

(1) What is the optimal concentration of epinephrine with lignocaine?

1:200000 is the safest concentration yielding maximal vasoconstricting .

This study showed that there is no significant difference between 1:100000 and 1:200000 epinephrine with lidocaine for the facial surgery in terms of onset of vasoconstriction and duration of anaesthesia for up to 60

Another study showed that there is no difference in speed of onset and anaesthetic efficacy between 1:100000 and 1:300000 epinephrine when used with 2% lidocaine, however there was slight reduction in the duration of the .

1. Ghali S, Knox KR, Verbessey J et al. effects of lidocaine and epinephrine on cutaneous blood flow. *J Plastic, Reconstructive & Aesthetic Surgery* 2008; 61:1226-1231.
 2. Gangarosa LP & Halif FJ. A clinical evaluation of local anaesthetic solutions containing graded epinephrine concentrations. *Arch Oral Biology* 1967;12:611-21.
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(2) How much adrenaline is safe for use in healthy patients?

The maximum dose of epinephrine for local anaesthesia in healthy individuals should not exceed 1 mg (100 ml of 1:100000 solution)¹. However there is no clear guidance on the safe limit of epinephrine with lidocaine in cardiac patients in dermsurgery. Dental literature suggests using lidocaine without epinephrine in patients with severe arrhythmias (such as premature ventricular contractions or ventricular tachycardia) and in some patients with atrial fibrillation, recent myocardial infarction, unstable angina, or untreated hyperthyroidism to prevent the vasoconstrictor from precipitating serious complications or cardiac arrest. The suggested safe amount of epinephrine in patients with cardiovascular diseases is 0.06 mg (60 micrograms)².

1. Grekin RC, Ailetta MJ. Local anaesthesia in dermatologic surgery. *J Am Acad Dermatol* 1988; 19:599-614.
 2. Rhodus NL, Little JW. Dental management of the patient with cardiac arrhythmias:An update. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2003;96:659-68
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(3) Is epinephrine safe to use for digital anaesthesia?

According to current evidence, the use of epinephrine with lidocaine in standard commercial concentrations for digital blocks is not harmful and is likely .

However following precautions should be taken: Small amounts of local anesthetics with dilute solutions or epinephrine such as 1:200,000 or less, not using circumferential block of digits, placing block at the level of metacarpal heads, using small needle to avoid injuring the vessels, avoiding postoperative hot soaks and constrictive or excessively tight bandages, follow up patient to detect any signs of prolonged ischemia and avoid using epinephrine in patients with vasospastic, thrombotic or extreme medical .

1. Waterbrook AL, Germann CA, Southall JC. Is Epinephrine Harmful When Used With Anesthetics for Digital Nerve Blocks? Ann Emerg Med 2007; 54: 472-75.

2. Denkler K. a comprehensive review on epinephrine in finger: to do or not to do. Plast & reconstr surg 2001; 1:114-124

Submitted by : Dr Sanjay Rajpara and Dr Sunny Varma