

# Literature Briefs

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Literature briefs were submitted by Drs. L. Bachman, D. R. Buechel, R. B. Clark, F. C. McParland, D. Morrow, R. C. Morton, E. S. Munson, J. W. Pender, H. Roe, L. J. Saidman, A. D. Sessler, and C. J. Wilkinson. Briefs appearing elsewhere in this issue are part of this section.

## Circulation

**VAGAL INFLUENCE** Stimulation of the left or right vagus nerves created equal slowing of pulse rates in anesthetized dogs. Left vagal section accelerated the pulse insignificantly; right vagal section resulted in a significant increase in pulse rate. These data suggest that the right vagus normally contributes more than the left to vagal restraint. Vagal stimulation caused equal prolongation of A-V conduction time; stimulation of the left vagus caused second-degree A-V block. Two physiologically-separate areas may exist in the A-V node; one determining whether or not an impulse crosses the system at all, and a second determining the rate at which it traverses the node. The first area is affected preferentially by left vagal efferent activity; the second area is affected equally by both vagi. (Hamlin, R. L., and Smith, C. R.: *Effects of Vagal Stimulation on S-A and A-V Nodes*, *Amer. J. Physiol.* 215: 560 (Sept.) 1968.)

**ABSTRACTER'S COMMENT:** These dogs were anesthetized with fentanyl and droperidol, followed by an intravenous injection of pentobarbital. The influence of these agents on SA and AV nodal activity can only be assumed to have been insignificant.

**ALCOHOL AND THE HEART** Although ethyl alcohol has been used (by prescription and otherwise) for angina pectoris since Heberden first described the condition in 1786, recent studies indicate 0.5 g/kg (3-4 jiggers) significantly depresses myocardial function.

Stroke volume, cardiac output, tension time index, and the ability to respond to an afterload are all depressed. Exercise after alcohol produces ST and T wave changes not seen prior to inhibition. Hypertonic sucrose in amount producing equal changes in plasma osmolality have a similar effect on myocardial function, indicating that the acute depression noted with alcohol may be due to osmotic changes. (Conway, N.: *Hemodynamic Effects of Ethyl Alcohol in Coronary Artery Disease*, *Amer. Heart J.* 76: 581 (Oct.) 1968.)

**LACTATE** Lactated Ringer's solution (LRS), four times the volume of shed blood, administered one hour after bleeding, resuscitated 100 per cent of dogs bled 30 per cent of their blood volumes. If given immediately following hemorrhage, LRS resuscitated 80 per cent of dogs bled 50 per cent of their blood volumes and 60 per cent of animals bled 65 per cent of blood volumes. Even when volume replacement with LRS was delayed an hour, there was an increase in survival and a decrease in the level of circulating lactate. The exogenous lactate in LRS is cleared rapidly after blood volume replacement in animals in hemorrhagic shock. (Trinkle, J. K., and others: *Metabolism of Lactate Following Major Blood Loss, Surgery* 63: 782 (May) 1968.)

**pH STABILITY** pH was studied in dogs exposed to a hypobaric and hypercarbic atmosphere. Two groups of six dogs each were exposed continuously for nine days to a total pressure of 260 mm Hg, comprised of oxygen with 60 or 90 mm Hg CO<sub>2</sub>. Arterial samples were collected daily. Exposure to a P<sub>CO<sub>2</sub></sub> of 60 mm Hg resulted in a reduction in arterial pH from 7.42 to 7.32, followed by recovery in four to five days to between 7.36 and 7.39. Exposure to 90 mm Hg P<sub>CO<sub>2</sub></sub> resulted in a reduction in pH to 7.21, with recovery to 7.30.