

Anesthetic and pathological changes following high doses of ketamine and xylazine in Sprague Dawley rats

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Abstract :

The main objective of this study was to compare the effects of ketamine and xylazine in aging rats when coadministered intraperitoneally at high anesthetic doses. Three groups (n=6 rats/ group) consisting of rats at 3, 6 and 12 months of age were used. During anesthesia, animals were monitored for heart rate, respiratory frequency, blood oxygen saturation, and rectal temperature. The corneal and paw withdrawal reflex were also examined during anesthesia. During anesthesia, withdrawal and corneal reflexes were absent for progressively longer durations with increasing age. Significant decreases in cardiac and respiratory frequency and, blood oxygen saturation occurred for the 6- and 12-month-old animals. Respiratory frequency and blood oxygen saturation returned to normal at the end of the anesthesia; however, the significant decrease in cardiac frequency persisted in the 6- and 12-month-old animals. Rectal temperature was decreased significantly only in the 3-month-old animals. Pulmonary edema and effusion occurred in 50% of the 12-month-old animals. In conclusion, if ketamine-xylazine are used for anesthesia, the doses should be optimized for the age of the subjects prior to initiation of the research project.

Key Word :

: aging, anesthesia, ketamine, rats, xylazine

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