



Anesthetic Management of Patients with Class 3 Obesity Undergoing Elective Cesarean Delivery

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Introduction

- Patients with class 3 obesity (BMI ≥ 40 kg/m²) undergoing planned cesarean delivery pose **significant challenges** to the anesthesiologist and obstetrician.
- Even though neuraxial anesthesia is preferred for cesarean delivery, obesity **increases the risk of neuraxial anesthesia failure**.
- Guidelines are lacking regarding the **preferred neuraxial anesthetic technique** for this specific group of patients.
- **Primary objective:**
To describe the anesthetic management of these patients at our institution.

Methods

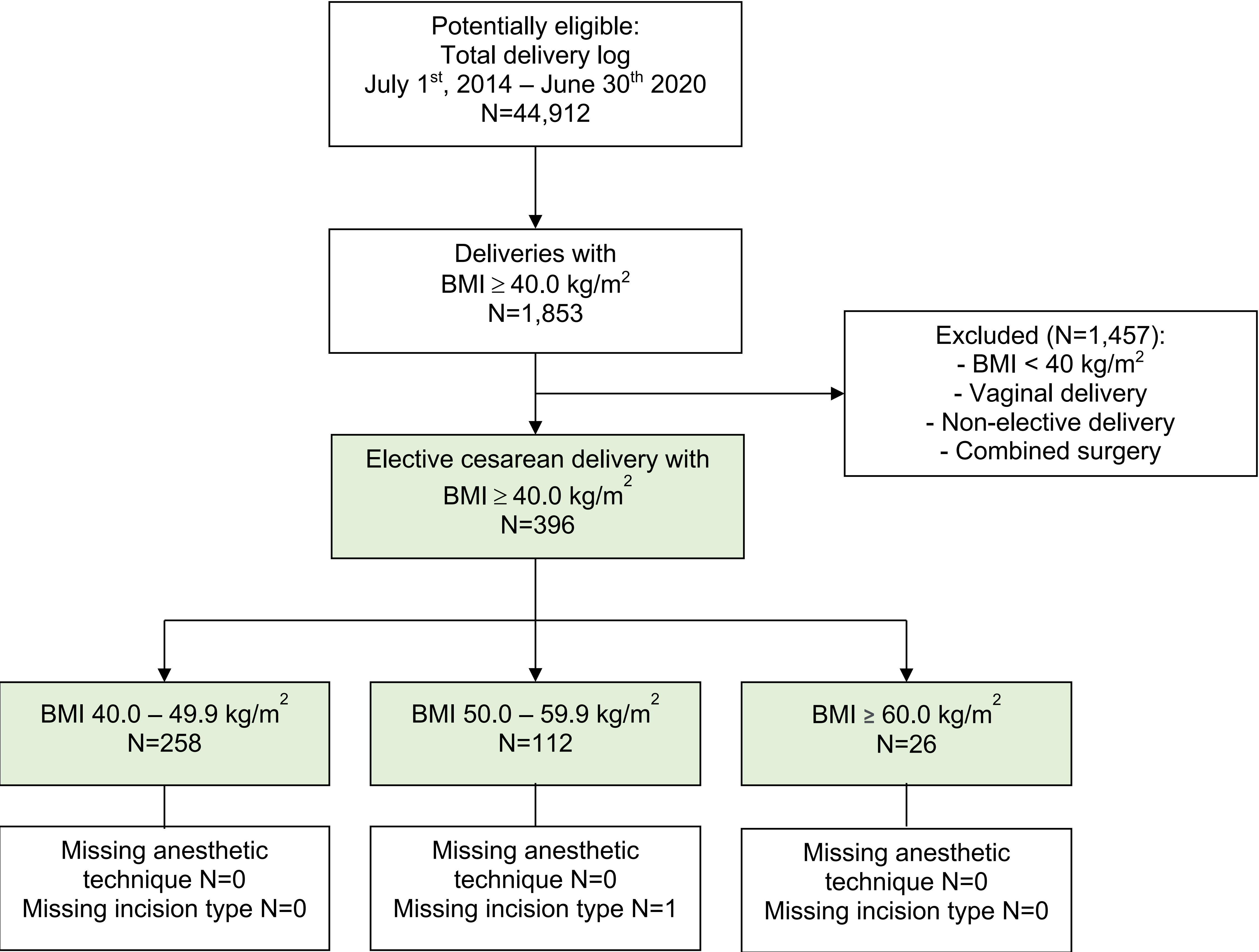
Research Ethics Board approval with waived informed consent.

Study design: Retrospective cohort study.

Population: Elective cesarean deliveries, BMI ≥ 40 kg/m², July 2014 – June 2020, academic tertiary hospital.

Data collected: Patient characteristics, anesthetic technique (initial and final), type of surgical incision, procedural times.

Results





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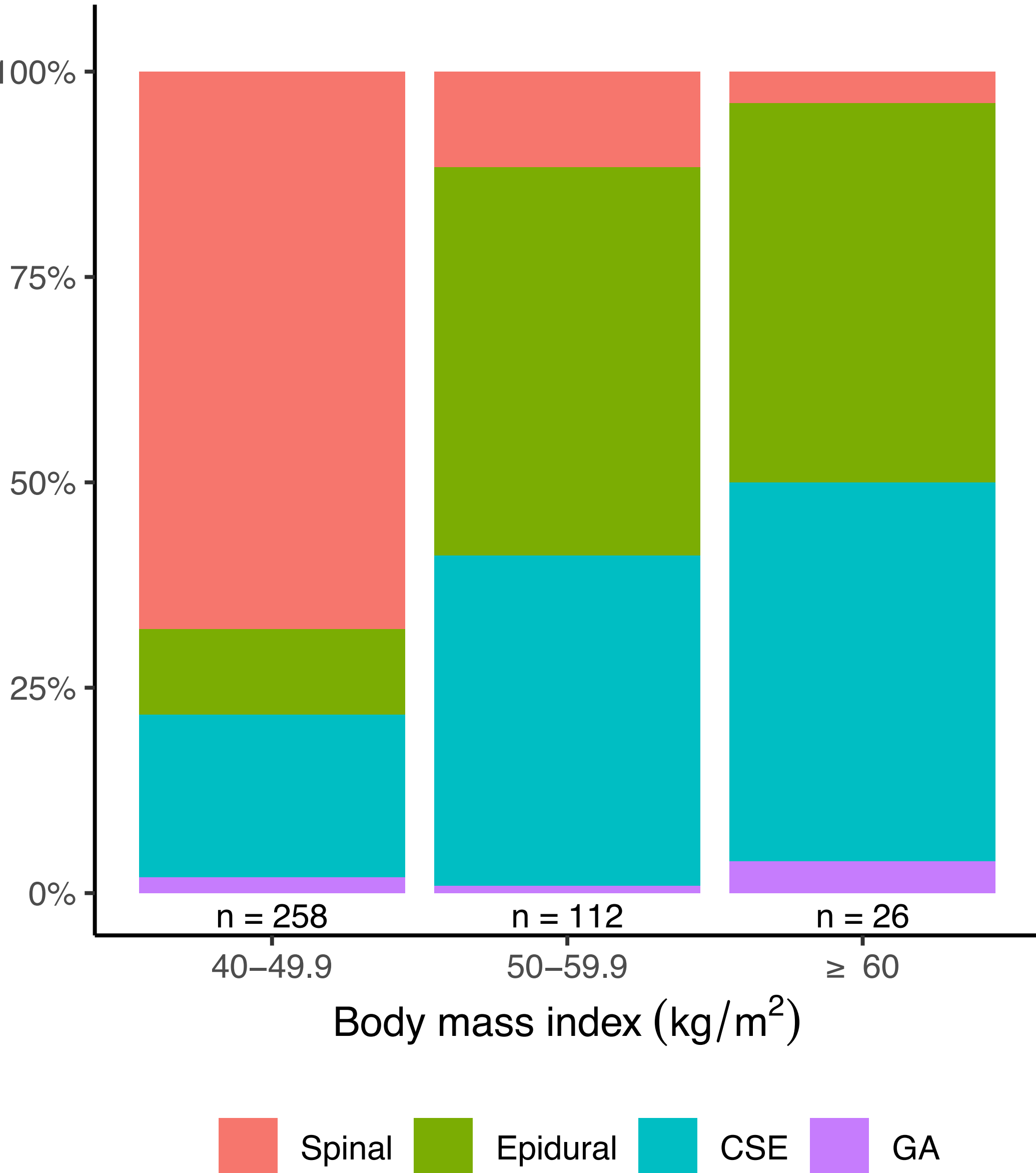


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Results

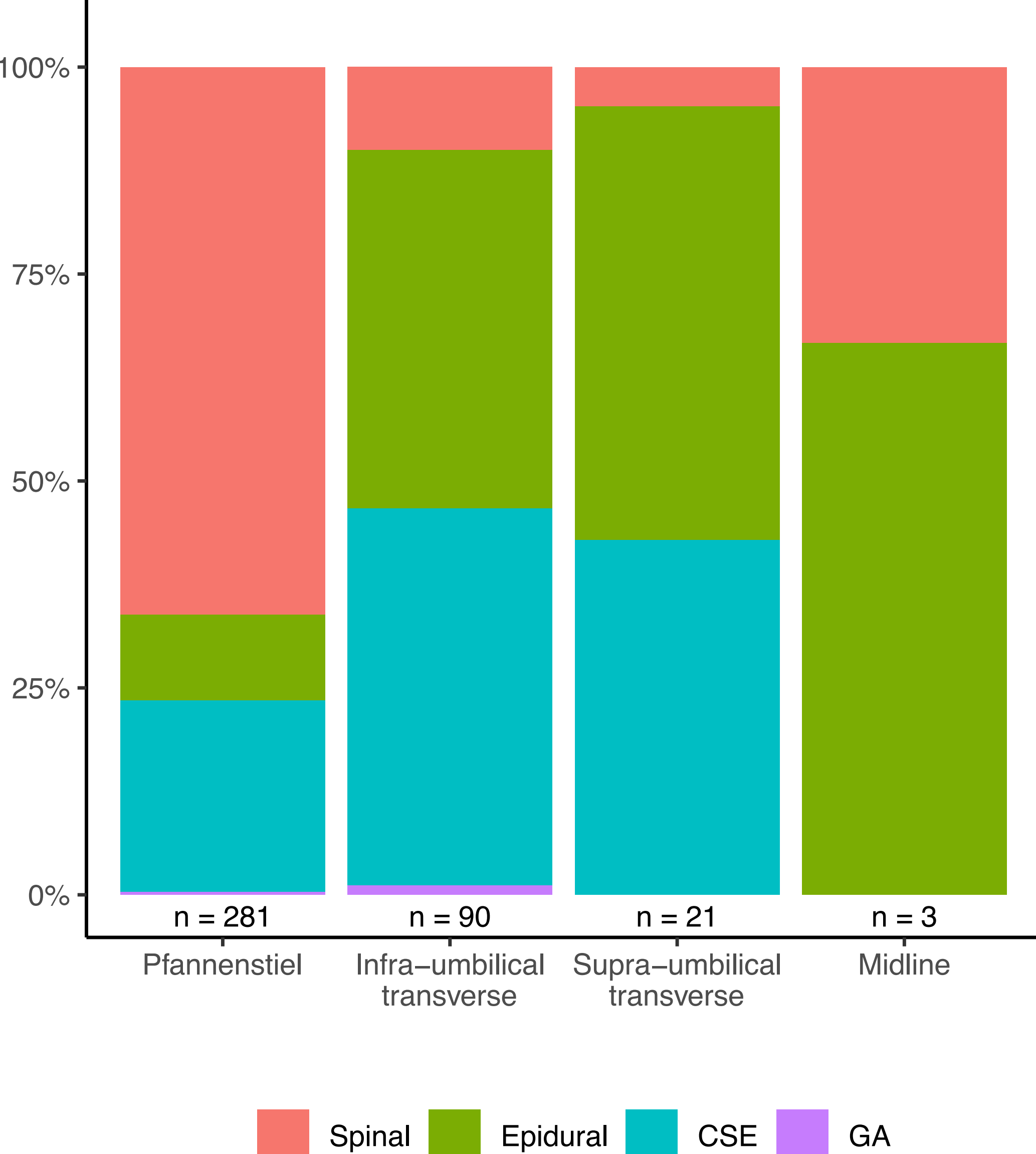
Anesthetic technique differed significantly across:

BMI groups



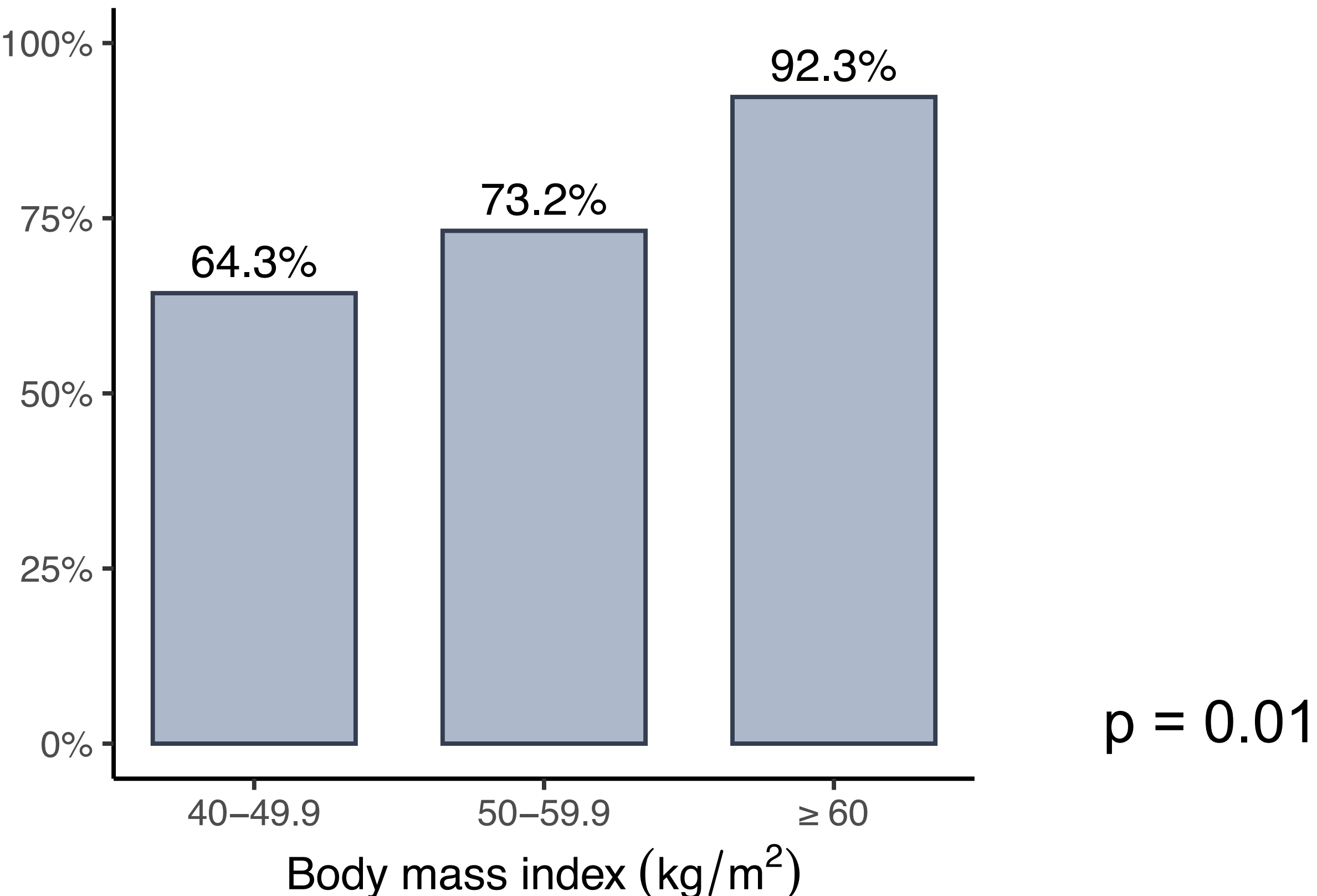
p < 0.001

Surgical incision



p < 0.001

Pre-procedural spinal ultrasound



Anesthetic technique: neuraxial vs general

Success of initial neuraxial anesthesia 90.9% (358/394)
Success with repeat neuraxial anesthesia 98.8% (389/394)

Overall incidence of neuraxial anesthesia 98.2% (389/396)
Overall incidence of general anesthesia 1.8% (7/396)

* two patients had planned GA



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Results

Procedural times increased significantly with higher BMI:

	BMI 40.0 - 49.9 (n = 258)	BMI 50.0 - 59.9 (n = 112)	BMI ≥ 60.0 (n = 26)	
Anesthetic time, mins, median [IQR]	20.0 [15.0, 28.0]	33.0 [25.0, 49.8]	38.0 [27.0, 50.8]	*
Surgical time, mins, median [IQR]	53.0 [43.0, 66.0]	75.5 [61.2, 88.0]	95.5 [81.8, 114.2]	*
OR time, mins, median [IQR]	92.0 [77.5, 110.5]	136.0 [119.2, 162.2]	157.5 [139.2, 188.2]	*

* p < 0.001

Discussion

- **Anesthetic technique** for cesarean delivery for patients with class 3 obesity varies with increasing BMI and surgical incision, with **spinal anesthesia** mostly used in **lower BMI** and **Pfannenstiel incision**.
- Neuraxial anesthesia failure occurs in 9.1%, which is mostly managed with a **successful repeat neuraxial technique**. The overall incidence of **general anesthesia** is low (1.8%).
- Use of pre-procedural **ultrasound** is high in all groups and increases with increasing BMI.
- **Testing of the anesthetic block** prior to incision is of paramount importance.
- Procedural **times increase almost twofold** with increasing BMI.
- This information should prove useful for **counseling patients, planning of anesthetic management, and allocation of hospital resources**.