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Comparative Study of Ketorolac vs Lidocaine for Post Operative Pain Relief

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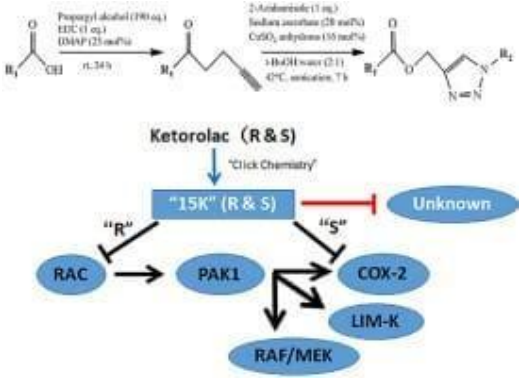
Abstract: *This review article is based on the comparative study of lidocaine with ketorolac For pain relief of Post-operative pain relief. IN 1989 ketorolac became an approved as Non-steroidal anti inflammatory drug (NSAID) as an analgesic. IN 1969 Lidocaine became an approved as NSAID drug. In this study ketorolc is compared with lidocaine. And this review evaluate both potential benefits and potential drawbacks of drugs with their advantage and disadvantage. Also this study is performed to show the effectiveness and of Lidocaine vs Ketorolac For Post-operative pain relief. And the pharmacokinetic effect of drugs. Intravenous regional anesthesia is a simple and reliable method for upper extremity surgery. In order to increase the quality of blocks and reduce the amount of pain, many drugs are used with lidocaine. In this study, the effect of ketorolac-lidocaine in intravenous regional anesthesia was investigated. These studies have provided additional information about various routes of administration and their effect on the efficacy and the side effect profile of ketorolac.*

Keywords: Ketorolac, Analgesic, Post -operative, Lidocaine, Pain relief, NSAIDs

I. INTRODUCTION

Lidocaine and ketorolac both are the non-steroidal anti inflammatory drugs which is used as anesthesia for the post-operative pain relief. Lidocaine is sold under the brand name
'xylocaine'. It is anesthetic drug which considered as safe and cost effective for health Care system.
Ketorolac sold under the brand name 'Toradol'. It is recommended for moderate to severe pain relief. It is not prescribed longer than five days due to its potential. Post-operative pain needs to managed ultimately to improve patients compliance and outcome of surgery. These drugs can be administered as oral drugs, parental medication, acupuncture etc.
Pharmacologically the non-steroidal anti inflammatory drugs (ketorolac) block the action of cyclo-oxygenase 1 and 2 (cox1 and cox2) by decreasing production of prostaglandin to produced analgesia. Ketorolac is not potent as narcotics it can be show different effects to narcotic analgesic without a major complications.



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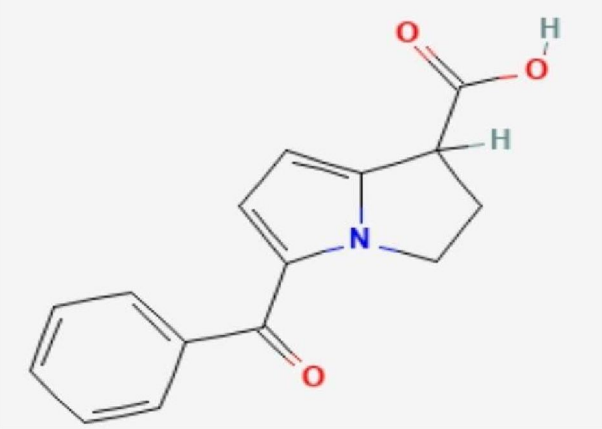
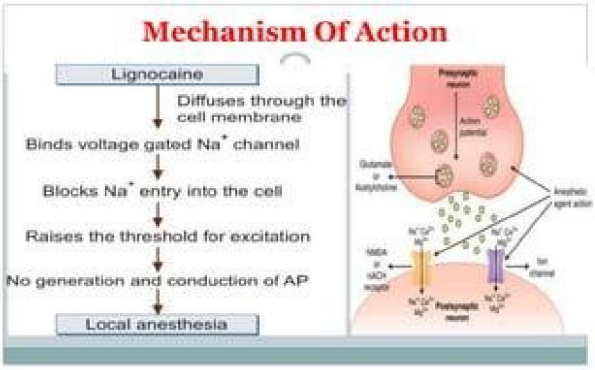
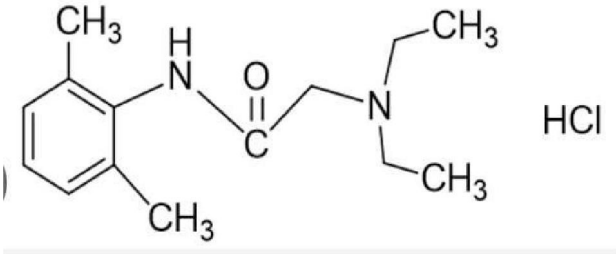
Structure of Ketorolac :



Local anesthesia (lidocaine) act by blocking the sodium channel in nerve membrane and by blocking the nerve cell conduction. Lidocaine is the most Versel tine and commonly used local anesthesia because of its potency, rapid effect and moderate duration of action.



Structure of Lidocane



Adverse effect of ketorolac

The adverse effects of ketorolac are similar to other NSAIDs. Clinically important adverse effects include gastrointestinal bleeding, peptic ulceration, renal failure, or hematological dysfunction due to inhibited platelet aggregation with thromboxane inhibition.4 The association of serious adverse events with ketorolac usage has decreased since the implementation of new dosages and short-term exposure (5 days or less) guidelines.

Adverse effect of lidocaine-

There are a number of factors that influence or directly affect the severity of lignocaine toxicity. These include the vascularity of the site of injection, speed of the injection, acid base status, and underlying hepatic or renal impairment.

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Lignocaine is metabolized by the liver, therefore severe hepatic dysfunction will significantly increase the both the risk and severity of toxicity[9]. In addition, given that lignocaine is protein bound, severe hypoalbuminemia may also predispose to toxicity risk[9]. Acidosis increases the risk of toxicity because due to lignocaine dissociating from plasma proteins[7]. Lignocaine's pharmacokinetics and antiarrhythmic effects may be potentiated or altered by beta- blockers, ciprofloxacin, cimetidine, clonidine, and phenytoin[6]. Beta-blockers such as propranolol and metoprolol can reduce lignocaine's metabolism, whilst cimetidine and amiodarone reduce its clearance. Lignocaine's interactions with phenytoin and ciprofloxacin are through their effects on the liver's cytochrome system. Adverse effects of lignocaine and other amide local anesthetic agents are similar in nature.

II. METHODOLOGY

A total of 50 patients aged 16 to 60 years planned for elective perineal surgeries under general anesthesia like hemorrhoidectomy, anal fistulectomy, and fistulectomy, excision of pilonidal sinus, and correction of hypospadias and Gender and age distribution of study population. epispadias were included in the study. All patients were in ASA 1. Patients with any systemic disease, obesity, extreme of age, allergic to local anesthetics or NSAIDs and with any contraindication to regional anesthesia like infection at the injection site, anatomic deformity etc. were excluded from the study. Premedication with anxiolytics oral diazepam 10 mg night before surgery had already been given. Intraoperative analgesia was provided with nalbuphine 10mg I/V. After completion of the surgery, patients were then conveniently divided into two groups using lottery method. Group A comprised of 25 patients and were given lignocaine 1% according to body weight (1ml /kg), via caudal epidural route. Group B also comprised of 25 patients, and were given ketorolac 10 mg. Types of Surgeries Conducted caudal epidural route. Both the drugs to be used for the caudal block were prepared in the same manner.1% The anesthetist who performed the caudal block was unaware of the drug used (either lignocaine or Ketorolac) and the pain was measured by another registrar level anesthetist in PACU using visual analogue scale (VAS). Pain was measured every 30 minutes for the first 6 hours and then hourly till 24 hours of surgery. "Postoperative Pain Assessment Graph for first twenty-four hours" was used to assess the onset of analgesia, duration of analgesia and percentage pain relief. The parameters used to assess the onset of analgesia were subjective feeling of pain and objective parameter like heartrate ,blood pressure and respiratory rate.

Statistical analysis were performed using SPSS version 12 .Student t-test was used to test for significant differences in original and continuous variables .Range was calculated for continuous variables and frequencies and percent for categorical variables A p-value <0.05 was consider statistically significant.

III. DISCUSSION

The pain relief is better with lignocaine and was about 80% for surgeries. With ketorolac, percentage pain relief is 50-60 %. The onset of action with Lignocaine was faster. It is not clear whether ketorolac acts locally by inhibiting pain producing substances like prostaglandins at the wound site or acts peripherally after systemic absorption. Different workers have used different drugs through caudal route in their study groups to establish the efficacy of this route for analgesia postoperatively. Caudal route is thought a safe route for pediatric patients especially for minor out door 10 procedures due to ease of performance Ketorolac in a study for post operative pain relief paracetamol. In another study, parenteral ketorolac Ketorolac in a study for post operative pain relief paracetamol. In another study, parenteral ketorolac was found as safe as diclofenac for the treatment of 13 pain after major surgery. In another study, ketorolac 30 mg IV and paracetamol 2000 mg were equally effective after total abdominal 14 hysterectomy. In a qualitative systemic review of and the Cochrane Library (Jan 2001), comparison was made between paracetamol 1000 mg with NSAID in a double blind, randomized manner. The efficacy of both drugs was more or less 15 found same. These studies focused on use of IV or 17,18 oral ketorolac.

IV. CONCLUSION

Caudal lignocaine was better than ketorolac in relieving postoperative pain after perineal surgeries for first 24 hours giving an earlier onset of effects ,longer duration of action ,increase percentage of pain relief and was economical .

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