




Incidence of postdural puncture headache in patients who underwent Cesarean delivery in three hospitals in Rwanda

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To the Editor,

Spinal anesthesia is an inexpensive, safe anesthetic in locations where other anesthesia methods are of limited availability. Nevertheless, postdural puncture headache (PDPH) is a recognized complication following spinal anesthesia. Prior research has reported varied incidences of PDPH following operative delivery in sub-Saharan Africa. We report the results of a study that aimed to identify the incidence and risk factors for PDPH in three sub-Saharan hospitals in Rwanda.

After Institutional Review Board approval by the College of Medicine and Health Sciences of the University of Rwanda (Kigali, Rwanda), we conducted a prospective study in three Rwandan hospitals (1 November 2020 to 30 March 2021). Two-hundred and sixty-one consecutive parturients scheduled for elective or emergency Cesarean delivery (CD) gave informed

consent. Exclusion criteria included pre-eclampsia, eclampsia, and intracranial infections/tumors. Collected data included demographics, previous surgical history of CD with associated PDPH, anesthesia provider level of training, and rescue medication. Statistical analysis was performed using Prism 8 (GraphPad, San Diego, CA, USA).

The **Table** summarizes the included patients' characteristics and anesthetic data. The incidence of PDPH within 24 hr was 86/261 (33%; 95% confidence interval, 28 to 39). The most frequent complaint was pain aggravated by upright position and was relieved by lying flat (78%). Forty-seven percent of patients with PDPH were treated with nonopioid analgesic rescue medication (300 mg caffeine with 500 mg acetaminophen) besides hydration and bed rest. Risk factors significantly associated with PDPH included a body mass index < 25.9 m² and previous operative delivery but not provider level of training or the number of attempts. While the frequency of epidural blood patch administration was not a prespecified outcome, we have no record of any patients who received this treatment modality.

Our findings are similar to those from some other sub-Saharan sites^{1,2} but differ notably from the incidence of PDPH in industrialized nations.³ A possible reason that might contribute to this difference may be that pregnant individuals in sub-Saharan Africa weigh less than those in industrialized countries and gain less weight throughout gestation.⁴ Malnutrition may contribute to insufficient collagen formation in the dura. Some parturients travel long distances before arriving at a hospital and may be inadequately hydrated. Finally, Quincke needles (as

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Table Patient characteristics and anesthetic data

Characteristic	N = 261
Age range (yr), n/total N (%)	
< 20	12/261 (4%)
21–30	106/261 (40%)
31–40	134/261 (51%)
> 41	9/261 (3%)
BMI range (kg·m ⁻²), n/total N (%)	
18.5–24.9	154/261 (59%)
25.0–29.9	109/261 (37%)
30.0–34.0	9/261 (3%)
PHDH after previous neuraxial anesthesia for CD, n/total N (%)	120/261 (46%)
Anesthesia provider, n/total N (%)	
Anesthesiologist	0/261 (0%)
Anesthesia resident	34/261 (13%)
Nonphysician anesthetist	157/261 (59%)
Nonphysician student	70/261 (27%)
Number of attempts at spinal anesthesia, n/total N (%)	
1	136/261 (53%)
2	125/261 (47%)
> 2	0/261(0%)
Spinal needle size, n/total N (%)	
25G	261/261 (100%)
Spinal needle type, n/total N (%)	
Quincke	260/261 (100%)

BMI = body mass index; CD = Cesarean delivery; PDPH = postdural puncture headache

opposed to Whitacre needles)⁵ were used in almost all cases.

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