

# Tramadol Improved the Efficacy of Ketamine-Xylazine Anaesthesia in Young Pigs

---

[Ajadi AR](#), [Olusa TA](#), [Smith OF](#), [Ajibola ES](#), [Adeleye OE](#), [Adenubi OT](#), [Makinde FA](#).

Department of Veterinary Medicine and Surgery, University of Agriculture, Abeokuta, Ogun State, Nigeria.  
ade\_vsr@hotmail.com

---

## Abstract

**OBJECTIVE:** To evaluate the influence of premedication with tramadol on xylazine-ketamine anaesthesia in young pigs.

**STUDY DESIGN:** Prospective, randomized, blinded cross-over study.

**ANIMALS:** Ten young Niger hybrid pigs: mean weight 6.1 +/- 0.6 kg.

**METHODS:** Pigs were anaesthetized twice. Xylazine (2.5 mg kg<sup>-1</sup>), ketamine (25 mg kg<sup>-1</sup>) and atropine (0.04 mg kg<sup>-1</sup>) were administered by intramuscular (IM) injection, 5 minutes after either tramadol (5 mg kg<sup>-1</sup>) (treatment XKT) or saline (treatment XKS). Time to loss of righting reflex (TLRR), duration of antinociception, duration of recumbency (DR) and recovery times (RCT) were recorded. Quality of induction of anaesthesia including ease of endotracheal intubation was assessed using a subjective ordinal rating score of 1 (worst) to 4 (best). Heart, pulse and respiratory rates, arterial oxygen saturations and rectal temperatures were determined over 60 minutes. Antinociception was assessed by the pigs' response to artery forceps applied at the interdigital space. Data were compared with Student's t-test, Mann-Whitney's test or analysis of variance (anova) for repeated measures as appropriate and are presented as mean +/- standard deviation.

**RESULTS:** The quality of anaesthetic induction was significantly better and duration of antinociception significantly longer ( $p < 0.05$ ) in treatment XKT (3.1 +/- 0.7 score; 43.7 +/- 15.5 minutes) than in treatment XKS (2.8 +/- 0.6 score; 32.0 +/- 13.3 minutes). TLRR, DR and RCT did not differ significantly ( $p > 0.05$ ) between treatment XKT (2.1 +/- 0.8, 65.8 +/- 17.0 and 13.2 +/- 6.7 minutes) and treatment XKS (2.1 +/- 1.3, 58.0 +/- 14.8 and 10.3 +/- 5.6 minutes). Physiological measurements did not differ between the treatments.

**CONCLUSION AND CLINICAL RELEVANCE:** Tramadol improved the quality of anaesthetic induction and increased the duration of antinociception in xylazine-ketamine anaesthetized young pigs without increasing duration of anaesthesia, nor causing additional depression of the physiological parameters measured.

---

**Keywords:** anaesthesia, ketamine, pig, swine, tamdol, xylazine