

Intranasal Dexmedetomidine Versus Other Agents for Treatment of Preoperative Anxiety in Elective Pediatric Surgery: A Systematic Review and Meta-Analysis

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Background

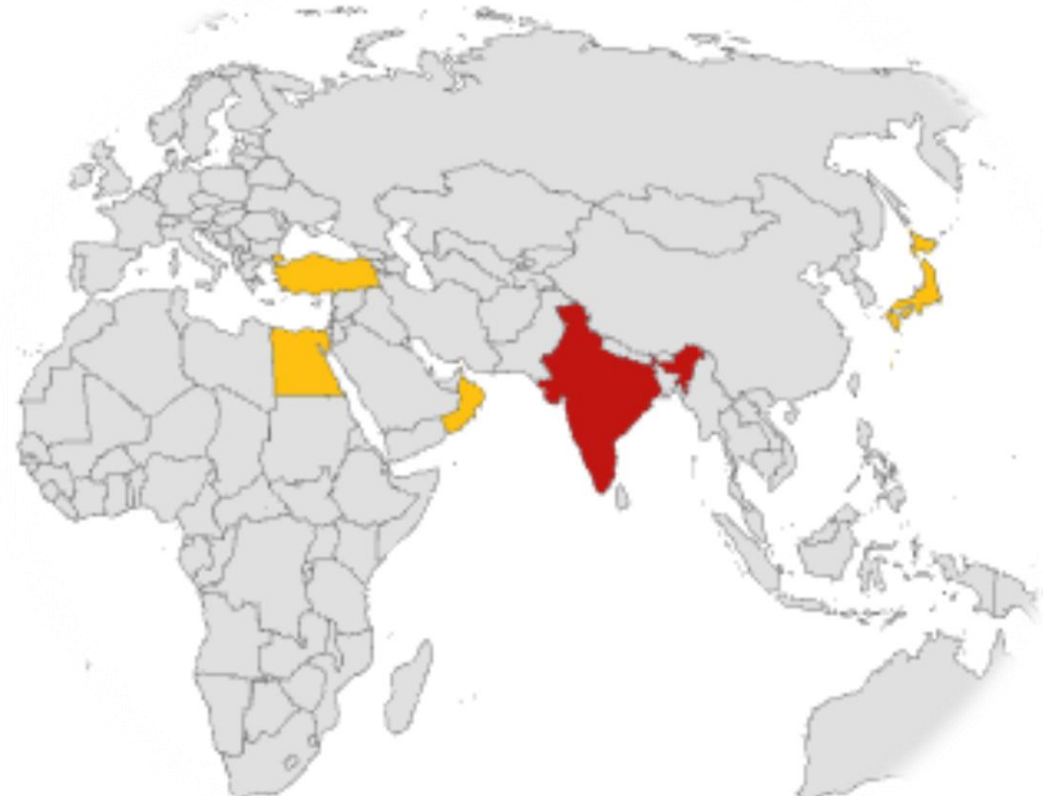
- Providing anesthesia to children can be challenging due to pre-operative anxiety
- Pre-operative anxiety can lead to difficult anesthetic induction, stress response, hemodynamic instability, increased analgesic requirements, and post-op behavioral issues
- Midazolam and ketamine are commonly administered sedatives preoperatively but may cause unwanted side effects
- Intranasal dexmedetomidine may provide anxiolysis and analgesia with less side effects, offering a promising alternative

Purpose

- To analyze the effectiveness of intranasal dexmedetomidine versus other sedatives as a premedication agent for treating preoperative anxiety in pediatric elective surgeries

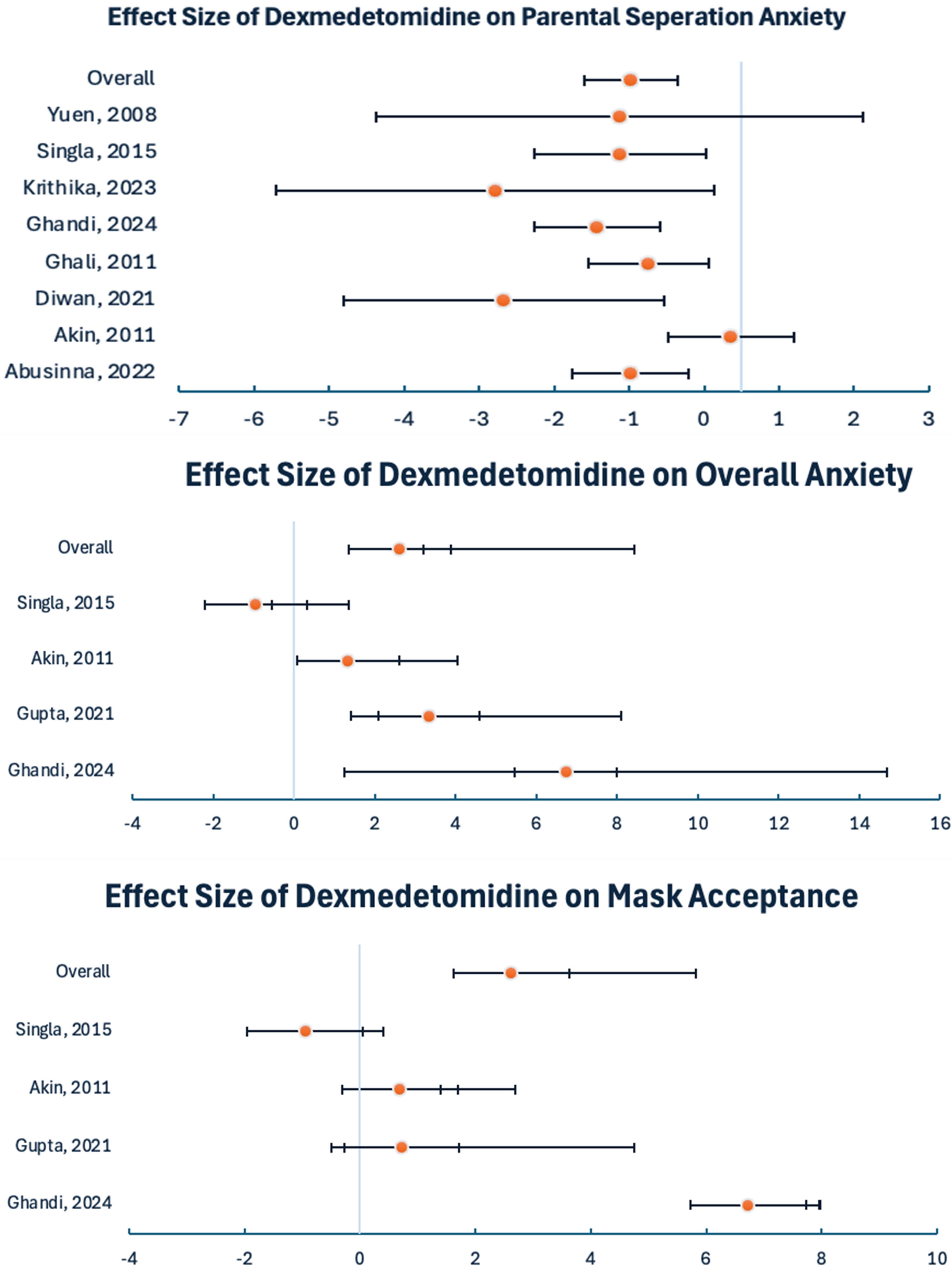
Methods

- Inclusion Criteria: RCTs that reported preoperative anxiety outcomes in children aged 2-10 years, both sexes, undergoing elective surgeries
- 4 databases were searched for published and unpublished literature, identifying 110 studies, which were narrowed down to 9
- 3 independent reviewers screened articles, appraised them, and performed data extraction
- Parental separation anxiety, overall anxiety score, and mask acceptance outcomes were synthesized through meta-analysis using SPSS software



Results

- Meta-analysis examined dexmedetomidine in comparison to ketamine and midazolam
- **Parental separation anxiety**
 - Effect size: - 0.977 (95% CI: - 7.336; 0.151), P-value: 0.002 (statistically significant)
- **Anxiety score**
 - Effect size: -3.593 (95% CI: -7.336 to 0.151), P-value of 0.06
- **Mask acceptance**
 - Effect size: 2.621 (95% CI: -0.577 to 5.819), P-value of 0.108



Limitations

- The included studies were heterogenous, but subgroup analysis was not feasible due to the limited number of studies
- The small number of studies may limit statistical power, reduce generalizability, and leave variability unaccounted for

Discussion/Conclusion

- Dexmedetomidine significantly reduced parental separation anxiety compared to other agents (***p* = 0.002**)
- Dexmedetomidine reduced overall pre-op anxiety levels, but not statistically significant due to a small sample size (***p* = 0.06**)
- Dexmedetomidine trended improving mask acceptance and did not reach statistical significance, but there is still potential for clinical significance
- Intranasal dexmedetomidine is a promising premedication agent in pediatric anesthesia, with many benefits (sedation, anxiolysis) and a favorable safety profile with minimal respiratory depression
- Future research should focus on larger, well-designed RCTs, explore optimal dosing strategies, and assess long-term outcomes which include multiple anxiety variables

References



References

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