

Mouse Rotavirus (Epizootic Diarrhea of Infant Mice; EDIM)

Classification

RNA virus, nonenveloped

Family

Reoviridae, Group A rotaviruses

Affected species

Laboratory and wild mice

Frequency

Common among both laboratory and wild mice.

Transmission

Rotavirus is shed in large amounts in feces, and fecal oral transmission is the normal route of transmission. Spread throughout an animal room is through fecally-contaminated bedding, dust, or other materials. Vertical transmission has not been noted.

Clinical Signs and Lesions

Although all ages of mice are susceptible to infection, only mice younger than 14 days show clinical signs. However, in an enzootically infected colony, maternal antibody provides protection from disease. Animals infected with EDIM often present with a oily, yellow diarrhea and distended abdomen. There is little mortality. Histopathologically, vacuolation of enterocytes and blunting of villi may be seen in animals less than 14 days of age, although the diagnostic specificity of these changes is moot.

Diagnosis

Diagnosis is usually accomplished through serologic examination. MFIA™/ELISA or IFA work well. In actively

infected animals, rotavirus antigen can be detected in feces.

Interference with Research

EDIM infection can interfere with experiments that use young mice. Infected Bcell deficient mice can persistently shed EDIM. Infection modifies intestinal absorption and concentrations of the intestinal enzymes.

Prevention and Treatment

Wild mice should be excluded from the animal house. Wild-caught mouse colonies should be isolated from laboratory mice and rederived as soon as possible. Regular testing of colonies for antibodies to EDIM should be part of routine health monitoring. Rederivation through hysterectomy or embryo transfer is the gold standard of disease eradication. The persistence and stability of rotaviruses in the environment should be a primary consideration. Aggressive chemical decontamination with the help of detergents and oxidizing agents is advised, as well as autoclaving or cold sterilization of materials in direct contact with animals.

References

Baker DG. *Natural Pathogens of Laboratory Animals: Their effects on research*. Washington, D.C.: ASM Press; 2003. 385 pp.

Fox JG, Anderson LC, Lowe FM, and Quimby FW, editors. *Laboratory Animal Medicine*. 2nd ed. San Diego: Academic Press; 2002. 1325 pp.

Percy DH, Barthold SW. *Pathology of Laboratory Rodents and Rabbits*. Ames: Iowa State University Press; 2007. 325 pp.