

Poster Session

ORIGINAL ARTICLE

**01. Comparative Efficacy of Palonosetron versus Combination of Ondansetron-Dexamethasone for Prevention of Postoperative Nausea and Vomiting: A Systematic Review and Meta-Analysis**

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**Background:** Postoperative nausea and vomiting (PONV) is one of the most common complications after surgery which adversely affects patient comfort and increases healthcare costs. Traditional prophylaxis often combines Ondansetron and dexamethasone to target several antiemetic mechanisms. Palonosetron, with a longer half-life and higher receptor affinity, may offer superior prevention of delayed-phase PONV. This study compares the efficacy of palonosetron monotherapy vs ondansetron-dexamethasone combination in preventing postoperative nausea and vomiting. **Methods:** This systematic review and meta-analysis followed PRISMA guidelines. A comprehensive search was made across multiple databases and 4 RCTs were included which fulfilled the inclusion criteria. Risk of bias was assessed using the Cochrane RoB 2 tool. **Results:** This meta-analysis combined data from 4 randomized controlled trials (out of 36 screened records) which compared palonosetron with the ondansetron-dexamethasone combination for PONV prevention. Palonosetron showed significantly superior efficacy which resulted in a statistically significant reduction in overall PONV incidence within 24 hours (OR 0.22; 95% CI: 0.11 to 0.45;  $p < 0.0001$ ;  $I^2=0\%$ ) and a lower requirement for rescue antiemetic medication (OR 0.11; 95% CI: 0.03 to 0.39;  $p = 0.0007$ ;  $I^2=33\%$ ). While the incidence of PONV within 12 hours

(OR 0.20; 95% CI: 0.04 to 1.00;  $p = 0.05$ ;  $I^2=41$  and 24-48 hours (OR = 1.01; 95% CI: 0.23, 4.43,  $I^2=0\%$ ;  $P = 0.99$ ) showed a non-significant trend favoring palonosetron. **Conclusion:** Palonosetron is more effective than the ondansetron-dexamethasone combination in avoiding postoperative nausea and vomiting (PONV) within 24 hours and decreasing the need for rescue medication. It represents a superior, well-tolerated option for PONV prophylaxis.

**Key Words:** "Palonosetron"[Mesh], "Postoperative Nausea and Vomiting"[Mesh], "Antiemetics"[Mesh]

| Outcome (Post-Op)         | Studies (n) | Odds Ratio (OR) | 95% Confidence Interval (CI) | Heterogeneity (I <sup>2</sup> ) | P-Value      |
|---------------------------|-------------|-----------------|------------------------------|---------------------------------|--------------|
| 12-Hour PONV Incidence    | 2           | 0.20            | [0.04, 1.00]                 | 41%                             | $P = 0.05$   |
| 24-Hour PONV Incidence    | 4           | 0.22            | [0.11, 0.45]                 | 0%*                             | $P < 0.0001$ |
| 24-48 Hour PONV Incidence | 2           | 1.01            | [0.23, 4.43]                 | 0%                              | $P = 0.99$   |
| 24-Hour Rescue Therapy    | 4           | 0.11            | [0.03, 0.39]                 | 33%                             | $P=0.0006$   |

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