|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Study ID** | **Design** | **Country** | **Sample size** | | **Age, Year (SD)** | | **weight Kg (Mean**± **SD)** | | **Sex (Male/ Female)** | | **Main findings** |
|  |  |  | **Dexmedetomidine** | **Placebo** | **Dexmedetomidine** | **Placebo** | **Dexmedetomidine** | **Placebo** | **Dexmedetomidine** | **Placebo** |  |
| Arefiev 2020[(27)](https://sciwheel.com/work/citation?ids=16588088&pre=&suf=&sa=0&dbf=0) | RCT | Russia | 20 | 20 | 53.5 (12.2) | 53.1 (9.3) | NR | NR | 9/11 | 10/10 | dexmedetomidine should be more widely utilized in routine clinical practice to optimize anesthetic management of transsphenoidal surgeries |
| Bala 2019[(28)](https://sciwheel.com/work/citation?ids=13038359&pre=&suf=&sa=0&dbf=0) | RCT | India | 30 | 30 | 37.2 ± 11.0 | 41 ± 13.4 | 67.7 ± 12.5 | 71.2 ± 14.8 | 16/14 | 17/13 | Intraoperative Dex infusion is a reasonable choice in patients undergoing transsphenoidal pituitary surgery. |
| Choi 2024[(29)](https://sciwheel.com/work/citation?ids=16588075&pre=&suf=&sa=0&dbf=0) | RCT | South Korea | 29 | 32 | 51.0 (40.5–59.0) | 50.0 (42.0–57.0) | 65.5 (58.5–77.5) | 68.0 (57.6–76.8) | 13/16 | 17/15 | Dexmedetomidine, as an anesthetic adjuvant, did not improve early postoperative QoR in patients with NFPA during ETS. |
| Gopalakrishna 2015[(30)](https://sciwheel.com/work/citation?ids=16588074&pre=&suf=&sa=0&dbf=0) | RCT | India | 22 | 22 | 41.9± 10.4 | 48.1± 12.3 | 63.5± 9.8 | 64.9± 10.1 | 10:12 | 15:07 | DEX as an anesthetic adjuvant improved hemodynamic stability and decreased anesthetic requirements in patients undergoing TNTS resection of pituitary tumor. |
| Kang 2020[(17)](https://sciwheel.com/work/citation?ids=16587996&pre=&suf=&sa=0&dbf=0) | RCT | South Korea | 23 | 23 | 55 [43–62] | 48 [39–56] | NR | NR | 8/15 | 11/12 | Intraoperative dexmedetomidine administration reduced norepinephrine release and rescue analgesic requirement. |
| Mathew 2020[(16)](https://sciwheel.com/work/citation?ids=16588012&pre=&suf=&sa=0&dbf=0) | RCT | India | 20 | 20 | NR | NR | NR | NR | NR | NR | Intraoperative use of dexmedetomidine in transsphenoidal pituitary surgery provided stable perioperative hemodynamics comprising reduced cardiovascular response to intubation and surgical noxious stimuli along with a similar recovery compared with the control group. |
| Muangman 2023[(25)](https://sciwheel.com/work/citation?ids=16588098&pre=&suf=&sa=0&dbf=0) | RCT | Thailand | 40 | 40 | 47.9 11.8 | 43.6 12.9 | 63.8 11.9 | 66.9 11.9 | 19:21 | 14:26 | dexmedetomidine infusions of 0.2 and 0.5 mcg/kg/h showed the same effect on blood loss and hemodynamics. |
| Praveen 2023[(18)](https://sciwheel.com/work/citation?ids=16587992&pre=&suf=&sa=0&dbf=0) | RCT | India | 25 | 25 | 46.08 (±12.07) | 46.24 (±12.38) | 73.16 (±13.90) | 65.80 (±11.31) | 11/14 | 12/13 | Nebulized dexmedetomidine proved superior to its combination with lignocaine across all evaluated parameters. |
| SALIMI 2017[(26)](https://sciwheel.com/work/citation?ids=6539566&pre=&suf=&sa=0&dbf=0) | RCT | Iran | 30 | 30 | 42.76±13.6 | 43.85±11.46 | 72.33±12.58 | 76.89±13.64 | 14/16 | 15/15 | Dexmedetomidine infusion (0.6μg/kg/hour) could reduce bleeding and provide surgeon's satisfaction during trans­sphenoidal resection of pituitary adenoma. |
| Soliman 2017[(19)](https://sciwheel.com/work/citation?ids=16588086&pre=&suf=&sa=0&dbf=0) | RCT | Egypt | 76 | 76 | 43.20±10.93 | 44.02±10.14 | 90.09±9.98 | 92.26±10.24 | 40/36 | 36/41 | dexmedetomidine, compared to magnesium, is associated with lower blood loss and better operating conditions but with more hypotension and bradycardia |

**Table 1**: baseline characteristics of included studies.