

The limited use of Dexmedetomidine for subarachnoid blocks in Pakistan

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Respected Madam, Dexmedetomidine is a selective alpha-2 adrenoceptor agonist. It acts by binding to the presynaptic alpha-2 adrenoceptors and inhibits the release of norepinephrine. Thereafter, it causes a decrease in the sympathetic tone and terminates the propagation of pain signals. As a result, the haemodynamic and the endocrine stress responses of the body to surgery and anaesthesia are attenuated, the blood pressure and heart rate are decreased, and the requirement for other anaesthetic agents is reduced. These effects have meant that dexmedetomidine has been widely used prior to endotracheal intubation to optimize the patients and prevent the likelihood of haemodynamic adverse effects.¹

In addition to its use in general anaesthesia, peri-operative physicians worldwide are now becoming increasingly aware of the dexmedetomidine's potential use for subarachnoid blocks. A few studies have documented the efficacy of intravenous (IV) dexmedetomidine in prolonging the duration of sensory and motor blockade induced by agents such as bupivacaine, prilocaine, and ropivacaine up to 4 hours.^{2,3} Recent studies have found that intrathecal administration of dexmedetomidine in combination with the local anaesthetic agent yields similar benefits.⁴ This has been attributed to the activation of presynaptic α_2 -A receptors at locus ceruleus and the termination of pain signal propagation via the medullospinal noradrenergic pathway.⁴ Therefore, it is no surprise that the use of dexmedetomidine in conjunction with local anaesthetics for the subarachnoid block is common practice in peri-operative physicians throughout the globe.

While Pakistani peri-operative physicians are aware of the benefits of dexmedetomidine prior to endotracheal intubation,⁵ the same cannot be said for subarachnoid blocks induced in Pakistan. Peri-operative physicians in Pakistan are either yet to realize the potential benefits the

use of dexmedetomidine can provide for subarachnoid blocks or still adhere to conventional spinal anaesthesia practices. Since the effects of a conventional subarachnoid block lasts from 2 to 3 hours, in any case of a surgical adverse event that prolongs the surgery, severe pain, nausea, vomiting, and derangement of the haemodynamic status have been noted in patients. Often times, this results in a shift towards general anaesthesia midway through the procedure. Ultimately, the postoperative stay is prolonged which directly impacts the clinical outcome and the quality of life for these patients.

With increased awareness and adoption of novel strategies for subarachnoid blocks in Pakistan, peri-operative physicians can ensure that their patients remain anaesthetised throughout the procedure and optimize the intraoperative and postoperative management to yield better clinical outcomes for their patients.

Disclaimer: None.

Conflict of interest: None.

Funding disclosure: None.

DOI: <https://doi.org/10.47391/JPMA.8137>

Submission completion date: 17-11-2022

Acceptance date: 08-04-2023

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