

Complications with CompuFlo Device Assisted Epidural Placement

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Introduction

- Epidural Anesthesia with the traditional loss of resistance technique has a reported failure rate between 1.5-23%
- CompuFlo device uses continuous fluid path at tip of needle to display audio and visual representation of exit-pressure
- **Primary outcome in this study was to investigate failure rate of epidural placement with CompuFlo assistance**

Materials and Methods

- Retrospective analysis of 51 patients at single hospital institution
- Inclusion Criteria: Patients undergoing epidural anesthesia with CompuFlo device assistance
- **Complications Included:** General anesthesia during cesarean section, epidural replacement, dural punctures and postpartum complications such as headache, weakness and back pain

Results

Table 1. Patient Characteristics and Maternal Outcomes		
Population (n)		51
Maternal Age (years)	Mean	22.4
	Standard Deviation	5.4
Maternal BMI (kg/m ²)	Mean	29.35
	Standard Deviation	5.68
Race	African American	5
	Asian	1
	Caucasian	43
Parity	Nullipara	20
	Multipara	31
Epidural Performer	Faculty	6
	Fellow	8
	PGY-4	16
	PGY-3	12
	PGY-2	8
Delivery Mode	Vaginal	40
	Cesarean	11
Complications	Postpartum Complications	2.0% (1/51)
	Dural Puncture	0% (0/51)
	Epidural Replacement	5.88% (3/51)
	GA for Cesarean	27.3% (3/11)

Of the 51 patients:

- **No cases of dural puncture**
- 1 postpartum complication of back pain (2.0%)
- 3 epidural replacements required (5.88%)
- 11 underwent cesarean section
 - 3 of those patient required general anesthesia (27.3%)

Only 6 of the epidural placements were completed by faculty members (11.76%). The great majority were performed by fellows and residents (CA1-CA3).

Compared to the traditional technique, the CompuFlo System has displayed potential for decreased:

- **False loss of resistance**
- Dural Puncture
- Postpartum Complications

Despite the relatively small sample size, CompuFlo assisted epidural administration demonstrated promise as a more precise method of epidural placement. This device could be considered for use in **difficult epidural cases**. Additionally, nearly 90% of cases performed by residents and fellows. CompuFlo could be considered as a guide for those who are relatively inexperienced in epidural administration.

Further prospective studies could be aimed at comparing the complications of the LOR technique vs. CompuFlo assistance based on **patient BMI**.