the most important source of infection for humans and domestic animals in the United States today. In 1975 only Idaho, Vermont, Hawaii, and the District of Columbia reported no wildlife rabies.

Nerve tissue origin rabies vaccine of the Semple type (NTV) — no longer available in the United States — was used almost exclusively until 1957, when duck embryo origin vaccine (DEV) was licensed. Treatment failure rates for the 2 vaccines were not significantly different, and the lower incidence of central nervous system reactions with DEV made it preferable to NTV.

Effectiveness of Antirabies Treatment in Humans

Comparative effectiveness of treatment can be judged in the United States only by reported failures. During the years 1957-1971, when both vaccines and antirabies serum were available, 6 of the 125,000 NTV-treated persons died of rabies (1/20,800), and 12 of the 310,000 treated with DEV (1/25,800) died. An estimated 105,000 persons were treated with DEV in 1972-1975; only 1 rabies death was reported. Fatalities have been reported in several cases in which the course of treatment was not started immediately or was not completed.

RABIES IMMUNIZING PRODUCTS

Duck Embryo Vaccine (DEV)

DEV is a killed vaccine prepared from embryonated duck eggs infected with a fixed virus and inactivated with beta-propiolactone. It is supplied as 1-ml, single-dose vials of lyophilized vaccine with diluent ampoule.

Rabies Immune Globulin, Human (RIG)

RIG is antirabies gamma globulin concentrated by cold ethanol fractionation from plasma of hyperimmunized human donors. Neutralizing antibody content is standardized to contain 150 International Units (IU) per milliliter. It is supplied in 2-ml (300 IU) and 10-ml (1,500 IU) vials for pediatric or adult use.

SOURCE: *Morbidity and Mortality Weekly Report*, Vol. 25, No. 51, Center for Disease Control, D.H.E.W., December 31, 1976; pp. 403 - 406

Antirabies Serum, Equine (ARS)

Antirabies serum is a refined, concentrated serum obtained from hyperimmunized horses. Neutralizing antibody content is standardized to contain 1,000 IU per vial. Volume is adjusted by manufacturer on the basis of antibody potency in each lot. Currently a 1,000-IU vial contains approximately 5 ml.

Reactions

Local reactions to postexposure treatment with DEV are very common. Most patients experience pain, erythema, and induration at the injection site. Approximately 13% have itching at the site. Systemic symptoms (fever, malaise, myalgia) occur in 33%, usually after 5-8 doses. Anaphylaxis develops in less than 1% of persons receiving DEV and may occur after the first dose, particularly in persons previously sensitized with vaccines containing avian tissue. Neuroparalytic reactions occur rarely with DEV. Between 1958 and 1975, 5 cases of transverse myelitis, 7 cases of cranial or peripheral neuropathy, and 9 cases of encephalopathy (2 fatal) were reported among an estimated 595,000 recipients of DEV. Neuroparalytic reactions were estimated to occur at the rate of 1 case for every 2,000 of the now discontinued NTV.

Local pain and slight febrile response may follow receipt of RIG. Although not reported for RIG, angioneurotic edema, nephrotic syndrome, and anaphylaxis have been reported but rarely after routine injection of immune serum globulin (ISG). These reactions occur so rarely that the causal relationship between ISG and these reactions is not clear.

ARS produces serum sickness in at least 40% of adult recipients; reaction rates for children are lower. Anaphylactic reactions may occur. When ARS is indicated, the patient should be tested for sensitivity to equine serum. (In rare instances the sensitivity test has induced anaphylactic reaction.)

Because adverse reactions are associated more frequently with ARS than with RIG, and ARS might sensitize recipients to equine protein, RIG is the product of choice. ARS should be used only when RIG cannot be obtained within 24 hours.

RATIONALE OF TREATMENT

Every possible exposure to rabies infection must be individually evaluated.

In the United States the following factors should be considered before specific antirabies treatment is initiated:

Species of Biting Animal

Carnivorous animals (especially skunks, foxes, coyotes, raccoons, dogs, and cats) and bats are more likely than other animals to be infected with rabies. Bites of rabbits, squirrels, hamsters, guinea pigs, gerbils, chipmunks, rats, mice, and other rodents have never resulted in human rabies in the United States and almost never call for antirabies prophylaxis.

Circumstances of Biting Incident

An UNPROVOKED attack is more likely to mean tha the animal is rabid. (Bites inflicted on a person attemptin to feed or handle an apparently healthy animal should ger erally be regarded as PROVOKED.)

Type of Exposure

Rabies is commonly transmitted by inoculation with i fectious saliva. The likelihood that rabies infection will r sult from exposure to a rabid animal varies with the natu and extent of the exposure. Two categories of exposur should be considered:

Bite: Any penetration of the skin by teeth.

Nonbite: Scratches, abrasions, open wounds, or mucou membranes contaminated with saliva.

Vaccination Status of Biting Animal

A properly immunized animal has only a minimal chanc of contracting rabies and transmitting the virus.

Presence of Rabies in Region

If adequate laboratory and field records indicate tha there is no rabies infection in a domestic species within given region, local and state health officials are justified i considering this in making recommendations on antirabie treatment for bites by particular species. Such officia should be consulted for current interpretations.

MANAGEMENT OF BITING ANIMALS

A healthy domestic dog or cat that bites a person shoul be confined and observed by a veterinarian for 10 days Any illness in the animal should be reported immediately t the local health department. If signs suggestive of rabie develop, the animal should be humanely killed and its hea removed and shipped under refrigeration to a qualified lab oratory designated by the local or state health departmen for examination. Stray or unwanted dogs or cats should b killed immediately and their heads submitted for rabie examination by flourescent microscopy.

Signs of rabies in wild animals cannot be interpreted reli ably; therefore, any wild animal that bites or scratches a person should be killed at once (without unnecessary dam age to the head) and the brain examined for evidence o rabies.

If the brain is negative by flourescent antibody examina tion for rabies, one can assume that the saliva contains no virus, and the bitten person need not be treated.

LOCAL TREATMENT OF WOUNDS

Immediate and thorough local treatment of all bite wounds and scratches is perhaps the most effective rabie preventive. Experimentally the incidence of rabies in animals can be markedly reduced with local therapy alone

First-Aid Treatment to be Carried Out Immediately

The wound should be thoroughly cleansed immediately with soap and water.

Treatment by or under Direction of Physician

1. The wound should be thoroughly cleansed immediately with soap solution.

2. Tetanus prophylaxis and measures to control bacterial infection should be given as indicated.

POSTEXPOSURE PROPHYLAXIS

THE FOLLOWING RECOMMENDATIONS ARE INTENDED AS ONLY A GUIDE. THEY MAY BE MODIFIED ACCORDING TO KNOWLEDGE OF THE SPECIES OF BITING ANIMAL, CIRCUMSTANCES SURROUNDING THE EXPOSURE INCIDENT, VACCINATION STATUS OF THE ANIMAL, AND PRESENCE OF RABIES IN THE REGION.

A combination of passive and active immunization (vaccine and immune globulin) is considered the best postexposure prophylaxis and is recommended both for treatment of ALL BITES by animals suspected of having rabies and for nonbite exposures inflicted by animals suspected of being rabid. Passive immunization should be used in conjunction with active immunization regardless of the interval between exposure and treatment.

TABLE 1. Postexposure antirabies treatment guide.

[The following recommendations are only a guide. They should be applied in conjunction with knowledge of the animal species involved, circumstances of the bite or other exposure, vaccination status of the animal, and presence of rabies in the region.]

	SPECIES OF ANIMAL	CONDITION OF ANIMAL AT TIME OF ATTACK	TREATMENT OF EXPOSED HUMAN
WILD	Skunk Fox Coyote Raccoon Bat	Regard as Rabid	RIG + DEV[1]
DOMESTIC	Dog	Healthy	None[2]
		Unknown (escaped)	RIG + DEV
	Cat	Rabid or Suspected Rabid	RIG + DEV[1]
	Other	Consider individually — See "Rationale of Treatment"	

1. Discontinue vaccine if fluorescent antibody (FA) tests of animal killed at time of attack are negative
2. Begin RIG + DEV at first sign of rabies in biting dog or cat during holding period (10 days)

Immunization

RIG and DEV: Passive antibody, RIG (ARS only if RIG is not available), is administered only once, at the beginning of antirabies therapy. The recommended dose of RIG is 20 IU/kg or approximately 9 IU/lb body weight. (When ARS must be used, the recommended dose is 40 IU/kg, approximately 18 IU/lb or 1 vial of 1,000 IU/55 lb body weight.) Up to half the dose of RIG (or ARS) should be thoroughly infiltrated around the wound and the rest administered intramuscularly in the buttocks.

Twenty-three 1-ml doses of DEV should be given, beginning the day passive antibody is administered. Vaccine may be given as 21 daily doses or 14 doses in the first 7 days (2 injections each day) and then 7 daily doses. This should be followed by the 2 "booster" doses, the first booster 10 days after the 21st dose and the second booster 10 days later. Vaccine should be injected subcutaneously in the abdomen, lower back, or lateral aspect of the thigh; rotation of sites is recommended.

All persons who receive vaccine and RIG (or ARS) should have serum collected for rabies antibody testing at the time of the second booster. Testing for rabies antibody can be arranged by state health department laboratories. If no antibody is detected, additional boosters should be given.

Precautions

Since RIG (or ARS) partially suppresses active production of antibody, no more than the recommended dose of RIG (or ARS) should be given, and the 2 "booster" doses of vaccine must be given.

Local reactions to vaccine (DEV) are common and do not contraindicate continuing treatment.

When rabies vaccine must be given to a person with a history of hypersensitivity, especially to avian tissues, antihistamine drugs may be given. Epinephrine is indicated to counteract anaphylactoid reactions. If serious allergic manifestations preclude continuing prophylaxis with DEV, state health departments can advise physicians about possible use of experimental vaccines.

If neurologic reactions develop, vaccine treatment should be discontinued. Corticosteroids may interfere with development of active immunity and should be used only to treat life-threatening neuroparalytic reactions when the possibility of clinical rabies has been ruled out. The Center for Disease Control, Bureau of Epidemiology, Viral Diseases Division, should be contacted for additional information on the differential diagnosis of rabies.

PREEXPOSURE PROPHYLAXIS

The relatively low frequency of severe reactions to DEV has made it practical to offer preexposure immunization to persons in high-risk groups: veterinarians, animal handlers, certain laboratory workers, and persons — especially children — living in places where rabies is a constant threat. Others whose vocational or avocational pursuits bring them into contact with potentially rabid dogs, cats, foxes, skunks, or bats should also be considered for preexposure prophylaxis.

Two 1-ml injections of DEV given subcutaneously in the deltoid area 1 month apart should be followed by a dose 6-7 months after the second dose. This series of 3 injections can be expected to produce neutralizing antibody in 80%-90% of vaccinees.

For more rapid immunization, 3 injections of DEV, 1-ml each, should be given at weekly intervals with the fourth dose 3 months later. This schedule elicits an antibody response in about 80% of the vaccinees.

All who receive the preexposure vaccination should *have serum collected for rabies antibody testing 3-4 weeks after the last injection.* Testing for rabies antibody can be arranged by state health department laboratories. If no antibody is detected, booster doses should be given until a response is demonstrated. Persons with continuing exposure should receive boosters every 2 years.

When an immunized person with previously demonstrated rabies antibody is bitten by a rabid animal, he or she should receive 5 daily doses of vaccine plus a booster dose 20 days after the fifth dose. Passive immunization should not be given in this case; it might inhibit a rapid anamnestic response. For non-bite exposures, an immunized person with antibody needs only one 1-ml dose of vaccine. If the immune status of a previously vaccinated person is not known, postexposure antirabies treatment may be necessary. In such cases, if antibody can be demonstrated in a serum sample collected before vaccine is given, treatment can be adjusted accordingly.

MANAGEMENT OF PERSONS WHO FAIL TO DEVELO ANTIBODY FOLLOWING VACCINATION

Some individuals receiving postexposure or preexposur prophylaxis fail to develop demonstrable antibody afte completion of the recommended regimens. Additiona booster doses of DEV may produce the desired seroconver sion. The patient's serum should be tested for antibody 2- weeks after each booster dose of DEV. If 2 additiona booster doses of vaccine do not result in demonstrable anti body, authorities at the state health department or CD should be consulted to determine if alternative procedure such as the use of experimental vaccines, may be indicated.

ACCIDENTAL INOCULATION WITH LIVE RABIE VIRUS VACCINE

Persons exposed to Flury or the SAD (formerly ERA vaccine should not be considered at risk, and antirabies pro phylaxis is not indicated. There is no reliable informatio on which to judge the risk associated with accidenta human exposure to new animal vaccines incorporating thes strains in other substrates or to animal vaccines incorpo ating other rabies virus strains, and they should be regarde as potentially virulent for purposes of managing the trea ment of exposed humans.

SELECTED REPORTABLE DISEASES

(By Place of Residence)

STATE AND PARISH TOTALS Reported Morbidity November, 1977	ASEPTIC MENINGITIS	DIPHTHERIA	ENCEPHALITIS	ENCEPHALITIS, POST INFECTIOUS	HEPATITIS A AND UNSPECIFIED	HEPATITIS B	TUBERCULOSIS, PULMONARY	MENINGOCOCCAL INFECTIONS	PERTUSSIS	RABIES IN ANIMALS	RUBELLA*	SEVERE UNDERNUTRITION	SHIGELLOSIS	TYPHOID FEVER	OTHER SALMONELLOSIS	TETANUS	MEASLES	GONORRHEA	SYPHILIS, PRIMARY AND SECONDARY
TOTAL TO DATE 1976	64	0	29	4	474	152	471	40	14	8	93	8	82	3	110	2	281	17440	544
TOTAL TO DATE 1977	23	0	14	0	574	145	499	136	10	22	27	5	144	1	146	3	80	18055	621
TOTAL THIS MONTH	3	0	1	0	37	13	31	7	2	0	0	1	25	0	19	1	5	2142	26
ACADIA					1		1											15	
ALLEN																		4	
ASCENSION					3	1	1											10	
ASSUMPTION						1												10	
AVOYELLES							1		1						1			4	
BEAUREGARD																		3	
BIENVILLE													1					3	
BOSSIER					1								3					10	
CADDO					4	1	2						9		6			183	
CALCASIEU					1	3	2								1			67	
CALDWELL																		1	
CAMERON																		1	
CATAHOULA																		7	
CLAIBORNE					1													5	
CONCORDIA																		3	
DESOTO																		9	
EAST BATON ROUGE					3	1	2	1					3				5	155	3
EAST CARROLL																		1	
EAST FELICIANA																		1	
EVANGELINE			1												1			1	
FRANKLIN																		1	
GRANT																		1	
IBERIA						1		1										11	
IBERVILLE																		17	
JACKSON																		2	
JEFFERSON	1				5	1		2					2		1			77	3
JEFFERSON DAVIS						1												3	
LAFAYETTE					1			1								1		32	2
LAFOURCHE					1													10	
LASALLE																		2	
LINCOLN							1											30	
LIVINGSTON							2											7	
MADISON					1										1			7	
MOREHOUSE									1									17	
NATCHITOCHES							1											5	
ORLEANS					9	1	11	2					6		3			989	9
OUACHITA					1		1								2			80	
PLAQUEMINES																		6	
POINTE COUPEE																		4	
RAPIDES					1										2			144	5
RED RIVER																			
RICHLAND																		16	
SABINE																		7	
ST. BERNARD					1													4	1
ST. CHARLES																		4	
ST. HELENA																		6	
ST. JAMES																		1	
ST. JOHN													1					4	
ST. LANDRY						1												2	
ST. MARTIN																			
ST. MARY					1		1											3	
ST. TAMMANY																		24	
TANGIPAHOA					1							1						39	
TENSAS																		2	
TERREBONNE	2						2											5	2
UNION																		6	1
VERMILION							1											2	
VERNON																		10	
WASHINGTON						1	1											21	
WEBSTER							1								1			16	
WEST BATON ROUGE																		2	
WEST CARROLL																		1	
WEST FELICIANA					1													22	
WINN																		5	
OUT OF STATE																		2	

* Includes Rubella, Congenital Syndrome

From January 1 through November 30, the following cases were also reported: 1-Brucellosis; 4-Leptospirosis; 2-Malaria (contracted outside the U.S.A.); 7-Rocky Mountain Spotted Fever.