

Use of Dexmedetomidine (Precedex) for Spine Surgery

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Introduction

Dexmedetomidine is a highly selective alpha-2 adrenergic agonist that has been used as an adjunct to TIVA because of its anesthetic-sparing effects. However, several studies have shown that it can significantly reduce the amplitude of transcranial motor evoked potentials (TC-MEPs) during neurophysiological monitoring for spine surgery [1]. We have also experienced this affect (unpublished data) especially when using doses above 0.5 mcg/kg/hr. Due to recent problems with the supply chain of propofol, we have begun using low-dose dexmedetomidine and have now done over 100 spine cases without experiencing any intraoperative changes in the TC-MEPs.

Methods

After standard induction with midazolam, fentanyl and propofol and usually a small dose of non-depolarizing muscle relaxants, we placed the patients on 0.5-1 MAC of sevoflurane for placement of lines and until completion of positioning. We subsequently turned off the sevoflurane and instituted TIVA with propofol 100 mcg/kg/min and sufentanil 0.1 mcg/kg/hr and supplemented with 50% nitrous oxide. After elimination of the residual Sevoflurane, we had the neurophysiology monitoring team assess the patient's baseline SSEP and TC-MEP function. We then started a low-dose infusion of dexmedetomidine at a rate of 0.2 mcg/kg/hr without a loading dose. The dexmedetomidine infusion was maintained throughout the case until being discontinued at the beginning of wound closure.

Results

During the last two years, we have done over 1000 spine cases. The decision whether or not to use dexmedetomidine was not randomized, but was made by the provider as his/her intention to treat. Based on the cumulative experience from these cases, we have not had any instances where we needed to reduce or stop the dexmedetomidine due to unexplained changes in the TC-MEPs.

Discussion

We believe that our experience supports the consensus that dexmedetomidine, when used in low doses, can be safely used as an adjunct to TIVA in spine surgery [2]. Additionally, we believe that the anti-inflammatory properties recently described in the literature [3] may also be beneficial to our patients in the perioperative period.

References

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Received January 27, 2015; Accepted January 29, 2015; Published January 29, 2015

Citation: Marks R (2015) Use of Dexmedetomidine (Precedex) for Spine Surgery. *J Spine* 4: e115. doi:10.4172/2165-7939.1000e115

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