

Two case reports of spinal anaesthesia in parturients with high body mass index using height–adjusted doses of 0.5% hyperbaric bupivacaine.

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Introduction

There is good evidence that single shot spinal (SSS) doses do not need to be reduced for high body mass index (BMI) [1]. This is supported by observations from our routine practice when using a height - adjusted dosing regimen. However, the possibility that spread of spinal anaesthesia may be enhanced in those with a BMI of more than 50 kg/m² has not been ruled out [2]. It is the routine practice of one of the authors (Brar) to use her standard height-adjusted dosing regimen (table 1: doses have since been revised slightly and are shown in brackets). This is in conjunction with a standardised technique: no barbotage, two drops of CSF allowed out to exclude air, injection at approximately 0.2-0.3ml/s, with the patient then placed immediately supine with left lateral tilt.

Two case reports are presented, describing successful SSS for elective Caesarean section (CS), using height-adjusted doses, in primiparous singleton parturients with term BMIs of greater than 50kg/m².

*Written consent has been given by both patients.
This presentation has been approved by the Trust Research and Innovation department.*

Discussion

Research to establish the ideal intrathecal dose in parturients with BMI above 50kg/m² is limited. Combined spinal epidural (CSE) may have advantages over SSS, by allowing lower intrathecal doses to be used, with the ability to raise the sensory level if needed. The Tuohy needle can act as a guide for the spinal needle, and the epidural catheter can be used to maintain anaesthesia during prolonged surgery. SSS reduces time in the sitting position, which may itself lower the spinal block. There are no risks of using an untested catheter, catheter failure or high spinal block after catheter top up. We do not reduce the intrathecal dose in such parturients when using a height – adjusted regimen. We have found no signs of high spinal block, even when using relatively large doses in taller parturients.

Table 1. Height - Adjusted Dosing Regimen

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Revised doses are in brackets.

Height (cm)	Volume 0.5% hyperbaric bupivacaine (millilitres)	Height (cm)	Volume 0.5% hyperbaric bupivacaine (millilitres)	Height (cm)	Volume 0.5% hyperbaric bupivacaine (millilitres)
146	2.1 (1.9)	160	2.5 (2.5)	174	3.0 (2.9)
147	2.1 (2.0)	161	2.6 (2.5)	175	3.0 (2.9)
148	2.2 (2.0)	162	2.6 (2.6)	176	3.0 (2.9)
149	2.2 (2.1)	163	2.6 (2.6)	177	3.1 (3.0)
150	2.2 (2.1)	164	2.6 (2.7)	178	3.1 (3.0)
151	2.2 (2.1)	165	2.7 (2.7)	179	3.2 (3.0)
152	2.3 (2.2)	166	2.7 (2.7)	180	3.2 (3.0)
153	2.3 (2.2)	167	2.7 (2.8)	181	3.2 (3.0)
154	2.3 (2.3)	168	2.8 (2.8)	182	3.3 (3.1)
155	2.4 (2.3)	169	2.8 (2.8)	183	3.3 (3.1)
156	2.4 (2.3)	170	2.8 (2.8)	184	3.3 (3.1)
157	2.4 (2.4)	171	2.9 (2.8)	185	3.4 (3.1)
158	2.5 (2.4)	172	2.9 (2.9)	186	3.4 (3.1)
159	2.5 (2.5)	173	2.9 (2.9)	187	3.4 (3.2)

Case Report One

A 29 year old parturient of height 160cm, presented with a weight of 162 kg at seven weeks gestation (BMI 63kg/m²), rising to 188kg at 28 weeks gestation (BMI 73kg/m²). In the sitting position, a SSS of 2.5ml 0.5% hyperbaric bupivacaine with opioid was injected. First sensation to cold at ten minutes was up to and including the fourth thoracic dermatome, using ethyl chloride spray. The time from SSS injection to end of surgery was 102 mins.

Case Report Two

A 25 year old parturient of height 179cm, presented with a weight of 153kg at eight weeks gestation (BMI 48kg/m²), rising to 180kg at 36 weeks gestation (BMI 56kg/m²). In the sitting position, a SSS of 3.2ml 0.5% hyperbaric bupivacaine was injected, with opioid. First sensation to cold at ten minutes was up to and including the third thoracic dermatome, using ethyl chloride spray. The time from SSS injection to end of surgery was 77 mins.

References
1. Ngaka TC, Coetzee JF, Dyer RA. The Influence of Body Mass Index on Sensorimotor Block and Vasopressor Requirement During Spinal Anesthesia for Elective Cesarean Delivery. Anesth Analg. 2016; 123:1527-34.
2. Lamon AM, Einhorn LM, Cooter M, Habib AS. The impact of body mass index on the risk of high spinal block in parturients undergoing cesarean delivery: a retrospective cohort study. J Anesth. 2017; 31: 552–8.