

# **A Comparison of Analgesic Effects and Side Effects of Ketamine Subcutaneous and Intravenous Ketamine in Closed Reduction of Nasal Fracture**

## **Abstract**

**Background:** Nasal fractures are a common cause of referral to medical centers. Meanwhile, nasal fracture reduction is extremely painful due to strong facial innervation. Therefore, pain management is significantly vital to achieving patient satisfaction.

**Aim:** A comparison of analgesic effects and side effects of subcutaneous and intravenous ketamine in patients undergoing closed reduction of nasal fractures.

**Materials and Methods:** This study was performed on 92 patients who were referred to Fatemi Hospital in Ardabil, Iran with confirmed nasal fractures to undergo closed reduction. The participants were randomly divided into two 46-member groups, one of which received 0.7 mg/kg of ketamine subcutaneously, whereas the other one was intravenously administered with 0.3 mg/kg of the same drug. Patients were compared in terms of the level of pain and medication side effects such as nausea and vomiting and delusion.

**Results:** The total mean age of the patients was reported to be  $23.54 \pm 19.81$  years. However, the mean age of the intravenous and subcutaneous ketamine groups was  $22.52 \pm 16.66$  and  $24.56 \pm 17.39$  years, respectively. In the intravenous ketamine group, there were 19 male and 27 female subjects while the subcutaneous ketamine group encompassed 29 male and 17 female participants. The mean pain level of the subjects in the intravenous ketamine group was estimated at 5.15 with a median of 5. On the other hand, the mean pain level of the participants in the subcutaneous ketamine group was reported to be 3.32 with a median of 3 ( $P=0.002$ ).

**Conclusion:** Given the higher analgesic effect of subcutaneous ketamine and lower hallucination in subjects subcutaneously administered with this medication, this method of drug administration is suggested to be used to induce analgesia in patients undergoing closed reduction of nasal fractures.

**Keywords:** Ketamine, Nasal Fracture, Analgesia