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Literature Briefs

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Literature Briefs were submitted by Drs. R. D. Bastron, R. Clark, L. J. Drop, B. B. Das, A. Goldblatt, J. Levitt, E. Lowenstein, and J. Reitan. Briefs appearing elsewhere in this issue are part of this column.

Circulation

TRAUMA TO THE HEART Injury to the heart can follow either penetrating or blunt trauma to the chest, and can appear in the form of myocardial laceration, septal defects, coronary-artery injury, ventricular aneurysms, or valvular lesions. The presence of valve injury following nonpenetrating trauma may be obscured by the associated chest-wall and pulmonary injuries. Diagnosis may be delayed for months or years. A ruptured papillary muscle is associated with more severe and earlier signs of valvular incompetence than are ruptured chordae tendineae or valve leaflets. Four cases are presented. In the first, tricuspid insufficiency was diagnosed ten years following an automobile accident and a crushed-chest injury. In the second, tricuspid insufficiency and constrictive pericarditis were diagnosed five months after an automobile accident which resulted in multiple rib fractures. Treatment required replacement of the tricuspid valves with ball-valve prostheses in both cases and pericardial stripping in the second. In the third case, pulmonary infiltrates increased during the ten days following chest injury from an automobile accident. A systolic murmur was present and severe mitral insufficiency was diagnosed by cardiac catheterization. The valve was replaced with a prosthesis. The fourth patient developed a diastolic murmur after several shotgun pellets lodged in his chest. Cardiac catheterization revealed no abnormality, but an aortogram demonstrated mild aortic insufficiency. Surgery was not performed because the patient was asymptomatic. Hemopericardium or a new cardiac murmur is a definite sign of cardiac injury. Any abnormality of cardiac function, including cardiac arrhythmias, hemothorax, a pericardial friction rub, or electrocardiographic abnormalities should alert the physician to the possibility of cardiac injury. *(Bryant, L.R., and others: Cardiac Valve Injury with Major Chest Trauma. Arch Surg 107: 279–283, 1973.)*

HEART FAILURE AND NEONATAL HYPOCALCEMIA The presence of cardiac failure associated with low total calcium ([Ca]) in six newborns, 2 to 30 days after birth, is described. Congestive failure was characterized by peripheral edema, cyanosis, tachypnea, hepatic enlargement, cardiac enlargement (by x-ray) and ECG abnormalities. Three infants showed signs of tetany or convulsions. [Ca] values ranged from 4.6 to 7 mg/100 ml. Five infants responded to treatment with calcium gluconate, digoxin and diuretics. Marked improvement occurred within two to four days in four infants, and in six days in one infant. Simultaneously, ECG abnormalities resolved. One infant, in whom [Ca] was 6.5 mg/100 ml, died despite treatment.

It has been generally assumed that tetany is an early sign of hypocalcemia and that it must be both pronounced and protracted to cause manifest caridac failure. This report calls attention to the fact that tetany may be absent in hypocalcemia and that acute lowering of [Ca] may be instrumental in causing cardiac failure. *(Troughton, O., and Singh, S.P.: Heart Failure and Neonatal Hypocalcemia. Br Med J 4: 76, 1972.)* EDITOR'S COMMENTS: The relationship between hemodynamic failure and calcium homeostasis (both total and ionized) deserves renewed critical evaluation. The data presented do not resolve the conflict as to cause and effect.

CNS Function

CMR_{O_2} AND HEAD TRAUMA Twenty-eight patients with isolated head trauma were divided into three groups based on ultimate outcome: 1) complete recovery, 2) recovery with neurologic deficit, and 3) death from brain damage. All patients had online monitoring of cerebral blood flow (CBF) and