Effects of combining (S+) ketamine to morphine in acute and chronic pain patients admitted to a Tertiary Hospital: a retrospective case series study

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Background and Goal of Study: Ketamine is a promising alternative agent for pain control that may offer some benefits over traditional strategies. Many clinical studies show reduced opioid consumption and related side effects, besides better pain management under acute or chronic pain conditions. The objective of this study was to evaluate the efficacy and safety of the addition of (S+) ketamine to morphine in the solution of Intravenous PCA for pain management in patients admitted to a tertiary hospital.

Materials and Methods: This is a retrospective case series study. All patients receiving intravenous ketamine infusion via IV-PCA, between August 2015 and May 2016 were selected for the study. Our primary outcome was the relief of pain after 5 days of observation and the secondary outcome were side effects of the intravenous solution. The intensity of pain was measured using the numerical rating score (NRS), and the worst possible pain intensity in the previous 24 hours was used for analysis. Medical records were reviewed for side effects such as nausea, vomiting, sedation, confusion and hallucinations.

Results and Discussion: A total of 64 records were found in the database. Four types of pain were identified: acute inflammatory, musculoskeletal, cancer pain and low back pain. The intensity of pain was significantly reduced in 5th the day after the introduction of ketamine, except for cancer and low back pain. At admission NRS was 7.8, 5.4, 6.9 and 7.2 for inflammatory, low back pain, cancer pain and musculoskeletal pain. After 5 days of IV ketamine, NRS was 4 (p=0.004 , D5 vs D1); 2,8 (p=0,12 D5 vs D1); 6,4 (p=0,44 D5 vs D1) and 2,7 (p=0,003 D5 vs D1) for inflammatory, low back pain, cancer pain and musculoskeletal pain respectively.

References: Richebé P, Rivat C, Rivalan B, Maurette P, Simonnet G. Low doses ketamine: antihyperalgesic drug, non-analgesic. Ann Fr Anesth Reanim. 2005; 24:1349-59

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Six patients presented side effects (2 cases of sedation, 2 cases confusion, 1 case of agitation, 1 case of delirium). Doses of ketamine varied between 0.001 and 0.03 mg/kg/h.

Conclusion(s): Intravenous ketamine was effective in the relief of inflammatory and musculoskeletal pain after 5 days of observation. The side effects did not cause any serious damage.

COMPARATIVE EFFECT OF S (+) KETAMINE (D1 x D5) ACCORDING TO PAIN TYPE			
PAIN	DAY 1	DAY 5	p
INFLAMMATORY PAIN (N = 15)	7.8	4.0*	0.004
LOW BACK PAIN (N = 12)	5.4	2.8	0.12
CANCER PAIN (N = 22)	6.9	6.4	0.44
MUSCULOSKELETAL PAIN (N = 15)	7.2	2.7*	0.003

COMPARATIVE EFFECT OF S (+) KETAMINE (D1 x D5) BETWEEN ACUTE AND CHRONIC PAIN			
PAIN	DAY 1	DAY 5	p
ACUTE PAIN (N = 35)	6.9	3.3*	0.00008
CHRONIC PAIN (N = 29)	7.0	5.5*	0.06