University of Kansas Medical Center – Customer ID: 1460
Column E Explanation

The justification for the animals listed in column E of the annual report is listed below.

1. Registration Number: 48-R-0003

2. Number of animals used in this study: 20

3. Species (common name) of animals used in this study: non-human primates

4. Explain the procedure producing pain and/or distress.

   The potentially painful or distressful procedures involved in this study include disease progression, morphine withdrawal and desensitization to morphine.

5. Provide scientific justification why pain and/or distress could not be relieved. State methods or means used to determine that pain and/or distress relief would interfere with test results. (For Federally mandated testing, see Item 6 below)

As stated in the IACUC-approved protocol, morphine has a profound effect on the immune system by its ability to prevent development of cell-mediated immunity (CMI) responses against intracellular pathogens. This effect has important implications for the pathogenesis of Human Immunodeficiency Virus (HIV) infection, especially NeuroAIDS. First, morphine modifies the receptor used by the virus to infect macrophages, and this potentially causes enhancement of infection in these cells. Because macrophages are the main cells in the brain that support replication of the virus, the effect of morphine would be to enhance the infection in the brain. Second, morphine-mediated suppression of production of IFNgamma would abolish anti-HIV CMI responses, the major component of the immune system, responsible for controlling replication of the virus. Loss of CMI would therefore predict continuous and more robust replication of the virus in the brain. Third, cessation of morphine intake results in recovery of previously abolished CMI responses. Such an occurrence in the HIV-infected individual would result in reconstitution of the antiviral CMI response in brains that have large amounts of viral antigen, and this could precipitate severe encephalitis. The researcher uses the morphine-Simian Immunodeficiency Virus (SIV) model to explore these concepts.

All non-human primates in this protocol are infected with simian immunodeficiency virus (SIV). Additionally, a subgroup receives injections of morphine 3 times/day to produce well maintained morphine dependence, and another control subgroup receives saline injections. Use of analgesic and/or anxiolytic drugs as supplements to morphine, or in the subgroup of non-human primates not receiving morphine, would compromise the results. These analgesic and anxiolytic drugs are known to interact with the immune system (e.g. Mitrova & Mayer, 1976; Ferrarese et al., 1993; Ghosh & Chattopadhyay, 1993; Burdo et al., 2006; Cho 2007). Because the saline subgroup of monkeys serves as a
control for the morphine group, treating the saline subgroup with analgesic/anxiolytic drugs would compromise the interpretation of data.

References


6. What, if any federal regulations require this procedure? Cite the agency, the code of Federal Regulations (CRF) title number and the specific section number (e.g., APHIS, 9 CFR 113.102):

Agency:__________________ CFR:__________________

N/A