Evaluation of Spinal Dose Administered to Short Stature Parturients Having a Caesarean Delivery and the Associated Complications

Manchester University NHS Foundation Trust

Kezia Babu, Amanda Zacharzewski | Department of Anaesthesia, St Marys Hospital, Oxford Road, Manchester, UK

INTRODUCTION

Short stature parturients (≤147 cm) are historically considered at an increased risk of high regional block and associated complications.

Objective: To evaluate if short maternal stature accurately influences spinal anaesthetic dose requirements or clinical complication rates.

METHODS

Timeline: Retrospective service evaluation from September 2022 to December 2025.

Setting: NHS Foundation Trust with 16,500 deliveries/year.

Inclusion: Spinal & CSE anaesthesia for LSCS, Height ≤ 147 cm, Complete documentation.

Exclusion: Epidural top-ups, Missing data, Elective GA, Height >147 cm.

RESULTS

129 Patients met the inclusion criteria.

Height Range	Total Number Of Patient (n)	Median 0.5% Heavy Bupivacine Dose (ml) / (mg)	Median Diamorphine Dose (mcg)	Median Total Spinal Volume	Median Block Height
133-139cm	5	2.50 ml/12.5 mg	400 mcg	2.90 ml	T4
140-143 cm	16	2.40 ml/12.0 mg	400 mcg	2.80 ml	T4
144-147cm	108	2.60 ml/13.0mg	400 mcg	2.90 ml	T4

- **High Block (≥T3): Occurred in 44% (n=57). Crucial insight: Incidence did not demonstrate a height-dependent trend (40% in 135–135cm, 31.25% in 40–143cm, 46% in 144–147cm).**
- **Difficult Spinals: 7% (n=9) required 3 or more attempts to site.**
- **Discomfort: 3 cases (managed with Alfentanil).**

SAFETY PROFILE

0

Cases required conversion to General Anaesthesia.

1

Case of hypotension during the Perioperative Period.

DISCUSSION & CONCLUSION

This retrospective analysis found no evidence that short maternal stature (≤147 cm) influenced spinal anaesthetic dose or the rate of significant clinical complications.

While the overall incidence of high block (44%) is notable, the lack of a height-dependent trend suggests other factors-such as Positioning, Injection technique, and baricity-may exert a greater influence on the cephalad spread of local anaesthetic.

Conclusion: These findings provide strong evidence that intrathecal heavy bupivacaine does not require dose adjustment in patients of this stature.

REFERENCES

1. https://www.nhs.uk/condions/restricted-growth/ Accessed 29/01/2026
2.Recommendations for effective documentation in regional anesthesia: an expert panel Delphi consensus project. Ahmed HM, Atterton BP, Crowe GG, et al. Reg Anesth Pain Med 2022;47:301–308.