ICU MANAGEMENT & PRACTICE

Study: Dexmedetomidine Lowers Anesthetic Dose Requirements in Surgery

According to a study published in the April issue of the International Anesthesia Research Society (IARS) journal 'Anesthesia & Analgesia', adjuvant use of the sedative drug dexmedetomidine has achieved a reduction in the doses of propofol and remifentanil required for patients undergoing surgery.

Dr Marc Fischler of Hôpital Foch, Suresnes in France, and his team of colleagues further suggest that dexmedetomidine delays the need for strong pain relievers following surgery. Their findings are based on the objective assessment of 60 surgery patients subject to anesthesia with the intravenous anesthetic drugs propofol and remifentanil. Random assignment of the patients led to one group receiving the widely used sedative drug dexmedetomidine, while the other group was given a saline solution as an inactive placebo.

By administering the anesthetics via an automated "closed-loop" system capable of adjusting doses according to the bispectral index (a measure of brain activity), the target level of anesthesia was precisely maintained, allowing for objective measure of depth of anesthesia and the minimisation of variations in anesthetic dose.

Evaluating the doses of propofol and remifentanil required for surgery between the two groups the researchers found that a lower dose of anesthetic drugs was required in patients receiving dexmedetomidine. In comparison to those patients receiving placebo, propofol induction dose was reduced by 30 percent and remifentanil induction dose by 25 percent.
The same reduction was seen in the propofol dose required to maintain the desired level of anesthesia in the dexmedetomidine patient group, whereas the maintenance remifentanil dose remained unaffected by the use of dexmedetomidine.

Dexmedetomidine's analgesic (pain-relieving) effect was also evident, with four hours being the median time to the first patient request for morphine after surgery. In the placebo group this was one hour.

Recovery time was not impacted and neither was the rate of delayed recovery for patients who had received dexmedetomidine. Further adverse effects measured were similar in both study groups.
Widely used in the intensive care unit as a sedative for patients receiving mechanical ventilation, dexmedetomidine is an alpha-2 adrenergic agonist acting through a different mechanism than propofol or other anesthetics, making it potentially useful as an anesthesia supplement.

Compared to previous studies investigating the anesthetic and analgesic dose reduction impact of dexmedetomidine, this research is the first to show an "anesthetic-sparing" effect via the use of the bispectral index as an objective measure of anesthetic requirements.

In their conclusion, Dr Fischler and coauthors summarise the results of this randomised trial by stating that a relatively low dose of dexmedetomidine is a useful adjuvant capable of reducing anesthetic dose requirement and providing postoperative analgesia without prolonging recovery time.

Source: Anesthesia & Analgesia

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