

skin, in contrast to those with valvular heart disease, in whom flow increased only slightly. MAP's and HR's increased in both groups. Increased myocardial work and oxygen requirements following painful stimulation may be detrimental in a heart which cannot increase its oxygen delivery because of valvular or coronary-artery disease.

We conclude that morphine produced transient peripheral vasodilation and cardiovascular stimulation during its infusion. These changes were more prominent in patients with valvular heart disease, as was the degree of hypoventilation. Nitrous oxide added to morphine produced similar degrees of cardiovascular depression in the two groups. That observed changes were, in fact, the result of morphine and/or nitrous oxide was suggested by the return of most hemodynamic measurements to control levels with time or following substitution of nitrogen for nitrous oxide.

The authors acknowledge the cooperation of the following in performing this study: H. King, M.D., R. King, M.D., H. R. Shumacker, M.D., V. K. Stoelting, M.D., R. Kraus, P. Brumbaugh, S. Whitmore, L. McConnell, J. Craig, D. Dunn, J. Bailey, and J. Spreen.

References

1. Lowenstein E, Hallowell P, Levine LH, et al: Cardiovascular response to large doses of intravenous morphine in man. *N Engl J Med* 281:1389-1393, 1969
2. Lowenstein E: Morphine anesthesia—a perspective. *ANESTHESIOLOGY* 35:563-565, 1971
3. Bahlman SH, Eger EI II, Smith NE, et al: The cardiovascular effects of nitrous oxide—halothane anesthesia in man. *ANESTHESIOLOGY* 35:274-285, 1971
4. Stoelting RK, Reis R, Longnecker DE: Hemodynamic responses to nitrous oxide—halothane and halothane in patients with valvular heart disease. *ANESTHESIOLOGY* 37:430-435, 1972
5. Saidman LJ, Eger EI II: Effect of nitrous oxide and of narcotic premedication on the alveolar concentration of halothane required for anesthesia. *ANESTHESIOLOGY* 25:302-306, 1964
6. Smith NT, Eger EI II, Stoelting RK, et al: The cardiovascular and sympathomimetic responses to the addition of nitrous oxide to halothane in man. *ANESTHESIOLOGY* 32:410-421, 1970
7. Cullen DJ, Eger EI II, Gregory GA: The cardiovascular effects of carbon dioxide in man, conscious and during cyclopropane anesthesia. *ANESTHESIOLOGY* 31:407-413, 1969
8. Eger EI II, Smith NT, Cullen DJ, et al: A comparison of the cardiovascular effects of halothane, furoxene, ether and cyclopropane in man: A résumé. *ANESTHESIOLOGY* 34:25-41, 1971
9. Martin WE, Hornbein TF, Freund FG, et al: Personal communication
10. Jones RE, Guldman N, Linde HW, et al: Cyclopropane anesthesia, III. Effects of cyclopropane on respiration and circulation in normal man. *ANESTHESIOLOGY* 21:380-393, 1960

Obstetrics

PARACERVICAL BLOCK AND FETAL BRADYCARDIA Fetal bradycardia followed paracervical block anesthesia with mepivacaine (200 mg) in 24 of 92 patients who received 100 paracervical blocks. Gestational age, parity, fetal weight, and maternal complications did not influence the incidence of fetal bradycardia following paracervical block. There was a significant decrease in fetal pH and an increase in base deficit only when bradycardia lasted more than 10 minutes. Recovery from the transient metabolic acidosis was complete in all. Transient increases in uterine activity, as measured by the area under the uterine pressure curve, were found in the majority of patients with post-paracervical-block fetal bradycardia. Most patients who had no fetal bradycardia had decreases in uterine activity. (Roger, K. F., and others: *Fetal Cardiac Response to Paracervical Block Anesthesia*, *Am. J. Obstet. Gynecol.* 113: 583-591, 1972.)