

a rapid but full assessment should be made of the possible causes of arrest in the individual case. If external massage achieves satisfactory carotid pulsation and the arresting stimulus is transitory, thoracotomy is not needed. If the arresting stimulus is more prolonged or if satisfactory carotid pulsation cannot be produced, thoracotomy is needed. Mechanical interference with the heart's action, such as valvular abnormality or pericardial tamponade, is less likely to respond to external massage, and thoracotomy is needed. An electrocardiographic recorder should be kept in every operating room, and both external and internal defibrillators should be available in all hospitals. (Keen, G.: *Scope and Limitations of External Cardiac Resuscitation*, *Lancet* 2: 1194 (Dec. 8) 1962.)

CLOSED-CHEST MASSAGE Five different methods for coordinating closed chest cardiac compression and artificial ventilation were evaluated in dogs in order to determine the most efficacious method for providing maximum flow of oxygenated blood. There is little difference in blood pressure, blood flow, blood oxygenation, pH, and survival between (1) the independent technique (mechanical positive pressure respirator cycling at 16 respirations per minute and external cardiac massage performed at a rate of 60 per minute with no coordination between the two procedures) and (2) the alternating technique, mechanical positive pressure respirator cycling at 16 per minute and four sternal compressions after each inflation. Simultaneous sternal compression and respiration at 56 per minute produced the best survival rate in dogs. (Wilder, R. J., and others: *Methods of Coordinating Ventilation and Closed Chest Cardiac Massage in the Dog*, *Surgery* 53: 186 (Feb.) 1963.)

CLOSED CHEST MASSAGE Of five patients with coronary artery disease who subsequently developed ventricular fibrillation, three were defibrillated to a normal sinus rhythm. Two of these survived and remained well. All patients had adequate circulation maintained for several minutes by personnel with previous instruction but little or no experience in cardiac massage. Airway problems occurred in three of the five patients and indicated the

necessity of having an anesthesiologist available for endotracheal intubation and/or management of the airway. (Keevil, C. S., Jr., and others: *Ventricular Fibrillation in a Community Hospital*, *New Engl. J. Med.* 268: 307 (Feb. 7) 1963.)

CARDIAC ARRHYTHMIA Electrical stimulation of areas within the hypothalamus and mesencephalic reticular formation was carried out in anesthetized cats. Stimulation of the anterior hypothalamus led to a transient hypertension, sinus bradycardia, ST-segment and T-wave changes. Stimulation of the lateral and posterolateral hypothalamus led to more prolonged hypertension, little change in heart rate, atrio-ventricular dissociation, premature beats and aberrant ventricular conduction. Stimulation of the mesencephalic reticular formation led to a prolonged hypertension, tachycardia, atrio-ventricular dissociation, multifocal premature beats, aberrant ventricular conduction and T-wave inversion. The hypothalamus serves as a pathway for cardiac neurovegetative stimuli, probably via the reticular formation, to produce predominantly sinus node depression and a downward displacement of the pacemaker. (Attar, H. J., and others: *Effect of Stimulation of Hypothalamus and Reticular Activating System on Production of Cardiac Arrhythmias*, *Circ. Res.* 12: 14 (Jan.) 1963.)

PULSUS PARADOXUS The mechanism responsible for increased respiratory variation of systemic arterial pressure during pericardial tamponade (pulsus paradoxus) was studied in the closed-chest dog. Simultaneous measurements of pulmonary venous, left atrial, left ventricular, intrapericardial, and intrathoracic pressures were made during varying degrees of pericardial tamponade. A disturbance of the gradient between pulmonary venous and left atrial pressure is the fundamental circulatory defect responsible for the exaggerated respiratory variation in pulse, characteristic of pericardial tamponade. This interferes with left ventricular filling even more than usual during inspiration, exaggerating the decrease in left ventricular stroke volume and the fall in systemic arterial pressure. Cineangiography demonstrated reversal of flow in the pulmonary veins during inspiration in pericardial tampon-