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Neurological complications after epidural catheter insertion for labour analgesia
An observational study including more than 92% of deliveries in Malta

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Introduction

Neuraxial techniques remain the gold standard in managing pain during labour. The siting of a catheter in the epidural space allows for the administration of these analgesics over time. However, these techniques are not risk-free, and, although rare, their side-effects and complications have long been documented. Also, the incidence of accidental dural puncture (ADP), that is the inadvertent puncture of the dura mater during epidural catheter insertion and which predisposes to the postnatal development of post-dural puncture headache (PDPH), is now considered a standard of care in many obstetric units.[1]

The Delivery Suite at Mater Dei Hospital (MDH), Malta, caters for more than 4000 births annually and has a dedicated anaesthetist round the clock. All procedures carried out by obstetric anaesthetists are recorded in a specific paper logbook, which anaesthetists use both to track patients who received their care but also as a database for clinical governance purposes.

Methods

All 2019 logbook entries were inputted retrospectively into a MS Excel® spreadsheet and analysed using the same programme. Women identified as having had an ADP, a significant PDPH, any residual motor or sensory blockade, or any other neurological problem were identified. Their medical notes were retrieved for further evaluation.

Results

In 2019 there was a total of 4040 deliveries at MDH and 1064 epidurals were administered. The epidural uptake rate for that year stood at 26.3%. Twenty women were identified as having had a neurological problem after an epidural insertion (1.88%) and their characteristics are described in table 1. Neurological complications included 7 patients with residual paraesthesia and 2 with residual motor block. None required spinal imaging and all resolved prior to discharge.

Six patients had recognized ADP (5 of which developed PDPH) and 3 presented with PDPH (with no recognized ADP). Seven patients with PDPH had an epidural blood patch and none required a repeat. One patient developed ptosis on epidural loading dose administration which resolved spontaneously on stopping the epidural infusion. There were no cases of epidural abscess or haematoma. One patient had a retained epidural catheter requiring neurosurgical intervention. This was unsuccessful and the patient was referred to London's National Hospital for Neurology and Neurosurgery.

Discussion

The low incidence of neurological complications after epidural catheterization in labour observed in our centre is in line with that found in the literature and this highlights the safety of neuraxial techniques in providing good quality analgesia for women in labour.[2] Moreover, an ADP rate of 0.56% is well below the 1% benchmark for ADPs set by the Royal College of Anaesthetists.[1] This explanation for this could be three-fold: a practical workshop on epidural insertion is organized for trainees starting their first rotation in obstetric anaesthesia, most epidurals in our centre are done by specialist anaesthetists and trainees often have access to timely assistance by experienced anaesthetists. The case of a retained epidural catheter was the first encountered in our unit. This is an extremely rare complication with an incidence of 0.0015%.[3]

Characteristics of women with neurological issues (table 1)

Mean age	30.1 years	
Gravidity	Primagravida	12
	Multigravida	8
Mode of delivery	Spontaneous vaginal	17
	Instrumental vaginal	2
	LSCS	1
Needle size	16G	14
	18G	4
	16G changed to 18G	1
	Undocumented	1
Level of epidural insertion	L2/L3	8
	L3/L4	11
	Undocumented	1
Document difficult insertion	Yes	10
	No	9
	No report	1

References

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