Obese Parturients and the Incidence of Postdural Puncture Headache after Unintentional Dural Puncture

Abstract Type: Original Research
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**Background:** An inverse relationship between body mass index (BMI) and postdural puncture headache (PDPH) incidence after unintentional dural puncture (UDP) has been suggested despite a lack of peer reviewed evidence. The proposed mechanism is based on the knowledge that lumbar epidural pressure is increased during term pregnancy while CSF pressure remains unchanged.1,2 It has also been shown that obese patients have decreased CSF volume compared to lean individuals.3 These findings suggest that a decreased intrathecal-epidural pressure gradient, resulting in less CSF leak through the dural rent, may explain a lower incidence of PDPH.

We hypothesized that parturients with a BMI>35 kg/m2 have a lower incidence of PDPH than those with BMI<35 kg/m2 after unintentional dural puncture (UDP) with a 17-gauge Tuohy needle.

**Methods:** This study was a retrospective cohort study performed by chart review. Case logs from our institution were searched for patients who had an UDP during attempted epidural or combined spinal epidural placement between January 1, 2004 and August 30, 2009. The WHO BMI International Classification was used for BMI classification. Parturients with PDPH were grouped as underweight and normal weight (BMI<25 kg/m2); overweight (BMI 25–30 kg/m2); obesity class I (BMI 30–35 kg/m2); and obesity class II and III (BMI>35 kg/m2). The primary outcome was incidence of PDPH. Groups were compared using a chi-squared statistic. Post hoc comparisons were made using the Bonferroni Method. P<0.05 was required to reject the null hypothesis.

**Results:** We identified 385 cases of UDP and 336 contained information regarding PDPH. The overall incidence of PDPH following UDP was 56% (n=189). The incidence of PDPH was 67% (n=38) in the BMI<25 group and 34% (n=19) in the BMI>35 group (P<0.05, Figure 1). There was no difference in day of onset or maximum severity of the PDPH. The rate of EBP 72% (n=136) did not differ across BMI groups.

**Conclusion:** Our data support previous reports of decreased PDPH incidence following UDP in parturients with BMI>35.4 Therefore, when managing these parturients, one can consider the placement of intrathecal catheters for labor analgesia/anesthesia.

**References:**
1. Messih M. Anaesthesia 1981;36:775
3. Hogan Q. Anesthesiology 1996;84:1341
Percent of patients with unintentional dural puncture exhibiting post dural puncture headache

Body mass index (kg/m^2)

- <25: (56)  
- 25 - 30: (153)  
- 30 - 35: (71)  
- >35: (56)  

( Number in group)  †=less than preceding groups (P=0.05)