Personnel

Item 2 - Occupational Health Policy for Individuals with Animal Contact

Subsection 2.6 - Occupational Risks of Working with Nonhuman Primates

Bites and Scratches

Background: Bites and scratches are the most common occupational health risks associated with nonhuman primate work. Regardless of how much human contact has occurred previously, these are wild animals and can be quite unpredictable. Except for some small, new-world species, nonhuman primates should only be handled under sedation or with an approved restraint system (pole and collar, etc.).

Prevention: Most serious bites and scratches occur when people become too relaxed around animals that they work with on a daily basis. Good handling techniques and constant vigilance are crucial when working with awake nonhuman primates. Even sedated animals should be handled with caution since they may appear more sedate than they really are and startle easily with handling.

Treatment: Depends on the nature of the injury. All bites and scratches need to be washed thoroughly due to the occurrence of B-virus (see below). Always fill out an accident report.

Infectious Agents

B-Virus (Cercopithecine herpesvirus 1):

This is a severe, life-threatening disease in humans caused by a virus that can infect all of the major species of macaques used in research. In the monkeys, the virus is mild and causes “cold-sore” like lesions that can often be difficult to detect. Once an animal is infected, they will intermittently shed the organism in bodily fluids for the rest of their lives.

Prevention: Exposure in people is usually through saliva contamination of bites and scratches, although other types of exposure (needle sticks, ocular splashes) have been reported. Careful procedures to minimize risk of bites or scratches are most important. Wearing protective clothing (shoe covers, gloves, head caps, face shield, gowns or lab coats with long sleeves) is imperative when working with nonhuman primates. Leather gloves should be worn when handling awake animals for any reason.

Treatment: Signs are usually that of a severe flu with or without a vesicle at the site of exposure. Eventually develop progressive neurological signs like pain, numbness and mental changes. Ascending paralysis leads to death from respiratory failure. After a suspected exposure, the wound should be cleaned thoroughly, preferably with a surgical scrub solution for at least 15 minutes. Serum from the person and the animal is sent for B-virus antibody testing and follow-up samples are taken 2-3 weeks later. Cultures of the oral cavity and conjunctiva from the monkey are submitted for viral culture as soon as possible after exposure. Any potential exposure needs to be documented on an incident report. Most physicians are not aware of this risk since it is extremely rare, so you need to inform them that you work with primates and that there may be a risk of this disease exposure. Treatment with antiviral drugs is at the discretion of the physician and usually depends upon the risk of the exposure.

Tuberculosis:

This disease is caused by a bacterium in the genus *Mycobacterium*. Wild-caught primates usually contract the disease from humans during the capture and transport process, but with tuberculosis on the rise in the U.S., exposure after introduction into research colonies is a distinct possibility.

Prevention: Nonhuman primates should have a screening test at least every 6 months. Positive animals are euthanized immediately. Personnel who work with nonhuman primates should have a screening test on an annual basis. Protective clothing (shoe covers, gloves, head caps, face shield, gowns or lab coats) will decrease exposure. Vaccination of nonhuman primates and/or exposed personnel with BCG vaccine is possible, but not routinely performed since it results in positive skin tests and does not prevent infection but only suppresses severity. This would make detection of infection very difficult.

Treatment: Disease usually results in flu-like symptoms with severe chest involvement (productive cough and/or chest pain). A physician should be consulted if there is reason to suspect tuberculosis and the doctor should be informed that you work with nonhuman primates.

Hepatitis A:

Many cases of hepatitis A virus have been associated with working with nonhuman primates. Although most have been chimpanzees, it has also been associated with cynomolgus monkeys and patas monkeys. The disease has also been reported in rhesus monkeys, but transmission to humans has not been documented.

Prevention: Good personal hygiene and wearing protective clothing (shoe covers, gloves, head caps, face shield, gowns or lab coats) will help prevent transmission. A vaccine is available, but not routinely administered due to the low risk from most laboratory populations of nonhuman primates.

Treatment: Treatment is symptomatic and signs are usually flu-like. In older people the disease can be more severe with prolonged recovery and significant complications due to liver damage.

Gastrointestinal Flora:

Primate feces can transmit a number of organisms that can infect humans and cause severe, even life-threatening diarrhea. Shigellosis, Giardiasis, and Cryptosporidiosis organisms can all be found in "normal" nonhuman primate feces. Transmission of these organisms to humans is by ingestion.

Prevention: Good personal hygiene and wearing protective (shoe covers, gloves, head caps, face shield, gowns or lab coats) will help prevent transmission. Frequent hand washing is probably most important since most transmission occurs secondarily (touching something contaminated and then touching the mouth).

Treatment: Treatment is dependent on the severity of the diarrhea and/or other signs. If treatment from a physician is necessary, the doctor should be informed that you work with nonhuman primates on a regular basis so that these particular organisms will be considered higher in the diagnosis.

Additional Information

Books:

Occupational Health and Safety in the Care and Use of Research Animals, Institute for Laboratory Animal Resources, National Research Council. National Academy Press, 1997.

Nonhuman Primates in Biomedical Research: Biology and Management, Bennett, Abee and Hendrickson eds. Academic Press, 1995.

The Rhesus Monkey, Vol. II, Bourne ed. Academic Press, 1975.

Videos:

The Humane Care and Use of Nonhuman Primates, Laboratory Animal Training Association. 1990.

Primates, Protection and Personnel, The University of Texas-Houston Health Science Center. 1997.

Internet:

http://clueless.ucdavis.edu/ - This is the laboratory animal occupational health information provided by the University of California – Davis; compiled by Dr. Phil Tillman.

If you have any questions or would like additional information, please contact Dr. Robert Quinn, Director of the Department of Laboratory Animal Resources at 4-6563.

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