OAA ASM · Liverpool 2026

Total Intravenous Anaesthesia for Lower-Segment Caesarean Section

A Scoping Review

University Hospitals Birmingham
NHS Foundation Trust | Univ. of Birmingham

Shreya Dinesh[1]* · Aditya Krishnan[2 3] · Daniel Clayton[2 3] · Darshana Dhaka[3] · Seetharama Dinesh[3] * Corresponding author

INTRODUCTION

Background

The superiority of TIVA over volatile maintenance in major surgery remains debatable [1]. Lower-segment Caesarean sections (LSCS) present specific physiological challenges to both parturient and neonate, directly influencing choice of anaesthetic technique.

Aim

This scoping review synthesises the current evidence base on TIVA versus volatile maintenance of anaesthesia specifically in LSCS.

METHODS

Framework: Arksey & O'Malley scoping review methodology [2]

Databases: PubMed, Embase, Cochrane Library

Inclusion: English-language studies and case reports involving TIVA or TCI for LSCS

Screening: Independent dual review

Risk of bias: JBI tools (case reports, cross-sectional, cohort); ROB2 (RCTs); ROBINS2 (non-RCTs)

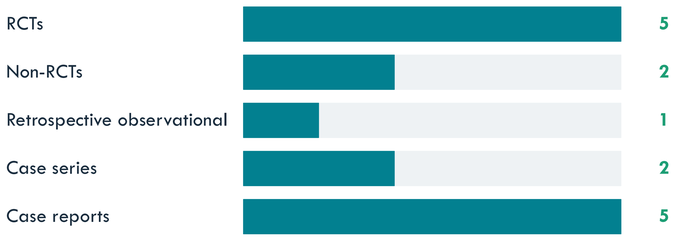
Synthesis: Narrative

RESULTS

33
Studies screened

15
Studies included

Study types included



Key findings

↓ Reduced blood loss & uterine atony with TIVA

~ Awareness & depth of anaesthesia: no group difference

! Labile haemodynamics observed in some TIVA groups

? Lower Apgar scores in TIVA groups (inconsistent opioid regimens)

DISCUSSION

Positive signals

Consensus statements acknowledge potential haemorrhage reduction, as IV agents minimally affect myometrial tone compared to volatile agents. Several case reports demonstrate TIVA can be used safely in rare clinical scenarios such as malignant hyperthermia.

Key barriers

- Safety of rapid-sequence induction with TIVA
- Intubation conditions largely unexplored
- No obstetric-specific TCI pharmacokinetic models

Vital research gaps

- Speed of induction
- Intubating conditions
- Depth-of-anaesthesia monitoring
- Postoperative analgesia

CONCLUSION

Future research should assess the feasibility of TIVA for routine LSCS under GA to confirm potential benefits including reduced haemorrhage, antiemesis, and reduced environmental impact. Currently, evidence supports selective use in specific clinical indications.

[1] College of Medical & Dental Sciences, University of Birmingham [2]Clinical Trials Unit, University of Warwick [3]Dept of Anaesthesia, UHB NHS Foundation Trust | No funding received

[1] Delgado et al. BJA Education 2020;20(6):201-207 [2] Arksey & O'Malley. Int J Soc Res Meth 2005;8(1):19-32