Nitrous oxide and plasma beta-endorphins

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Topic: Nitrous oxide is utilized in the practice of anesthesiology. The mechanisms of action of nitrous oxide are only beginning to be understood. Nitrous oxide is a weak anesthetic and a powerful analgesic. Twenty percent nitrous oxide produces analgesic equivalent to 15 mg of morphine administered subcutaneously. Recent research suggests the analgesic effect of nitrous oxide may be related to the release of beta-endorphins.

Significance of study: This study examined the utilization of 30% nitrous oxide as an analgesic in the treatment of ischemic chest pain simultaneously measuring plasma beta-endorphin levels.

Research methodology: Twelve patients were enrolled in the study. Four of the 12 patients had received narcotics two hours prior to admission to the study.

Patients' pain decreased significantly during the inhalation of 30% nitrous oxide. Patients who did not receive narcotics prior to the study, demonstrated a decrease in plasma beta-endorphin levels.

Conclusions from data: The results of this study suggest that nitrous oxide may achieve an analgesic effect by interacting with the Mu opiate receptor.

SUGGESTED READING


AUTHOR

Una OLeary, CRNA, MS, received her master's degree at the Medical College of Pennsylvania with a thesis topic of "Plasma Beta-Endorphin Levels and Nitrous Oxide," upon which this abstract is based. She is currently a staff nurse anesthetist at Children's Hospital in Columbus, Ohio. This research project was presented at the 1985 AANA Annual Meeting in Anaheim, California.