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## Literature Briefs

Peter J. Cohen, M.D., Editor

Literature briefs were supplied by Drs. R. B. Clark and P. J. Cohen. Briefs appearing elsewhere in this issue are part of this column.

### Fetal Physiology

**DOPAMINE** The effects of dopamine on blood pressure and heart rate have been studied in continuously cannulated fetal lambs and adult sheep. Drugs were administered by direct intravenous injection into either the fetus or the adult sheep, and blood pressure was measured from an arterial cannula and heart rate was computed from the electrocardiogram (ECG). The magnitude of the fetal pressor response to dopamine increased slightly as the dose of dopamine increased (1, 10, 50, 100, and 200  $\mu\text{g}/\text{kg}$ ), but the magnitude of the response did not increase with advancing gestation (112 to 145 days). However, in the adult sheep, the dose-response relationship was much steeper. In both cases the pressor response was accompanied by a reflex bradycardia that was blocked by atropine (1 mg/kg). In the atropinized fetus, doses of 50-200  $\mu\text{g}/\text{kg}$  dopamine produced tachycardia (30 to 120 beats/min) and a greater pressor response than that in the unatropinized fetus. Thus, the fetal cardiovascular system is capable of responding to relatively large amounts of dopamine injected as a bolus, suggesting that relatively large amounts of endogenous

dopamine would have to be secreted by the mast cells to alter fetal cardiovascular function significantly. (Harris WH, and others, *The effects of dopamine on blood pressure and heart rate of the unanesthetized fetal lamb*, *Am J Obstet Gynecol* 130:211-215, 1978.)

### Obstetric Anesthesia

**BLOOD VOLUME** A great deal has been reported recently about the importance of hypovolemia in pre-eclampsia and eclampsia from the point of view of pathogenesis and management. Some authors even believe that the so-called hypovolemia represents an etiologic factor and should be "corrected." In this paper, the hemodynamic factors that maintain the circulation in the normal nonpregnant and pregnant states are discussed. These factors are then used as a background for explaining the pathophysiologic abnormalities of the acute hypertensive disease of pregnancy. It is concluded that the slight decrease in blood volume observed in pre-eclampsia has no hemodynamic relevance; the blood volume is merely "fitting" a contracted vascular bed. The major abnormality resides in the constricted arteriolar system and not in the blood volume. (Assali NS, and others, *Blood volume in pre-eclampsia: Fantasy and reality*, *Am J Obstet Gynecol* 129:355-359, 1977.)