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Comparison of Effectiveness When Ketamine was Used as an Adjuvant in Intravenous Patient-Controlled Analgesia Used to Control Cancer Pain

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Abstract : Background: Cancer pain is very difficult to control as the mechanism of pain is varied, and the patient has several co-morbidities. The use of Intravenous Patient-Controlled Analgesia (IV-PCA) can effectively control underlying pain and breakthrough pain. Ketamine is used in many pain patients due to its unique analgesic effect. In this study, it was checked whether there was a difference in the amount of analgesic usage, pain control degree, and side effects between patients who controlled pain with fentanyl-based IV-PCA and those who added Ketamine for pain control. Methods: Among the patients referred to this department for cancer pain, IV-PCA was applied to patients who were taking sufficient oral analgesics but could not control them or had blood clotting disorders that made the procedure difficult, and this patient group was targeted. In IV-PCA, 3000 mcg of Fentanyl, 160 mg of Nefopam, and 0.3 mg of Ramosetrone were mixed with normal saline to make a total volume of 100 ml. Group F used this IV-PCA as it is, and group K mixed 250 mg of Ketamine with normal saline to make a total volume of 100 ml. For IV-PCA, the basal rate was 0.5ml/h, the bolus was set to 1ml when pressed once, and the lockout time was set to 15 minutes. If pain was not controlled after IV-PCA application, 500 mcg of Fentanyl was added, and if excessive sedation or breathing difficulties occurred, the use was stopped for one hour. After that, the degree of daily pain control, analgesic usage, and side effects were investigated for seven days using this IV-PCA. Results: There was no difference between the two groups in the demographic data. Both groups had adequate pain control. Initial morphine milligram equivalents did not differ between the two groups, but the total amount of Fentanyl used for seven days was significantly different between the two groups [$p=0.014$], and group F used more Fentanyl through IV-PCA. In addition, the amount of sleeping pills used during the seven days was higher in Group F [$p<0.01$]. Overall, there was no difference in the frequency of side effects between the two groups, but the nausea was more frequent in Group F [$p=0.031$]. Discussion: When the two groups were compared, pain control was good in both groups. This seems to be because Fentanyl-based IV-PCA showed an adequate pain control effect. However, there was a significant difference in the total amount of opioid (Fentanyl) used, which is thought to be the opioid-sparing effect of Ketamine. Also, among the side effects, nausea was significantly less, which is thought to be possible because the amount of opioids used in the Ketamine group was small. The frequency of requesting sleeping pills was significantly less in the group using Ketamine, and it seems that Ketamine also helped improve sleep quality. In conclusion, using Ketamine with an opioid to control pain seems to have advantages. IV-PCA, which can be used effectively when other procedures are difficult, is more effective and safer when used together with Ketamine than opioids alone.

Keywords : cancer pain, intravenous patient-controlled analgesia, Ketamine, opioid
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