

Preventive Effect of Nimesulide on Ketamine Induced Cardiotoxicity and the Useful Interaction of Nimesulide with Ketamine

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SUMMARY. The increased production of endogenous adrenaline (ADR) with ketamine is responsible for ketamine cardiotoxicity and the short duration of anaesthesia. The aim of this study was to investigate the effect of nimesulide on ketamine cardiotoxicity, anaesthesia duration and analgesic activity. Oxidant and anti-oxidant parameters were studied in the heart tissues, while ADR, creatine kinase-MB (CK-MB) and troponin-I (TP I) levels were measured in the blood. Malondialdehyde (MDA), 8-hydroxyguanine (8-OH/Gua), CK-MB, TP I, and ADR levels in the heart tissue of the ketamine group were increased and the total glutathione (tGSH) level was decreased as compared to the healthy and nimesulide groups. However, it was found that the same parameters in the ketamine-administered adrenalectomised animals were almost identical to those of the healthy animals. Nimesulide may be useful in the reduction of ketamine cardiotoxicity, providing potent analgesia and extending the duration of anaesthesia.

RESUMEN. El aumento de la producción de adrenalina endógena (ADR) con ketamina es responsable de la cardiotoxicidad por ketamina y la corta duración de la anestesia. El objetivo del estudio fue investigar el efecto de la nimesulida en la cardiotoxicidad por ketamina, la duración de la anestesia y la actividad analgésica. Los parámetros oxidantes y antioxidantes se estudiaron en los tejidos del corazón, mientras que los niveles de ADR, creatina quinasa-MB (CK-MB) y troponina-I (TP I) se midieron en sangre. Los niveles de malondialdehído (MDA), 8-hidroxi guanina (8-OH/Gua), CK-MB, TP I y ADR en el tejido cardíaco del grupo de ketamina aumentaron y el nivel total de glutatión (tGSH) se redujo en comparación con el sano y los grupos de nimesulida. Sin embargo, se encontró que los parámetros en los animales adrenalectomizados administrados con ketamina eran casi idénticos a los de los animales sanos. La nimesulida puede ser útil en la reducción de la cardiotoxicidad por ketamina, proporcionando una analgesia potente y prolongando la duración de la misma.

KEY WORDS: Adrenaline, analgesic, anaesthesia, cardiotoxicity, ketamine, nimesulide.

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