

Model of induced fever in pig: Comparison of anti-pyretic activities of ketoprofen and aspirin.

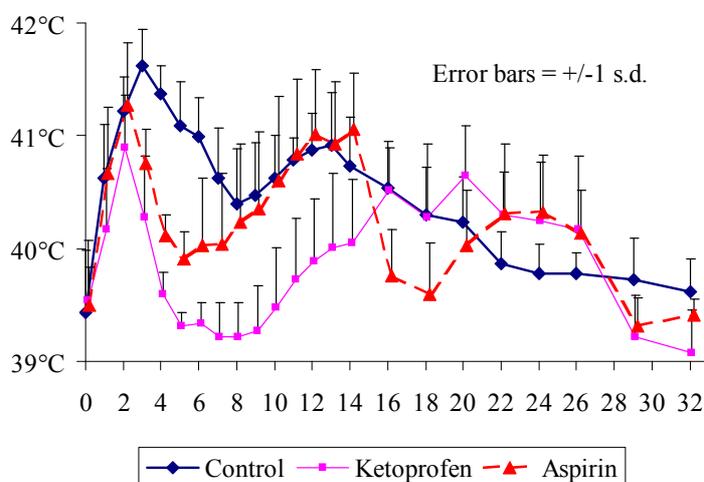
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Introduction: The aim of this study was to assay and compare the antipyretic activity of two Non Steroidal Anti Inflammatory Drugs (NSAID) in pigs against an induced fever.

Materials and Methods: Twenty four pigs, twelve males and twelve females, mean bodyweight 32.4 ± 5.0 (SD) kg, commercial breed, were included and housed according to EU regulations. Rectal temperatures were measured three times daily during the three days before the treatment. On Day-1, the animals were randomly allocated into three treatment groups, based on pre-treatment rectal temperatures. On Day 0 at T0, all pigs were administered with the experimental preparation (no. 110105) based on inactivated Gram +ve bacteria strains in order to induce fever. At T2h, four male and four female pigs were treated with ketoprofen (Ketofen®, Merial) at 3 mg/kg by the intramuscular route. At T2h and T14h, eight pigs received aspirin (Vetalgine®, Ceva) at 25 mg/kg by the intramuscular route. The third group of eight animals was left as untreated control. Rectal temperatures were regularly measured in all pigs up to 32 hours. Statistical comparisons between the control and both treatment groups were performed on values of AUC_{2h-14h} and AUC_{2h-26h} above 38°C using Anova and Student-Newmann-Keuls comparisons.

Results: After induction with experimental preparation 110105, the rectal temperatures of all animals rose as expected. Administration of both antipyretic compounds induced a rapid decrease in rectal temperatures basing out at three hours for aspirin and six hours for ketoprofen. The second injection of aspirin, 12 hours later, produced a similar effect. The duration of activity was quite different between the compounds: aspirin acted for about 6 hours post administration whereas ketoprofen activity lasted for 14 hours.



	AUC_{2h-14h}	AUC_{2h-26h}
Control	34.8 ± 2.7	60.7 ± 5.1
Ketoprofen	19.8 ± 3.2	48.0 ± 6.2
Aspirin	30.0 ± 5.2	55.2 ± 8.8

Statistical comparisons demonstrated that AUC_{2h-14h} in the three groups were significantly different ($p < 0.01$ by pairwise comparisons) demonstrating the antipyretic efficacy of aspirin and ketoprofen and the better efficacy of ketoprofen. Comparisons of AUC_{2h-26h} showed that AUCs were statistically lower ($p < 0.01$) in the ketoprofen group than in the two other groups.

Discussion: The model demonstrated the antipyretic activity of both tested compounds. Moreover, demonstration of drug antipyretic activity and comparison of efficacies between products can be performed with this model. Drug activity can be however longer than the model duration, objective assessment of drug activity duration would more difficult and might require additional administrations of the experimental preparation.

Conclusion: Antipyretic activity in pigs of both ketoprofen and aspirin was demonstrated in this model. Consequently, the model can be used to evaluate antipyretic activity and to compare antipyretic efficiency between products.