

## Sedative and Analgesic Effects of Intravenous Xylazine–Tramadol in Horses

Jong-pil Seo, Won-gyun Son, Sujin Gang and Inhyung Lee\*

*Department of Veterinary Surgery/Anesthesiology, College of Veterinary Medicine,  
Seoul National University, Seoul, Korea*

**Purpose:** To examine the sedative and analgesic effects of an intravenous administration of xylazine and tramadol in horses.

**Materials and Methods:** Six Thoroughbred saddle horses were used in a three-way crossover study design. Each horse underwent three treatments: intravenous xylazine 1.0 mg/kg (X); intravenous tramadol 2.0 mg/kg (T); and intravenous xylazine 1.0 mg/kg and tramadol 2.0 mg/kg combination (XT). The order of treatments was randomized with at least a 7-day washout. Heart rate, respiratory rate, rectal temperature, indirect arterial blood pressure, capillary refill time, sedation, and analgesia (with pinprick and electrical stimulation) were measured at before and 5, 10, 15, 20, 25, 30, 40, 50, 60, 75, 90, 105, and 120 minutes after administration.

**Results:** Heart rate and respiratory rate decreased in the X and XT treatments, and increased in the T treatment. Rectal temperature increased in the T and XT treatments. Indirect arterial blood pressure increased in the X and XT treatments at 5 minutes, and returned to basal values at 10 minutes. It increased in the T treatment around 10 minutes, and did not return to basal values during measurement. There were no significant changes in capillary refill time. Although the onset of sedation and analgesia were approximately 5 minutes after X and XT treatments, the XT treatment showed slower onset and longer duration of complete sedation and analgesia than those of the X treatment. The T treatment induced a light sedation and analgesia around 20 minutes. Two horses in XT treatment showed excitement within 5 minutes after administration.

**Conclusions:** Although intravenous administration of tramadol alone did not induce significant sedation and analgesia in horse, it enhanced the sedative and analgesic effects of xylazine. The results suggest that XT combination is useful for sedation and analgesia in horses. But it is recommended to use XT combination with careful monitoring, because tramadol have the possibility of excitement after administration, especially at early phase.

**Key words:** xylazine, tramadol, sedation, analgesia, horse

\*Corresponding author: inhyunglee@snu.ac.kr