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THE EFFECTS OF PEDIATRIC SIV ON THE BLOOD BRAIN BARRIER

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The Effects of Pediatric SIV on The Blood Brain Barrier

Synopsis:

Pediatric HIV infection remains a global health crisis with an estimated 1,500 children under the age of 15 years becoming infected with HIV-1 each day in the developing world. Children are much more susceptible to HIV-1 neurological impairments than adults, possibly due to a viral/blood brain barrier interaction. Using the *Macaca mulatta* as a model we test the hypothesis that perinatal HIV infection down regulates the pericyte population leading to a compromised blood brain barrier.

THE EFFECTS OF PEDIATRIC SIV ON THE BLOOD BRAIN BARRIER

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Pediatric HIV infection remains a global health crisis with an estimated 1,500 children under the age of 15 years becoming infected with HIV-1 each day in the developing world. Children are much more susceptible to HIV-1 neurological impairments than adults, possibly due to a viral/blood brain barrier interaction. Neuron-gial antigen 2 (NG2), is responsible for protein kinase binding, cell proliferation as well as the basement membrane of the blood brain barrier. We have previously shown that pediatric simian immunodeficiency virus (SIV) infection results in significant demyelination, loss of hippocampal and immature neurons. Here we test the hypothesis that perinatal HIV infection down regulates the pericyte population leading to a compromised blood brain barrier. Newborn rhesus macaques (*Macaca mulatta*) were inoculation with SIVmac251 (n=4) or vehicle (control n=4) within 72 hours of birth. After a 6-18 week survival time, the animals were sacrificed and the brains prepared for quantitative histopathological analysis. Matched sections for control and SIV+ subjects were immunostained with mouse anti-NG2 with an Alexa fluorophore 555 secondary antibody. Sections were then counterstained with Tomato Lectin to identify blood vessels. The NG2 antibody is currently being optimized for primate tissue. Data from these experiments will identify the role that the blood brain barrier plays in the pathogenesis of pediatric HIV infection.

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