

# Propofol

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## Abstract

**Introduction:** Pain during the injection of anesthetic agents may be distressing to the patients and can reduce the acceptability of an otherwise useful agent such as propofol for short cases and day care surgeries. Lidocaine and ketamine both are used as pre-treatment induced pain in comparison to lidocaine injection.

**Method:** KLVD... P... tourniquet. 1/4th dose of propofol was injected 1 min after release of tourniquet and pain accessed at 0, 1 and 2 minutes of propofol

**Results:** Pain during the anesthetic use of propofol

received any sedatives and analgesics medications before surgery.

#### Anesthetic techniques and the study protocol

The pre-anesthetic evaluation was done a day before surgery and informed/written consent was taken. All patients fasted for 8 hrs. On arrival to the operating room, an 18-G cannula was inserted into a vein on the dorsum of the patient's non-dominant hand without local anesthetics. Routine monitoring (Electrocardiogram, Non-invasive blood pressure, and pulse oximeter) were applied. An isotonic saline infusion was started

propofol injection pain including pre mixture or pretreatment of propofol with a variable degree of success to alleviate pain completely. Lidocaine, amide local anesthetic agent, has been used more frequently either as premixture or pre-treatment. The dose of lidocaine may be a limiting factor. Pang et al. administered 60 mg intravenous lidocaine and the pain incidence was 11% whereas we used a low dose of 0.5 mg/kg thus the incidence of pain was 27.27%, 45.45%, and 25% immediately after, 1 min after and 2 min after propofol injection respectively [9]. Turan et al, who administered 0.5 mg/kg intravenous lidocaine, had also a higher incidence of the pain of 33.3% which is similar to our study finding [10]. Picard and Tramkr study also had a higher incidence of pain i.e 40% following 0.5mg/kg of lignocaine similar to our study [5].

Ketamine has also been used as pre-treatment for propofol-induced pain with variable success. Low cost, ease of administration, effectiveness, ease of availability, and relatively better side effect profile makes ketamine an attractive option. It also has a local anesthetic effect thus can be used to attenuate propofol-induced pain. In our study, only 4 cases had severe pain immediately after propofol injection whereas only 2 patients experienced severe pain after 1 minute whereas none had severe pain after 2 minutes.

The incidence of pain after propofol injection was about 26-46% after pretreatment with ketamine at a dose of 0.1-0.2 mg/kg [11]. In a study done by Ayman. Elsayed, 16% had pain even after ketamine pre-treatment [8]. In our study only 2.22% of patients had mild pain immediately after propofol injection, 33.33% after 1 minute and only 2.22% experienced pain 2 minutes later which shows efficacy in comparison to the lidocaine group. Only 8 patients had moderate pain and 4 had severe pain immediately after propofol injection whereas only 2 cases had moderate pain and none with severe pain 1 minute after propofol injection. This also shows the intensity of pain was very low during ketamine pre-treatment.

A study reported that the frequency of propofol injection pain was 14.9% after pretreatment with ketamine at a dose of 0.5 mg/kg but we had used a low dose of ketamine (0.2 mg/kg) [12]. Usage of a larger dose of ketamine 1 mg/kg could eliminate the pain but as shown in our study incidence of pain is very low even at the low dose we had used (0.2 mg/kg) [13]. Wang et al. found that ketamine at 0.3 mg/kg was effective in the elimination of propofol pain which is dose only slightly higher than what we had used [14]. CH Tan et al found ketamine pretreatment reduced the incidence of pain from 84% to 26% which is a similar finding to that of our study where 33.33% had pain after 1 minute of propofol injection [15]. A low dose of ketamine also helps eliminate its potential adverse effects such as increased secretion and emergence reaction which was statistically insignificant in our study.

Polat et al. proved that lidocaine 40 mg, metoclopramide, ketamine (100 mcg per kg), and remifentanyl are equally effective but our study showed superior results with Ketamine rather than lidocaine as incidence and intensity of pain was significantly low in the ketamine group [16].

Hemodynamic stability was observed and no significant changes