

LETTERS

Epinephrine Use in the Fingers

Sir:

We read with great interest the article entitled “A Critical Look at the Evidence for and against Elective Epinephrine Use in the Finger” by Thomson et al. (*Plast. Reconstr. Surg.* 119: 260, 2007), on the use of epinephrine-containing local anesthetic solutions in fingers. We believe the article scrutinized the existing literature, and the authors’ conclusions are bold but not unexpected. We were surprised to see that our own empirical observations are in total agreement with these conclusions. Our own clinical experience on the subject commenced 10 years ago, when one of our nurses accidentally used a lidocaine 1% _ epinephrine 1:400,000 solution (the standard 2% lidocaine with 1:200,000 epinephrine solution, diluted 1:1 with sodium chloride 0.9%) in all our elective hand operations. When the error was recognized, we were pleasantly surprised with the level of anesthesia achieved and the lack of bleeding in our cases. We then started using the aforementioned solution of lidocaine 1% with epinephrine 1:400,000, reluctantly, in selected hand cases. Later, when we confirmed the lack of complications, we generalized its use in all hand cases. In fact, we now almost exclusively use this kind of anesthesia for hand cases, over other types of anesthesia (general, regional, local and sedation, and so on). Of course, in this era of evidence-based medicine, these anecdotal observations, as well as those of other authors, must be confirmed with prospective, doubleblind studies.

DOI: 10.1097/01.prs.0000279460.23245.85

Apostolos D. Mandrekas, M.D.

George J. Zambacos, M.D.

Artion Plastic Surgery Center
Athens, Greece

Correspondence to Dr. Zambacos
Artion Plastic Surgery Center
11 D. Vasiliou Street
N. Psychiko
Athens 15451, Greece

Reply

Sir:

We thank Drs. Mandrekas and Zambacos for their interest in the elective use of epinephrine in the finger and for their confirmation of its safety in their experience.

We have heard from several other groups around the world who have also been routinely using adrenaline electively in the finger with no adverse effects.

Our own interest in adrenaline in the hand began with the large clinical experience of excellent Canadian hand surgeons, including Bob MacFarlane, Pat Shoemaker,

John Fielding, and Mike Bell, who had a combined experience of well over 100 surgeon-years of elective injection of epinephrine into fingers without a single loss of a digit. There was a clear disconnect between the real experience of these good surgeons and the myth of epinephrine danger in the finger, which is still erroneously taught to many medical students and quoted in some major textbooks.

We confirmed that phentolamine was a reliable and safe reversal agent for epinephrine-induced vasoconstriction in the finger by enrolling 18 Dalhousie University alumni hand surgeons among volunteers to have their own fingers injected with epinephrine and phentolamine.¹ We then undertook a prospective study of 3110 consecutive cases of elective epinephrine injections by nine surgeons in six cities. This study confirmed that not one patient experienced any necrosis, and not even one patient required phentolamine rescue.²

Keith Denkler's landmark article³ showed that there was not one case of lidocaine with epinephrine causing finger infarction in the world literature from 1880 to 2000. This work led us to the discoveries in our current article, which indicate that the likely source of the epinephrine myth was degenerated acidic procaine. Why is this topic a very important one? We were first interested in elective use of epinephrine in the finger so we could operate on these patients under pure local anesthesia. The main goal was to avoid the tourniquet, anesthesiology, and dependency on main operating rooms, which can be difficult to access in Canada. We then found other important benefits, which included improving the results of our hand surgery team by communicating with pain-free (tourniquet-free) patients during surgery and having them actively move reconstructed structures so that adjustments could be made before the skin was closed. This has been particularly helpful in tendon repair, tendon transfer, tenolysis, finger fractures, and so on. We no longer have to subject older hand patients with medical problems to the risks of sedation. We have also found it much cheaper and much more comfortable for patients to have tourniquet-free carpal tunnel and trigger finger releases in the clinic or office outside the main operating room.

Almost all of our hand surgery procedures are now performed with the patient under pure local anesthesia, with no tourniquet and no sedation (wide awake approach), outside of the main operating room with field sterility. For much of the world that cannot afford the expense of a main operating room and general anesthesia, this approach will be a major step forward for hand surgery.

DOI: 10.1097/01.prs.0000279468.01557.9b

Donald H. Lalonde, M.D., M.Sc.

Christopher James Thomson, M.D.

Keith Denkler, M.D.

Anton Feicht, Ph.D.

Division of Plastic Surgery

Queen Elizabeth II Health Sciences Center

Dalhousie University

Halifax, Nova Scotia, Canada
Correspondence to Dr. Thomson
243 Sheppards Run
Beechville, Nova Scotia B3T 2G2, Canada
ctdalplastics@yahoo.com

REFERENCES

1. Nodwell, T., and Lalonde, D. H. How long does it take phentolamine to reverse adrenaline induced vasoconstriction in the finger and hand? A prospective randomized blinded study: The Dalhousie Project experimental phase. *Can. J. Plast. Surg.* 11: 187, 2003.
2. Lalonde, D. H., Bell, M., Benoit, P., et al. A multicenter prospective study of 3110 consecutive cases of elective epinephrine use in the fingers and hand: The Dalhousie Project clinical phase. *J. Hand Surg. (Am.)* 30: 1061, 2005.
3. Denkler, K. A. Comprehensive review of epinephrine in the finger: To do or not to do. *Plast. Reconstr. Surg.* 108: 114, 2001.