

Identification of possible peripheral routes for borna disease virus 1 (BoDV-1) infection

Monday, 9 October 2023 18:30 (15 minutes)

BoDV-1 can cause severe encephalitis in humans but the transmission routes remain elusive. In a previous study, we demonstrated that BoDV-1 infection caused severe encephalitis in rhesus macaques following intracerebral inoculation. Furthermore, one third of BoDV-1 animals inoculated by a combination of peripheral routes had to be euthanized.

In a follow-up study we aimed to better define the peripheral route leading to disease manifestation.

Twelve adult rhesus macaques (*Macaca mulatta*) were inoculated with BoDV-1. Six animals were inoculated by the intranasal (i.n.) route and the other six were inoculated by the subcutaneous (s.c.) route; reflecting two possible entry sites. All animals were monitored for signs of disease and viral shedding. After four months all surviving animals were euthanized. Tissue material, cerebrospinal fluid and blood were analyzed for histopathology and viral load determination.

All six intranasally and three of six subcutaneously infected monkeys developed severe neurological signs. The i.n. inoculated animals developed symptoms after 4-6 weeks post-inoculation and disease duration was up to three weeks. The s.c. inoculated animals had a later onset of disease (10-12 weeks post-inoculation) and disease duration was up to two weeks.

Inoculation of rhesus macaques with BoDV-1 by both infection routes resulted in encephalitis. Although the disease is highly rare in humans, it is likely that humans may become infected through the same routes.

Keywords

borna, encephalitis, animal model

Registration-ID code

ZOO23-529

Professional Status of the Speaker

Senior Scientist

Junior Scientist Status

No, I am not a Junior Scientist.

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Session Classification: Session 3: Pathogenesis & Pathology of Zoonotic Infections

Track Classification: Pathogenesis & Pathology of Zoonotic Infections