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Introducing NRFit needles for all Neuraxial procedures is not associated with an increased incidence of Post-Dural Puncture headache or failed Spinal Anaesthesia

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Introduction

The universal use of Luer lock connectors have been associated with life-threatening complications of wrong route medication errors due to tubing misconnections. Despite the safety benefits of non-Luer neuraxial connectors, there still seems to be a reluctance to adopt them in many departments of anaesthesia, possibly due to concerns of increase risk of complications with use of unfamiliar equipment. Postdural puncture headache (PDPH) is a major complication of neuraxial anaesthesia that can occur either following spinal anaesthesia or as a result of inadvertent dural puncture during epidural anaesthesia especially in the obstetric population.

Ipswich Hospital was one of the first UK obstetric units to adopt non-Luer connectors (Surety, supplied by Vygon, UK) for all neuraxial procedures. With the approval of NRFit ISO, Surety needles were removed from all obstetric clinical areas and replaced with NRFit (supplied by Pajunk UK medical products Ltd) in April 2018. NRFit needles have been used universally in Ipswich Hospital since then.

Methods

A retrospective analysis of the Microsoft Access database of all obstetric anaesthesia interventions in Ipswich over the two year period (2016-2018) prior to and the two year period (2018-2020) following the introduction of NRFit needles was performed. 6612 patients were studied in the four year period in the two pre-NRFit and post-NRFit groups. The data was analysed to determine the incidence of PDPH and failed spinal anaesthesia before and after the introduction of the NRFit needles. A chi square test of independence was performed to determine if there was a statistically significant difference in PDPH and failed spinal between these groups.

Results

A total of 6612 women underwent obstetric anaesthetic intervention in the four-year study period. In the pre-NRFit group (n=3263), 1592 women had an epidural, of whom 4 had a PDPH. In the post-NRFit group (n=3349), 1511 women had an epidural, of whom 9 had a PDPH (Fig. 1). There was no statistically significant difference in the rate of PDPH following an epidural between the two groups, $p = 0.14$ (Table 1). In the pre-NRFit group 1473 women had a spinal or which 4 failed, and in the post NRFit group 1629 had a spinal of which 7 failed. The proportion of failed spinals did not differ significantly between the two groups, $p = 0.46$ (Table 2).

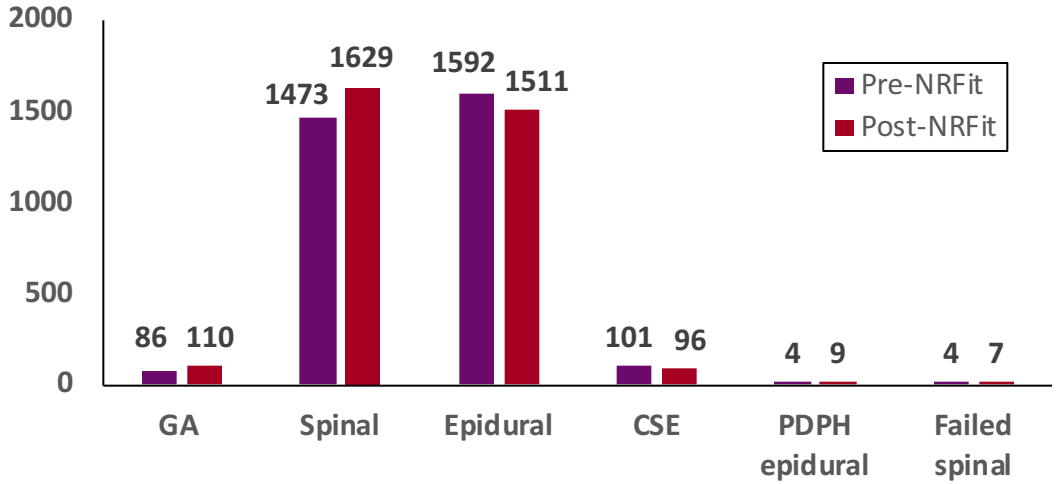


Figure. 1. Total obstetric procedures from 2016- 2020

Discussion

	Pre-NRFit	Post-NRFit
No PDPH	1588	1502
PDPH	4	9
Total	1592	1511

$p = 0.14$

Table 1. Table illustrating rate of PDPH following epidural in the Pre and Post NRFit term.

	Pre-NRFit	Post-NRFit
Successful spinal	1469	1622
Failed spinal	4	7
Total	1473	1629

$p = 0.46$

Table 2. Table illustrating rate of failed spinals in the Pre and Post NRFit term.

Changing to NRFit needles for all neuraxial procedures in obstetrics at Ispwich Hospital was not associated with a significant difference in either the incidence of PDPH after an epidural or the incidence of failed spinal anaesthesia. These findings may be reassuring for other departments which are considering the switch to NRFit.