Spinal anesthesia for obstetric fistula repair in Rwanda

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- International Organization for Women and Development (IOWD, iowd.org) sends medical teams to Kigali, Rwanda, with the major focus repair of obstetric fistulas and related childbirth injuries.
- Anesthetic of choice is spinal anesthesia
  - limited number of medications
  - less reliance on sometimes poorly maintained or calibrated anesthesia machines, ventilators and monitors, and occasional electrical outages.
- Need spinal anesthetic with a relatively long duration, typically hyperbaric bupivacaine (B) and fentanyl (F), with addition of epinephrine (E) for anticipated longer cases.
- Case series describes anesthetic management of 53 procedures during September 2024
- Major change was addition of 5 mcg dexmedetomidine (D) to the anesthetic when the duration of surgery was expected to be more than 2 hours.
- Intrathecal D has been shown to prolong anesthesia and improve postoperative analgesia
  - Also not controlled substance

COI: Spouse owns stock in Amgen, Abbvie, Abbott, Merck, Pfizer, United Health Group, Becton Dickinson, Edwards Lifesciences, HCA Healthcare.

SOAP 2025 Annual Meeting
APRIL 30 - MAY 4, 2025
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Case series

- 53 surgical cases, 45 initiated with spinal anesthesia.
  - Moderate sedation for most patients (Table)
- 8 patients undergoing short procedures (cystoscopies) received mild sedation or no anesthesia.
- 5 conversions of spinal anesthesia to general anesthesia
  - All in the 28 patients receiving “maximum” spinal doses of 15 mg B, 15 mcg F, 200 mcg E and 5 mcg D.
  - One due to initial failure -- induction of GA before surgical incision.
  - One occurred < 90 minutes after spinal.
  - The other three required conversion at 224 minutes, 241 minutes and 274 minutes
  - 4 were intraabdominal surgery cases and one was a TVH

ANESTHETIC METHOD	SPINAL	SEDATION/NONE
	45	8

SPINAL ATTEMPTS (skin punctures)	1	2	3	4
	28	12	4	1

SPINAL DOSES	B15/F15/E200/D5	B15/F15/D5	B15/D5	B15/F15/E200	B10-12*
# cases	29	5	1	2	8
surgery duration (min± SD)	170 ± 78	74± 53	42	123 ± 20	59 ± 37

SEDATION (spinal pts, not including induction of GA)	# PATIENTS	MEAN DOSE (mg)	RANGE
Midazaolam	32	1.6	0.5-8
Dexmedetomidine	32	17	4.0-52
Ketamine	1	20	
Propofol	3	53	20-80

AIRWAY (when GA used)	LMA	ETT
	4	1

B: bupivacaine F: fentanyl E: epinephrine D: dexmedetomidine * most also received F, one D

Conclusion/Discussion

- Possible to provide spinal anesthesia for relatively prolonged, complex intraabdominal procedures with a low conversion rate to general anesthesia.
- Addition of D prolonged and may have improved the quality of the anesthetic and post-operative analgesia.
- No worrisome side effects (bradycardia, hypotension)
- RCT preferable to confirm the efficacy of D in this context, but an ethical trial would have likely required the performance of combined spinal-epidural anesthesia using the epidural catheter as a “rescue” anesthetic, and this equipment was not available to our mission team.