INSTITUTIONAL ANIMAL CARE & USE COMMITTEE
UNIVERSITY OF MICHIGAN

University of Michigan Policy
On the Use of Neuromuscular Blocking Agents in Animals

According to the PHS Policy and the *Guide for the Care and Use of Laboratory Animals*, procedures that may cause animals more than momentary or slight pain or distress should be performed with appropriate sedation, analgesia, and/or anesthesia. Surgical or other painful procedures should not be performed on unanesthetized animals paralyzed by chemical agents Neuromuscular blocking agents (NMBAs) (e.g., Pancurium) are also referred to as paralytics and do not provide relief from pain; therefore NMBAs must only be used when paralysis of skeletal muscles is essential to the proposed research. The Principal Investigator should consider the use of a pilot study to determine the scientific necessity for the use of NMBAs and any alternatives. It should be noted that muscle relaxants (e.g., Diazepam, Xylazine) are not NMBAs.

The IACUC has determined that the use of neuromuscular blocking agents must be scientifically justified, requires prior IACUC approval, and must include the following conditions:

(1) The animal must be fully anesthetized and an appropriate plane of anesthesia must be established prior to administration of the NMBA. Paralyzed animals cannot physically respond to surgical pain and may experience distress if not fully anesthetized.

(2) The use of pre-operative analgesics must be considered, even in non-survival procedures, to ensure appropriate levels of analgesia are maintained throughout the anesthetic period.

(3) The animal must be monitored throughout the procedure for evidence of pain or distress using appropriate physiological parameters (e.g., heart rate, respiration, blood pressure, pupil dilation, body temperature). Additionally, adequate ventilation must be provided.

(4) NMBAs must be used for the shortest time possible.

(5) The Principal Investigator must ensure that all personnel engaged in monitoring animals have adequate training and understand the implications of NMBA use. This could include written standard operating procedures and/or ULAM veterinary consultation.

References

- U.S. Government Principles for the Utilization and Care of Vertebrate Animal Used in Testing, Research and Training. Principle V. As cited in the Public Health Service Policy on Humane Care and Use of Laboratory Animals.
- Guide for the Care and Use of Laboratory Animals. 2011. p123.
- Guidelines for the Care and Use of Mammals in Neuroscience and Behavioral Research. 2003

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