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**THE EFFECTS OF
FOUR DIFFERENT INDUCTION TECHNIQUES
ON ANAESTHETIC MAINTENANCE AND
RECOVERY IN HORSES**

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ABSTRACT

Anaesthetic recoveries have been the target of little research, and the information available on the effect of anaesthetic induction agents on recovery lacks detail and specificity. The aim of this study was to compare the anaesthetic recovery periods after 4 different induction procedures:

(1) acetylpromazine, glycerol guaiacolate, thiopentone; (2) xylazine, glycerol guaiacolate, thiopentone; (3) xylazine, ketamine; (4) acetylpromazine, glycerol guaiacolate, ketamine, which were followed by 1 hour of halothane in oxygen anaesthesia. Ten horses each received all 4 techniques with at least 1 week between successive anaesthetics. The 10 results for each induction technique were grouped, means determined, and statistical analysis performed on these group means.

Strikingly, the use of thiopentone, when compared to ketamine combinations, resulted in consistently poorer recoveries. The possibility that this may be due to the persistence of subanaesthetic barbiturate levels during the recovery period is discussed. In man, residual barbiturate levels have been shown to increase the awareness of pain, and it is possible that a similar effect may be present in horses, detrimentally affecting their anaesthetic recoveries. The role of ketamine in the consistently better recoveries is unclear. It is hypothesised that it may be due to residual ketamine levels in plasma exerting a stimulatory effect on areas of the central nervous system.

Interestingly, the use of acetylpromazine as a premedicant before both thiopentone and ketamine combinations, prolongs recovery and significantly increases 3 hour post anaesthetic creatinine phosphokinase (CPK) levels. No statistical relationship was found between longer recumbency times and elevated CPK levels, and it is postulated that the CPK rise may have been indirectly caused by acetylpromazine lowering the packed cell volume, and therefore muscle tissue oxygen supply.

The difference in pharmacokinetics of the individual drugs used apparently influenced the smoothness and the rate of recovery observed. It cannot be

assumed therefore, that horses experiencing longer or shorter anaesthetic periods would show similar recovery attributes to those found in this study.

It was concluded that, after 1 hour of anaesthetic maintenance using halothane in oxygen mixtures, there is a better chance of horses having a coordinate recovery if ketamine combinations are used as induction agents; and a more rapid recovery if xylazine/ketamine is used to induce anaesthesia.

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