EPIDURAL DEPTH REQUIRED IN SUPER MORBIDLY OBESE PATIENTS AS COMPARED TO GENERAL POPULATION

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- *INTRODUCTION*
  - EPIDURAL ANESTHESIA IS A VITAL ANALGESIC MODALITY DURING DELIVERY
  - SUCCESSFUL PLACEMENT OF AN EPIDURAL CAN BE CHALLENGING IN OBESE PATIENTS DUE TO OBSCURED LANDMARKS
  - PREDICTING THE DEPTH IN OBESE PATIENTS MAY EASE EPIDURAL PLACEMENT AND PREVENT COMPLICATIONS
  - IT'S PREVIOUSLY BEEN REPORTED THAT THE DISTANCE FROM THE SKIN TO THE EPIDURAL SPACE INCREASES AS BMI INCREASES (1). HOWEVER, MOST PREVIOUS STUDIES HAVE LOOKED AT PARTURIENTS WITH BMI'S >30 AND >35
  - OUR QUESTION? HOW DOES EPIDURAL DEPTH IN PARTURIENTS WITH BMI'S ≥50 COMPARE TO THE GENERAL POPULATION?

MATERIALS/METHODS AND RESULTS

- *MATERIALS/METHODS*
  - RETROSPECTIVE REVIEW OF EMR'S FROM PATIENTS WHO WERE…
    - ADMITTED FOR DELIVERY OF A VIABLE FETUS BETWEEN 2015-2021
    - HAD A BMI ≥50
  - FROM THE EMR'S VARIABLE PARAMETERS WERE COLLECTED
    - NEEDLE INSERTION DEPTH
    - CATHETER LENGTH AT SKIN DEPTH
    - PROCEDURE DURATION
    - NUMBER OF ATTEMPTS
    - REDIRECTIONS
    - USE OF ULTRASOUNDS
    - FACULTY INTERVENTION
    - RATE OF NEURAXIAL FAILURES

- *RESULTS*
  - 108 EMR'S WERE ELIGIBLE FOR REVIEW
  - FROM 103 CHARTS THE AVERAGE INSERTION DEPTH WAS 8.61 CM
  - IN 95 CHARTS, AVERAGE NEURAXIAL PLACEMENT TOOK 21 MINUTES AND 36 SECONDS
  - IN 74 CHARTS, 69% REPORTED HAVING A SUCCESSFUL EPIDURAL PLACEMENT ON THE FIRST ATTEMPT

Table 1. Super Obese Parturients Epidural Anesthesia Placement Procedure Information

Subjects Included (n)		108
Maternal Age (years)	Mean	28.33
	SD	5.97
	Minimum	17.00
	Maximum	42.00
Maternal BMI (kg/m2)	Mean	55.47
	SD	5.92
	Minimum	50.10
	Maximum	92.23
Needle Insertion Depth (cm) (of 103 charts)	Mean	8.61
	SD	1.53
	Minimum	5.50
	Maximum	15.00
Duration for Neuraxial Placement (min) (of 95 charts)	Mean	21.60
	SD	15.67
	Minimum	0.00
	Maximum	83.00
Number of Attempts Documented (n)	Not Documented	34
	1 Attempt	51
	2 Attempts	15
	3 Attempts	5
	4 + Attempts	3

DISCUSSION

- Although obesity can complicate pregnancy and delivery, mitigating the number of attempts, redirections and neuraxial failures could lower the stress experienced by obese parturients.
- Successfully generating a separate category of needle insertion depth for those with BMI's ≥50 may reduce the risks associated with neuraxial anesthesia.
- our next steps would be to compare our results with a suitable and representative control population to determine whether there is a significant difference. In addition, investigating the relationship between ultrasound devices and neuraxial failures could add a "success rate" factor to the quantitative aspect (average insertion depth) that we are primarily concerned with.
- **References:**

  - 1. Ravi KK, Kaul TK, Kathuria S, Gupta S, Khurana S. Distance from Skin to Epidural Space: Correlation with Body Mass Index (BMI). J Anaesthesiol Clin Pharmacol. 2011;27(1):39-42.
  - 2. Tonidandel A, Booth J, D'Angelo R, Harris L, Tonidandel S. Anesthetic and obstetric outcomes in morbidly obese parturients: a 20-year follow-up retrospective cohort study. Int J Obstet Anesth 2014; 23: 357–64.

