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Factors to bear in mind regarding the use of dexmedetomidine

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In the *Korean Journal of Anesthesiology* (KJA), the first paper on dexmedetomidine was published in 2011; since then, more than 40 papers on this agent have been published in the KJA.

Dexmedetomidine is used in clinical practice as a sedative, analgesic, and sympatholytic. In one study, a single preanesthetic dose of dexmedetomidine (0.5 μg/kg) effectively suppressed hemodynamic responses to endotracheal intubation [1]. In another study, dexmedetomidine provided adequate sedation without respiratory depression [2]. Dexmedetomidine can be safely infused to decrease bleeding during surgery, and for smooth recovery from anesthesia [3]. Dexmedetomidine also prolongs the duration of spinal anesthesia or nerve block [4,5] and can prevent or attenuate opioid-induced hyperalgesia [6]. Recently, the applications of dexmedetomidine have become increasingly diverse. The current issue of the KJA includes both an interesting clinical study [7] and a case report [8] on dexmedetomidine use.

Choi et al. [7] compared the effects of dexmedetomidine versus remifentanil. In their study, dexmedetomidine (0.3–0.5 μg/kg/h) and remifentanil (at a target-effect site concentration of 2–3 ng/ml) were continuously infused, as an adjuvant to general anesthesia for thyroidectomy. The authors suggested that dexmedetomidine may be effective for the prevention of postoperative nausea and vomiting, and the postoperative analgesic effect of dexmedetomidine was also superior to that of remifentanil. Furthermore, the authors postulated that these results may have been due to a decreased noradrenergic activity as a result of α_2 presynaptic inhibition in the locus coeruleus, or to a reduction in sympathetic outflow, which may in turn trigger postoperative nausea and vomiting.

Moon et al. [8] presented a case report entitled "Non-intubated thoracoscopic surgery for decortication of empyema under thoracic epidural anesthesia." In this case, video-assisted thoracoscopic surgery was performed in a non-intubated patient. During surgery, thoracic epidural anesthesia and target-controlled infusion of propofol and remifentanil were maintained. In addition, dexmedetomidine was continuously infused at a rate of 0.4 μg/kg/h. Although this regimen may appear somewhat reckless, the patient recovered fully without complications.

Taken together, these studies suggest that dexmedetomidine could be assistive in anesthesiologic practice in the near future. However, in addition to its possible benefits, certain drawbacks of dexmedetomidine must also be noted. First, bradycardia and hypotension could result from rapid infusion at higher doses, during or even after surgical operation. Furthermore, perioperative bradycardia and hypotension may be severe enough to require treatment. A final drawback of dexmedetomidine is delayed awakening; when it is used for a short surgery, delayed awakening and postoperative sedation could be problematic for anesthesiologists.

In summary, if anesthesiologists use dexmedetomidine only for carefully selected patients, they may find it helpful. However, dexmedetomidine may also produce effects that are problematic for anesthesiologists.

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