

Longer Needle More Effective at Obtaining CSF For Combined Spinal Epidural Analgesia

ATLANTA—In a recent study, the Sprotte needle was associated with a significantly higher failure rate (17%) for obtaining cerebrospinal fluid (CSF) during combined spinal epidural analgesia for labor and delivery; this finding comes from a comparison with the longer Gertie Marx needle, which had a 100% success rate in obtaining CSF. The Sprotte needle is 9 mm in length beyond the top of the Tuohy needle with the hubs engaged; the Gertie Marx needle extends 17 mm beyond the tip of the Tuohy needle.

“The shorter needle is clearly inadequate for many patients,” noted Dr. Catherine L. Hamilton, Fellow in Obstetrical Anesthesia, Department of Anesthesia, Stanford University School of Medicine, California.

When CSF could not be obtained with the Sprotte needle, patients were switched to the Gertie Marx needle in order to use the combined spinal epidural technique, Dr. Hamilton explained. In those patients, 83% developed a post-dural puncture headache.

“Even though we failed to obtain CSF with the Sprotte needle, we may have punctured the dura,” she observed.

“Based on this study, we would recommend that if the needle does not obtain CSF for a combined spinal epidural technique, don’t try with another needle because there may be an occult dural puncture and that patient may be at increased risk for a spinal headache,” Dr. Hamilton cautioned.

The present study was prompted by a high failure rate with an intrathecal sufentanil technique in a previous study

undertaken by the same group. In the previous study, CSF was not obtained in 7% of cases; and in another 7% or 8%, CSF was obtained and sufentanil was injected, but the patients did not gain any pain relief.

“This high failure prompted us to suspect that the Sprotte needle was too short or that it deviated from the midline. We hypothesized that it was the length of the needle,” explained Dr. Hamilton.

A randomized, double-blind, prospective trial comparing the Sprotte needle with the Gertie Marx needle was undertaken in 73 laboring women. The study evaluated success at obtaining CSF, adequacy of analgesia achieved using the combined spinal epidural technique and the occurrence of post-dural headaches.

The procedure was performed with either of the two needles using a midline approach at L2-3 or L3-4 with the patient sitting. If no CSF was obtained, the alternate needle was tried. After obtaining CSF, sufentanil 10 µg, diluted in saline, was injected. An epidural catheter was threaded but not used until the patient requested more pain relief.

“Results confirmed our hypothesis that the shorter needle was associated with a higher failure rate,” said Dr. Hamilton. Failure to obtain CSF occurred in six patients in the Sprotte needle group versus none in the Gertie Marx group. In all the failures, the Gertie Marx needle was subsequently successful in obtaining CSF. Seven patients requested additional analgesia within 30 minutes (three in the Sprotte group, and four in the Gertie Marx

group). “These seven analgesic failures were not all explained on the basis of rapid labor,” she noted. Although 12 patients developed postdural puncture headaches, there were too few patients to draw conclusions regarding the rela-

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tive incidence of headache with the two needles, she said. Six patients received epidural blood patches.

“We are now using a Gertie Marx needle for laboring patients who request combined spinal epidural analgesia,” concluded Dr. Hamilton.

Sheila Cohen, MB, ChB, was senior author of this paper; others associated with the study were Drs. E.T. Riley and E.F. Ratner.

—Alice Goodman

Based on a poster presentation (Abstract 979) by Dr. Catherine L. Hamilton at the 1995 Annual Meeting of the American Society of Anesthesiologists.