ROTAVIRUS/EPIDEMIC DIARRHOEA OF INFANT MICE (EDIM)

CLASSIFICATION

Family: Reoviridae
Genus: Rotavirus

- Non-enveloped, RNA virus
- Linear, double-stranded
- 16-27kbp genome
- 60-80nm in diameter
- Replicates in cytoplasm

PREVALENCE

Shown to be high in wild mice populations in South Eastern Australia.

DIAGNOSIS

ELISA, IFA, RT-PCR (neonates, immunocompromised mice)

DISEASE/CLINICAL SIGNS

Generally only seen in neonates up to two weeks old:

- Watery, mustard-coloured diarrhoea
- Lethargy
- Distended abdomen
- Transient lesions

STRAINS

Rotaviruses share a group antigen, VP6, which is highly conserved throughout all Group A Rotaviruses. All murine rotaviruses that have been isolated and characterised to date belong to Group A. 6 other groups isolated, Groups B-G rotaviruses, have not been isolated from mice. At least 7 strains of murine rotavirus exist.

TRANSMISSION

Rotavirus is extremely contagious due to high viral load shed in faeces, and is transmitted via:

- Oral-faecal route

- Contaminated airborne dust
- Contaminated bedding
- Food, water

INTERFERENCE WITH RESEARCH

Effects include but are not limited to:

- Alteration of intestinal absorption
- Affecting studies involving infant mice
- Alteration of intestinal architecture

DURABILITY

Resistant to:

- Low pH (although virulence will decrease on prolonged exposure)
- 5% chloroform, 20% ether and 0.1% sodium deoxycholate at 4^{o}C for 60 minutes
- Non-ionic detergents
- Proteolytic enzymes

Susceptible to:

- Phenols
- Chlorine
- Ethanol
- Calcium-chelating agents (EDTA)
- 70^{o}C for 30 minutes

CONTROL

Maintain regular health monitoring of supplier sub-populations and strict protocols for barrier colonies. Exclude wild mice from facility. Use of filter-top cages and fastidious cleaning of equipment between cages can reduce the spread of Rotavirus.

POST INFECTION

Caesarean derivation can be used to repopulate colonies. Isolation of mice and instigating a long period of 'burnout' can be effective with immunocompetent mice, but recommended periods vary from 3 to 12 weeks. Burnout is not possible with immunocompromised mice as they may shed the virus indefinitely.

BIBLIOGRAPHY

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