

Anesthesiology
1998; 88:1685
© 1998 American Society of Anesthesiologists, Inc.
Lippincott-Raven Publishers

Sympathectomy and Redistribution Are Not the Only Causes of Hypothermia

To the Editor:—We read with interest the article "Intrathecal Sufentanil for Labor Analgesia Does Not Cause a Sympathectomy," by Riley *et al.*¹ Using calf, toe, and core temperature analysis, the authors detected a predictably marked sympathectomy in patients receiving 12 mg intrathecal bupivacaine for elective cesarean section (BUP-CS group). The temperature changes included a decrease in core temperature and a decrease in the calf-to-toe temperature (C-T) index. Using the same technique the authors failed to observe any change in these temperature indices in laboring parturients receiving 10 µg intrathecal sufentanil (ITS-LW group) and suggested that blood pressure reductions observed after ITS may be the result of pain relief and not the result of sympathectomy.

Skin temperature measurements are an indirect, qualitative method and do not necessarily reflect the true intensity of the sympathetic block. Matsukawa *et al.*,² using changes in skin temperature as a marker of sympathetic block, found that epidural anesthesia (bilateral T10 sensory level in all cases) produced a bilateral sympathetic block in only 6 of 12 healthy volunteers. Although Riley *et al.*¹ reported results in intrathecal and not in epidural anesthesia, Stevens *et al.*³ found no significant difference between the degree of sympathetic block after spinal or epidural anesthesia.

However, the central problem with this study is that the reference group with presumed sympathectomy (BUP-CS group) is markedly dissimilar to the study group (ITS-LW). The authors cite the decrease in the central temperature in the BUP-CS group as evidence of sympathectomy and conclude that the lack of core hypothermia in the ITS-LW group argues against the presence of sympathetic blockade in these patients. Sympathectomy and redistribution are not the only causes of hypothermia; net loss of heat to the environment (not measured in this study) is another important factor. In the BUP-CS group, as opposed to the ITS-LW group, the exposure of patients to typically cold operating room conditions (ambient temperature was not measured), twofold increase in cold intravenous fluid loading, skin preparation with cold solutions, and abdominal surgical exposure are all factors that increase heat loss to the environment.

Anesthesiology
1998; 88:1685-6
© 1998 American Society of Anesthesiologists, Inc.
Lippincott-Raven Publishers

In Reply:—Davidson and Ginosar have made some important comments regarding our study, and we appreciate the opportunity to reply. First they point out that temperature is an indirect method to assess the development of a sympathectomy. Therefore they infer that we cannot assume that the presence or absence of temperature changes indicates the development or absence of a sym-

Even assuming (as seems reasonable) that sympathectomy was present in the BUP-CS group, the thermal dissimilarities of the two groups prevent extrapolating the data and hence do not support the contention that sympathectomy was not present in the ITS-LW group. The authors argue that most of the thermal differences (together with prophylactic ephedrine administration in the BUP-CS group) will cause vasoconstriction in the BUP-CS group, thereby increasing the significance of the vasodilation observed in these patients. We disagree; vasoconstriction before the induction of sympathetic blockade amplifies the thermal markers of a subsequent sympathectomy.

Skin thermal testing used alone to diagnose the presence or absence of sympathectomy is a relatively gross assessment largely the result of the thermal variables involved. If choosing to use this method, greater care should be taken in study design to eliminate as many of these variables as possible.

Elyad Davidson, M.D.

Yehuda Ginosar, B.Sc., M.B.B.S.

Department of Anesthesiology and Critical Care Medicine
Hadassah University Hospital
Hebrew University
Jerusalem, Israel

References

1. Riley ET, Walker D, Hamilton CL, Cohen SE: Intrathecal sufentanil for labor analgesia does not cause a sympathectomy. *ANESTHESIOLOGY* 1997; 87:874-8
2. Matsukawa T, Sessler DI, Christensen R, Ozaki M, Schroeder M: Heat flow and distribution during epidural anesthesia. *ANESTHESIOLOGY* 1995; 83:961-7
3. Stevens RA, Beardsley D, White JL, Kao CT, Gant RN, Holman S: Does spinal anesthesia result in a more complete sympathetic block than that from epidural anesthesia. *ANESTHESIOLOGY* 1995; 82:877-83

(Accepted for publication January 28, 1998.)

pathectomy. We agree; temperature is an indirect method of assessing the development of a sympathectomy. However, it is an effective and accepted method. In the article by Matsukawa *et al.*,¹ to which Davidson and Ginosar refer, temperature was used to assess whether a sympathectomy occurred. Additionally we used more strict criteria than Matsukawa *et al.* for determining baseline