

Paralysis: Monitoring Animals that have Received Neuromuscular Blocking Agents

The *Guide for the Care and Use of Laboratory Animals* does not provide specific recommendations for monitoring surgical patients which have received neuromuscular blocking agents (NMB). They do however; state that NMB eliminate many signs of anesthetic depth, due to paralysis. The *Guide* also states that “autonomic nervous system changes (e.g. sudden changes in heart rate and blood pressure) can be indicators of pain related to an inadequate depth of anesthesia.”¹

Animals anesthetized and paralyzed by NMB must be monitored by assessing heart rate and blood pressure to detect changes that might indicate additional anesthesia is required. Depth of anesthesia should be monitored before paralysis, continuously during and after the paralytic period. Parameters such as heart rate and blood pressure should be recorded every 15 minutes. Closer monitoring should be conducted around times of noxious stimuli. Monitoring data must be available for review by the Institutional Animal Care and Use Committee (IACUC). In general, elevation in any vital parameter of 10%-20% indicates the need for supplemental anesthesia. Guidelines for the administration of supplemental anesthesia based on blood pressure and heart rate changes must be developed and approved by the IACUC. Supplemental anesthesia must be administered until the baseline parameters are attained.

Monitoring data should also document the dose, time and route that all anesthetics, paralytics, and analgesics are administered. These records should be kept on file and readily available to regulatory and accrediting agencies such as the IACUC, USDA, and AAALAC.

The Division of Laboratory Animal Medicine (DLAM) recently purchased equipment made by Panlab, model LE 5001 Pressure Meter. This model measures heart rate, systolic blood pressure, diastolic blood pressure and mean pressure. Investigators that use NMB in rats and mice may contact the DLAM veterinary services to request the use of this instrument. Please contact Anissa Anderson, manager of veterinary services at 966-4576 or 966-2906 or via email at anissa_anderson@med.unc.edu .

¹*Guide for the Care and Use of Laboratory Animals*. National Academy Press, 1996, p. 65.