

## **ABSTRAK**

### **PENGARUH PROTOKOL ANESTESI KOMBINASI ATROPIN DAN KETAMIN–XYLAZIN TERHADAP SUHU TUBUH DAN FREKUENSI DENYUT JANTUNG KUCING KASTRASI**

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Anestesi umum merupakan komponen penting dalam prosedur bedah veteriner, termasuk kastrasi pada kucing. Kombinasi atropin–ketamin–xylazin banyak digunakan dalam praktik veteriner karena menghasilkan induksi yang cepat, relaksasi otot yang adekuat, serta pemulihan yang relatif terkendali. Namun, informasi mengenai perbedaan respons fisiologis antara pemberian ketiganya secara bersamaan dan pemberian atropin sebagai premedikasi sebelum ketamin–xylazin masih terbatas. Penelitian ini bertujuan untuk mengetahui perbandingan efek protokol anestesi kombinasi atropin–ketamin–xylazin (AKX) dan atropin diikuti ketamin–xylazin (A+KX) terhadap suhu tubuh dan frekuensi denyut jantung pada kucing domestik jantan yang dikastrasi. Delapan ekor kucing domestik jantan dibagi menjadi dua kelompok perlakuan. Kelompok AKX mendapatkan injeksi atropin (0,04 mg/kg BB), ketamin (15 mg/kg BB), dan xylazin (2 mg/kg BB) secara bersamaan, sedangkan kelompok A+KX mendapatkan atropin (0,04 mg/kg BB) terlebih dahulu, diikuti ketamin (15 mg/kg BB) dan xylazin (2 mg/kg BB) setelah interval 15 menit. Suhu tubuh dan frekuensi denyut jantung diukur pada menit ke-0, ke-30, dan ke-60 setelah pemberian anestesi. Data dianalisis menggunakan uji Repeated Measures ANOVA dengan tingkat signifikansi 5%. Hasil penelitian menunjukkan bahwa faktor waktu berpengaruh signifikan terhadap penurunan suhu tubuh pada kedua kelompok ( $p < 0,05$ ), tetapi tidak terdapat perbedaan bermakna antara kelompok AKX dan A+KX, baik pada rata-rata maupun pola perubahan suhu tubuh, dengan sebagian besar kucing mengalami hipotermia ringan hingga sedang. Pada frekuensi denyut jantung, terdapat interaksi signifikan antara faktor waktu dan kelompok perlakuan ( $p < 0,05$ ), dengan protokol A+KX menghasilkan pola perubahan yang lebih stabil dibandingkan AKX pada fase akhir anestesi. Tidak terdapat perbedaan yang bermakna antara protokol anestesi AKX dan A+KX terhadap suhu tubuh dan frekuensi denyut jantung kucing domestik jantan yang menjalani kastrasi. Namun, faktor waktu berpengaruh signifikan terhadap perubahan suhu tubuh dan frekuensi denyut jantung selama periode anestesi.

Kata kunci: anestesi kucing, atropin, frekuensi denyut jantung, ketamin–xylazin, suhu tubuh

## ABSTRACT

### EFFECTS OF ATROPINE AND KETAMINE–XYLAZINE ANESTHETIC PROTOCOLS ON BODY TEMPERATURE AND HEART RATE IN CASTRATED CATS

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General anesthesia is an essential component of veterinary surgical procedures, including castration in cats. The atropine–ketamine–xylazine combination is widely used in veterinary practice because it provides rapid induction, adequate muscle relaxation, and relatively controlled recovery. However, information regarding the differences in physiological responses between the simultaneous administration of these three agents and the administration of atropine as a premedication prior to ketamine–xylazine remains limited. This study aimed to compare the effects of the atropine–ketamine–xylazine (AKX) anesthetic protocol and atropine followed by ketamine–xylazine (A+KX) on body temperature and heart rate in male domestic cats undergoing castration. Eight male domestic cats were divided into two treatment groups. The AKX group received atropine (0.04 mg/kg BW), ketamine (15 mg/kg BW), and xylazine (2 mg/kg BW) simultaneously, whereas the A+KX group received atropine (0.04 mg/kg BW) first, followed by ketamine (15 mg/kg BW) and xylazine (2 mg/kg BW) after a 15-minute interval. Body temperature and heart rate were measured at 0, 30, and 60 minutes after anesthetic administration. Data were analyzed using Repeated Measures ANOVA with a significance level of 5%. The results showed that time had a significant effect on the decrease in body temperature in both groups ( $p < 0.05$ ). However, there were no significant differences between the AKX and A+KX groups in either the mean values or the pattern of body temperature changes, with most cats experiencing mild to moderate hypothermia. Regarding heart rate, a significant interaction was observed between time and treatment group ( $p < 0.05$ ), with the A+KX protocol producing a more stable pattern of change compared to the AKX protocol during the late phase of anesthesia. There was no significant difference between the AKX and A+KX anesthetic protocols on body temperature and heart rate in domestic male cats undergoing castration. However, time had a significant effect on changes in body temperature and heart rate during the anesthetic period.

**Key words:** atropine, body temperature, feline anesthesia, heart rate, ketamine–xylazine