EFFICACY OF INTRANASAL DEXMEDETOMIDINE IN COMBINATION WITH KETAMINE AS PREMEDICATION AND SEDATION IN PEDIATRIC PATIENTS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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INTRODUCTION

Premedication in children is helpful for both separating the child from their parent and reducing the child's stress and anxiety. Dexmedetomidine's potential to attenuate the sympathetic response, provide sedation and decrease emergence agitation are properties that may be favorable in its combination with ketamine.

OBJECTIVES

To compare the efficacy and safety of the combination of dexmedetomidine and ketamine administered via the intranasal route on sedation of children aged 0 to 12 years old prior to elective surgery or procedural sedation as compared to intranasal dexmedetomidine.

METHODS

Six randomized controlled trials fulfilled eligibility criteria following literature search. Meta-analyses of mean differences were conducted to examine variances in sedation onset and recovery times. Meta-analyses of proportions were done to estimate incidence of sedation success, satisfactory sedation at parental separation and mask induction and adverse events.

RESULTS

The overall incidence of sedation success was higher among children premedicated with intranasal dexmedetomidine and ketamine (RR = 1.05; 95%CI = 0.97,1.13; P = 0.27, I^2 = 20%) however, was not statistically significant.
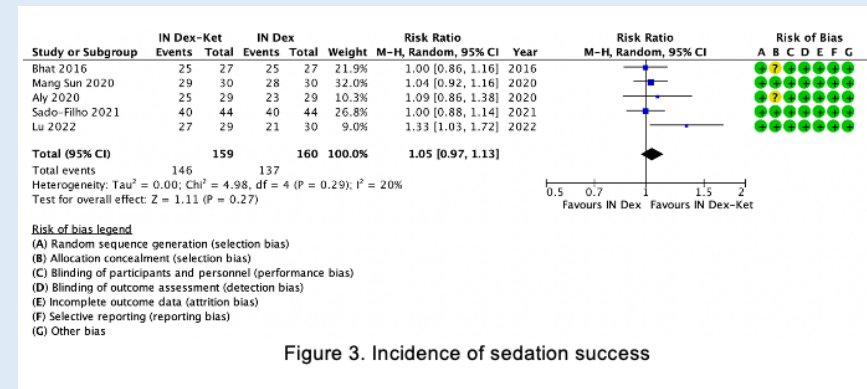

Figure 3. Incidence of sedation success

Children given intranasal dexmedetomidine and ketamine had faster sedation onset time (WMD = -7.17; 95%CI = -12.44, -1.89; P=0.008) with greater incidence of satisfactory sedation at mask induction (RR = 1.41; 95%CI = 1.06, 1.88]; P<0.02). There was no significant difference as to recovery time and incidence of adverse events among the groups.

CONCLUSION AND RECOMMENDATIONS

Premedication with intranasal dexmedetomidine - ketamine is as safe as but of better efficacy than intranasal dexmedetomidine without increasing clinically relevant adverse events. Further studies to standardize combination drug dosages is recommended.

KEYWORDS: dexmedetomidine, ketamine, premedication, intranasal, pediatric