

Adjuncts to Caudal Block in Children—Quo Vadis?

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The author has written a thought provoking editorial to remind us to think before we rush into publication behind the guise of academic curiosity. In particular, he cautions us on the subject of adjuncts to caudal blocks in children. Caudal block was first described by Campbell in 1933. It has evolved to become the most popular regional anesthetic technique for children. The technique is popular amongst both pediatric anesthesiologists and those who only do such cases occasionally. Interestingly, it has been shown that a new resident in anesthesia can achieve the same level of skill after administering 32 blocks as an older senior colleague. Hence, this relative rapid learning curve may account for the popularity of the caudal block. As with any interventional procedure there is of course a potential for complications, but if proper technique is used the incidence is low.

Although the caudal block is versatile and useful for the most common pediatric procedures, such as repair of inguinal hernia, circumcision, orchiopexy and repair of ambiguous genitalia, it has a major limitation – the limited duration of action. Even though a continuous caudal block can be administered via a catheter which can be left in situ for 48 hours, its use can not be justified for many of the common surgeries. To overcome this time limitations different adjuncts have been used to prolong the duration of analgesia. The earliest was epinephrine, though its use has diminished. This may be because of the recent introduction of long-lasting local anesthetics that are not available with added epinephrine or to the availability of more potent adjunct options. In the late 1980s opioids were the adjunct of choice and soon after, racemic ketamine and clonidine were added to the list. Since then a large number of studies have been published describing their use, efficacy, and safety. A study published in 2002 showed that 58% of British pediatric anesthesiologists used adjuncts for performing caudal blocks with the most commonly used agents being ketamine, clonidine, fentanyl and diamorphine. The choice of opioids as adjunct has been questioned because of the high incidence of side effects. There is no doubt that together with ketamine and clonidine they do result in clinically relevant prolongation of post operative analgesia. Recently the combined use of S(+)-ketamine and clonidine as a single injection without a local anesthetic has been reported to give 24 hours of post operative analgesia. Although not all of these adjuncts have been labeled for use in the caudal space, multiple studies have proved that these agents are probably safe choices for prolonging post operative analgesia after a caudal block.

Against this background it is difficult to understand and accept that other drugs which have not undergone adequate safety testing (some drugs may contain potentially toxic preservatives), and which produce only limited prolongation of post operative analgesia, or are associated with clearly unacceptable side effects still remain the focus of clinical studies. The most obvious recent example is neostigmine which remains a focus of investigation with numerous publications even as its caudal use produces a 30% increase in nausea and vomiting after anesthesia. It is unimaginable that even after such a high incidence of unacceptable side effects the authors of these studies recommend further large scale investigations.

Comments: The editorial asks Quo Vadis? It goes on to say that we currently do possess a number of different options to enhance post operative analgesia after caudal block. These choices are, safe, effective, and have acceptable side effects and safety profiles. Therefore, there appears to be little justification to investigate new drugs, except for academic curiosity. As suggested by the author, the road forward should follow one of the three different but eventually converging paths. First, the individual anesthesiologist should adapt his/her current clinical practice to better adhere to the existing literature and evidence base. Second, working groups of relevant specialist bodies (e.g., The Society for Pediatric Anesthesia and The American Society of Anesthesiologists) should issue guidelines to help the clinician to identify what is considered to be the standard of care. Third, new alternatives to opioids, clonidine and ketamine should only be tested in prospective, randomized trials of adequate size. Such new alternatives should only be incorporated into clinical practice if they provide improved analgesia, combined with acceptable safety and side effects compared with the existing alternatives. The occurrence of serious neurological complication following 'unauthorized use' of a new drug in the caudal space is just not acceptable in a world where safe alternatives are well known and available. Furthermore, such irresponsible action has the potential to cause caudal block to fall into disrepute. The future losers would thus be children deprived of the excellent pain relief that proper caudal analgesia can offer.

Reviewed by Hoshang J. Khambatta, MD