

Ketamine is a medication mainly used for starting and maintaining anaesthesia. It induces a trance like state while providing pain relief, sedation and memory loss. Other uses include for chronic pain and for sedation in intensive care. Heart function, breathing and airway reflexes generally remain functional during its effects. Ketamine was discovered in 1962, first tested in humans in 1964, and was approved for use in the United States in 1970. Shortly after its US approval it was extensively used surgical anaesthesia in the Vietnam war due to its safety. It is on the World Health Organization's list of Essential medicines, the most effective and safe medicines needed in a health system. It is available as a lowcost drug in the developing world. Ketamine is also low cost, ease of administration, effective, relatively better side effect profile, and ease of availability in hospitals make ketamine an otherwise attractive option. It also has local anaesthetic effect and this property can be harnessed to attenuate pain on injection of propofol. Moreover it is a simple method in practice and has no significant effect on the quality of recovery. Ketamine is a phencyclidine derivative and was introduced in 1965. It differs from other i.v anaesthetic agents in many respects, and produces dissociative anaesthesia rather than generalized depression of the CNS. Ketamine is a extremely lipid soluble. After i.v injection, it introduce anaesthesia in 30-60s. It is a potent somatic analgesic at subanaesthetic blood concentration. The analgesic action of ketamine may be used when wound dressings are changed, or while positioning of patients with before performing regional anaesthesia (e.g. fracture neck femur). Ketamine has been used to sedate asthmatic patients in the ICU. The incidence of propofol injection pain in our study was reduced from 94% in control group to 26% in ketamine group and this result is significant when compared with other techniques of propofol injection pain relief.¹ The incidence of severe pain was completely abolished with ketamine. Our observations were consistent with those seen by CH Tan et al¹, where they found found ketamine pretreatment reduced the incidence of pain from 84%

to 26%. A study done by Ozkocak et al,¹⁶ the intensity of pain was lowered but the incidence was high as 76% in the ketamine group. Some studies have been done with application of tourniquet after injection¹⁷. In a study done by Barbi E et al, on 122 paediatric patients concluded, pretreatment with ketamine (0.5mg/kg) is very effective in preventing propofol infusion pain². Another study done by Zhao GY et al, used a lower dose of ketamine (0.3mg/kg) and recorded a reduction in the frequency and intensity of propofol injection pain without severe adverse effect.⁷ Administration of ketamine 100 µgm/kg immediately before propofol injection provided the optimal dose and timing to reduce propofol-induced pain on injection was demonstrated by Koo SW et al,⁸. By giving ketamine as a pretreatment it could act as a preventive analgesia to prevent sensitization of the local nerve endings from noxious inputs. Thus, this drug is useful for pain relief due to its local action. A comparison between peripheral ketamine pre-treatment and ketamine added to propofol was done, the results supported pH changes as a more important cause for the decrease in propofol injection pain with the addition of ketamine to propofol than a peripheral effect of ketamine²⁰. We have used direct questioning in addition to observation of pain responses, to assess the severity of pain. This patient participation has reduced observer bias, thus providing to be a superior technique in assessing pain.

This study had some limitation like cannot maintain same speed of propofol injection, use of other analgesic drug, socioeconomic condition of the patient etc.

Limitations of the study:

1. Use of other analgesic drug.
2. Age of the patients.
3. Speed of injection of propofol.
4. Socioeconomic condition of the patient may vary the pain perception.

Conclusion:

This study was done with a view to acquire an idea to find out the method of reducing the occurrence and