

Effect of adding ketamine to etomidate infusion on serum cortisol levels for anesthetic induction compared to etomidate infusion alone in elective surgical patients: A randomized controlled trial

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Abstract:

PURPOSE: This study aimed to evaluate whether the addition of ketamine to an etomidate infusion could attenuate the reduction in serum cortisol levels compared to etomidate alone in patients undergoing elective surgical procedures.

SUBJECTS AND METHODS: Eighty patients aged 18–60 years undergoing elective surgery were randomized into two groups. Group E ($n = 40$) received etomidate infusion 50 mcg/kg/min till the patient was induced. Group KE ($n = 40$) received a combined infusion of etomidate (1 mg/dL) + ketamine (5 mg/mL) at a rate of 50 mcg/kg/min of etomidate. The primary aim was to estimate serum cortisol levels at baseline, 4 h, 12 h, and 24 h postinduction.

RESULTS: The mean post-induction cortisol levels were significantly lower (p -value < 0.001) in Group E (8 ± 2.54 mcg/dL at 4 hours, 7.06 ± 2.57 mcg/dL at 12 hours, and 8.23 ± 3.1 mcg/dL at 24 hours) compared to Group KE (10.14 ± 1.96 mcg/dL at 4 hours, 10.07 ± 2.48 mcg/dL at 12 hours, and 11.27 ± 2.14 mcg/dL at 24 hours) with a comparable baseline cortisol concentrations (12.95 ± 2.64 mcg/dL) in Group E and (11.74 ± 2.11 mcg/dL) in Group KE. The serum cortisol levels decreased by approximately 39% in Group E and by around 17% in Group KE at 4 h postinduction.

CONCLUSION: The addition of ketamine to an etomidate induction regimen decreases etomidate-induced adrenal suppression while preserving anesthetic efficacy and maintaining hemodynamic stability.

Keywords:

Adrenal suppression, cortisol levels, induction