

REPORTS OF SCIENTIFIC MEETINGS

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The eighth annual meeting of the Society of Neurosurgical Anesthesia and Neurologic Supportive Care was held on October 11, 1980 in St. Louis. Abstract booklets and a comprehensive neuroanesthesia bibliography were distributed to the 260 registrants.

During the first panel on venous air embolism, Babinski (San Antonio) emphasized the extreme sensitivity of the precordial Doppler device and the current controversy over use of Swan-Ganz catheters for detection and treatment of air embolism. The relative effectiveness of various right atrial catheters was discussed and the importance of proper catheter position within the right atrium for optimal recovery of air was emphasized. Munson (Gainesville) discussed the pathophysiology of air embolism, indicating that embolized air causes precapillary pulmonary arteriolar vasoconstriction with resultant increases in pulmonary arterial and right ventricular pressures and an increase in wasted ventilation reflected by a decrease in end-tidal CO₂ concentration. "Air lock" in the right heart is a relatively late manifestation of air embolism. Inhalation of nitrous oxide augments the effects of air embolism and reduces the lethal dose of air in rabbits by 3.5-fold. Despite these disadvantages, Dr. Munson speculated that use of nitrous oxide may serve to alert the anesthesiologist to early signs of air embolism, particularly when quantitative monitoring techniques such as end-tidal CO₂ fraction and pulmonary artery pressure are used. Sokoll (Iowa City) expounded further on the use of nitrous oxide for neurosurgical procedures in the seated position. He indicated that its major advantage is the maintenance of cardiovascular stability when patients are placed in the seated position, whereas its major disadvantages are the enlargement of embolized air bubbles and the possibility of embolization to the cerebral circulation via a patent foramen ovale.

The annual Special Lecture was presented by Rapoport (Baltimore) on "Pathological Alterations of the Blood-Brain Barrier." After reviewing the normal anatomy and pathophysiology of the cerebrovascular endothelium in a variety of neurologic disorders, Dr. Rapoport discussed his recent work in reversibly opening the blood-brain barrier with intracarotid infusions of hyperosmotic solutions and the impact that this may have in the chemotherapy of malignant brain tumors. A continuously intact blood-brain barrier appears to be necessary to prevent cerebral edema and convulsive activity and to maintain normal coupling between cerebral metabolism and blood flow. He concluded that in order to prevent cerebral dysfunction during osmotherapy, reduction of cerebral metabolic rate and/or treatment with anticonvulsants is indicated.

The free paper session in the morning began with Frost (Bronx) reporting on 80 patients undergoing extracranial-intracranial anastomoses. She emphasized optimal cardio-respiratory control, the use of low dose halothane, prevention of brain "bounce," and early awakening after

surgery. Todd (San Diego) described the use of high-frequency ventilation to prevent brain movement in a cat craniotomy model, and Gomes (Burlington) reviewed his experience with early institution of barbiturate coma for patients with acute head injuries. His results are virtually the same as those reported by the Richmond (no barbiturate therapy) and San Diego (late barbiturate therapy) groups. Dubois (Washington, DC) presented a correlation of cardiovascular data with data derived from EEG power spectrum analysis, Cerebral Function Monitor, conventional EEG and somatosensory evoked potentials during both fentanyl and thiopental anesthesia. Thiopental is a more profound depressant of cortical activity, whereas fentanyl has a more readily detectable effect on evoked responses than on spontaneous EEG activity. Kaktis (San Francisco) summarized the neurologic recoveries of 278 adult comatose patients with acute head injury in an effort to define predictors of a uniformly fatal outcome. Age (>40 years), absence of pupillary light response, eye movement, and localizing response to painful stimuli are uniformly associated with a fatal outcome; patients <40 years of age occasionally do well despite severe, initial brain dysfunction.

The panel on neuroradiology began with Bank (San Francisco) who summarized recent advances in radiologic endovascular occlusive techniques, such as fluoroscopically controlled transcrotid or transfemoral infusion of rapidly polymerizing fluids and placement of detachable balloons in distal cerebral arteries for treatment of carotid-cavernous fistulas and arteriovenous malformations. Newfield (San Francisco) described the complications of these procedures, emphasizing diagnosis and treatment of contrast media reactions, impending stroke, and intracranial hemorrhage. Anesthetic management during neurodiagnostic procedures was outlined by Wolfson (Pittsburgh) with special reference to CT scanning, pneumoencephalography, angiography, and myelography.

The panel discussion on cervical spinal cord injury heard Mackenzie (Baltimore) summarize the circulatory and respiratory care of acutely quadriplegic patients. He emphasized the need for hemodynamic monitoring with Swan-Ganz catheters and ventilatory support appropriate to the degree of respiratory insufficiency induced by the injury. Kobrine (Washington, DC) described his recent studies on the pathophysiology of acute spinal cord injury using somatosensory evoked potentials. He indicated that the degree and the duration of cord compression are important factors in determining the reversibility of an injury. Bank (San Francisco) concluded the panel by describing the advantages of computed tomography in evaluating not only bony deformity, but also subarachnoid and spinal cord encroachment as well.

At the afternoon free paper session, Newfield (San Francisco) described the cardiovascular abnormalities associated with posterior fossa surgery and emphasized the hyper-

tensive response to trigeminal nerve manipulation. Mackenzie (Baltimore) detailed the use of hemodynamic monitoring and the construction of left ventricular function curves in the preoperative evaluation and the anesthetic care of acutely quadriplegic patients. Marshall (Hershey) measured hemodynamic changes associated with assuming the seated position while anesthetized with different anesthetics, and concluded that a morphine-N₂O-pancuronium technique afforded optimal cardiovascular stability during this maneuver. Newfield (San Francisco) summarized the complications of intracranial therapeutic embolization for surgically inaccessible lesions, and emphasized the need for early identification and therapy of neurologic deterioration. In a cat model, verapamil-induced hypotension produces a small but insignificant increase in intracranial pressure and intracranial compliance (Thiagarajah, Bronx). Toung (Baltimore) demonstrated that catecholamine infusions in the isolated canine left lower lobe produced findings compatible with neurogenic pulmonary edema.

A report and statistical analysis of an educational survey conducted by the Society was given by Shapiro (San Diego). Chairmen of residency training programs in the United States were polled and 40 per cent responded (60 of 150). Since the last survey in 1976, there has been an increase in the number of departments with fulltime neuroanesthesi-

ologists (51 per cent *vs.* 21 per cent) and 42 per cent employ more than one neuroanesthesiologist. More institutions have structured neuroanesthesia rotations since 1976 (71 per cent *vs.* 57 per cent) and many formal neuroanesthesia fellowships are available, primarily in the northeastern part of the country. Sodium nitroprusside has become the agent of choice for induced hypotension (93 per cent); despite the controversy concerning the use of nitrous oxide anesthesia for surgery in the sitting position, 49 per cent of the respondents used it as a primary agent. High-dose barbiturate therapy is used at 62 per cent of the institutions, primarily for therapy of intracranial hypertension. Hypothermia for neurosurgical procedures is used at less than 30 per cent of the institutions; the primary indication is for intracranial aneurysm surgery. Intracranial pressure monitoring is done routinely at 42 per cent of the institutions.

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