Records identified from:

PubMed (n = 18)

Scopus (n = 24)

Cochrane library (n = 5)

Web of Science (n = 20)

Goggle scholar (n= 46)

Records removed *before screening*:

Duplicate records removed (n = 5)

Records marked as ineligible by automation tools (n = 2)

Records removed for other reasons (n = 3)

**Identification**

**Included**

Records screened (n = 103)

Title and abstract screening

(n = 103)

Reports of irrelevant studies

(n = 78)

Full text screening (n = 25)

Studies included in meta-analysis (n = 10)

**Screening**

**Identification of studies via databases and registers**

Reports excluded: (n = 15)

**Reasons**: non-human studies, studies not focused on Transsphenoidal Resection of Pituitary Adenoma, studies not evaluating the use of Dexmedetomidine against placebo, observational studies, Reviews, editorials, or conference abstracts or studies without relevant outcomes.

**Figure 1**: PRISMA flowchart of included studies.

A chart with green and yellow circles

Description automatically generated

**Figure 2**: Quality assessment of included studies using ROB2 tool.

A table with numbers and a number of objects

Description automatically generated with medium confidence

**Figure 3:** Analysis of mean difference heart rate after Intubation between Dexmedetomidine and placebo.

A table with numbers and a number of objects

Description automatically generated with medium confidence

**Figure 4:** Analysis of mean difference heart rate post extubation between Dexmedetomidine and placebo.

A close-up of a number

Description automatically generated

**Figure 5:** Analysis of mean difference heart rate post extubation between Dexmedetomidine and placebo after sensitivity analysis.

A black and white text with numbers and a number

Description automatically generated with medium confidence

**Figure 6:** Analysis of mean difference Mean arterial pressure after Intubation between Dexmedetomidine and placebo.

A table with numbers and a number of weight

Description automatically generated with medium confidence

**Figure 7:** Analysis of mean difference Mean arterial pressure post extubation between Dexmedetomidine and placebo.

A table with numbers and a number of objects

Description automatically generated with medium confidence

**Figure 8:** Analysis of mean difference duration of surgery between Dexmedetomidine and placebo.

A table with numbers and text

Description automatically generated

**Figure 9:** Analysis of mean difference blood loss between Dexmedetomidine and placebo.

A screenshot of a graph

Description automatically generated

**Figure 10:** Analysis of mean difference blood loss between Dexmedetomidine and placebo after sensitivity analysis.

A close-up of a table

Description automatically generated

**Figure 11:** Analysis of mean difference propofol dose (mg/kg/h) between Dexmedetomidine and placebo.

A table with numbers and a number of objects

Description automatically generated with medium confidence

**Figure 12:** Analysis of mean difference Extubation time between Dexmedetomidine and placebo.

A table with numbers and a number of objects

Description automatically generated with medium confidence

**Figure 13:** Analysis of Odds Ratio Nasua and vomiting between Dexmedetomidine and placebo.