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Should Hemoglobin-Hematocrit Be Routinely Measured in Children Undergoing Minor Surgery?

To the Editor:—Because of pressure for cost containment in our health care system and with JCAH regulations stating that each health care facility is to set their own standards, we asked whether hemoglobin and hematocrit (H/H) determinations were necessary in healthy children who were undergoing anesthesia for operative procedures associated with no blood loss. A questionnaire was sent to the departments of anesthesiology of 45 free-standing children's hospitals. The questionnaire asked whether the departments of anesthesiology require measurement of hemoglobin and/or hematocrit prior to anesthetizing children needing surgery who should have minimal or no blood loss (insertion of tympanostomy tubes, repair of inguinal hernias, cystoscopies, cast changes, and x-rays or diagnostic studies).

Forty questionnaires were returned for a response rate of 89%.

Thirteen respondents stated that they did not require measurement of H/H for such procedures. Nineteen responded that H/H determinations were required. Eight responded that although they would like to eliminate the requirement, they have not done so because of requirements by the hospital or another agency. If these eight were added to the 13 "no" respondents, slightly over 50% of the departments of anesthesiology in free-standing children's hospitals no longer require measurement of routine H/H on healthy children requiring surgery or procedures with minimal or no blood loss.

Ashcraft *et al.** assessed 445 ASA physical status 1 or 2 pediatric patients and found a 98.6% accuracy of clinical assessment for judging whether hemoglobin concentrations were less than 10 g%.

Although there are no studies to support the assumption that anesthetizing healthy children with or without H/H determinations is beneficial or detrimental, by using the clinical assessment of Ashcraft *et al.** we have a clinical tool on which to base the need for H/H determinations.

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*Ashcraft KE, Guinee WS, Gollady ES; Clinical assessment of hematocrit and hemoglobin. *Anesthesiology Review* 9:37-40, 1982.

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Temperature Measurement and Blood Gas Reporting in Studies of Hypothermic Cardiopulmonary Bypass

To the Editor:—I read with considerable interest the report by Bashein *et al.* on neuropsychologic functioning after α -stat or p H-stat management during hypothermic cardiopulmonary bypass.¹ Their study demonstrates impaired neuropsychometric performance on virtually all tests at 8 days postoperatively, changes that had largely resolved by 7 months, and that were independent of mode of p H management. I feel the conclusions of this study require qualification however; thus, some comments about the study protocol and its potential effect upon the observed outcome are warranted.

In this report, the difference in P_{aCO_2} between the two groups was 7 mmHg (table 2), less than half that expected given a comparable degree of hypothermia during CPB.² This relatively small difference in CO_2 stems from the authors' correction of P_{aCO_2} to rectal temperature rather than nasopharyngeal or esophageal temperatures. These latter temperatures more closely reflect brain cooling, responding more quickly and profoundly to temperature changes than does rectal temperature.^{3,4} In clinical situations, rectal temperature always remains higher than nasopharyngeal or esophageal temperatures during hypothermic CPB⁴ and can thus lead to an inappropriately low P_{aCO_2} correction, relative to the brain. Because it is the cerebral vasodilative effect of CO_2 that is presumed to be etiologic in this study, correction of P_{aCO_2} to a more representative brain temperature would result in

a considerably greater difference in P_{aCO_2} between groups (20 mmHg at 37° C).² This would have a significantly greater influence upon cerebral blood flow^{3,5} and therefore upon the potential for delivery of microemboli into the cerebral circulation, as well as the potential for intracerebral flow redistribution (steal). In this situation, postoperative neuropsychologic studies may well have detected a difference in outcomes.

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REFERENCES

1. Bashein G, Townes BD, Nessly ML, Bledsoe SW, Hornbein TF, Davis KB, Goldstein DE, Coppel DB: A randomized study of carbon dioxide management during hypothermic cardiopulmonary bypass. *ANESTHESIOLOGY* 72:7-15, 1990