Literature Briefs

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Briefs were submitted by Drs. C. M. Ballinger, M. T. Clarke, H. S. Davis, Martin Helrich, G. Hohmann (Germany), J. J. Jacoby, Roger Klein, F. S. McPartland, W. H. Mannheimer, Alan Paterson, R. E. Ponath, Alan D. Randall, and H. S. Roe. Abstracts of Russian and Japanese articles were obtained through Excerpta Medica Foundation. *Abstracts appearing elsewhere in this issue are a part of this column.*

HYPERBARIC OXYGEN Hyperbaric oxygenation is useful in the management of three specific groups of patients: children or adults with acute carbon monoxide intoxication; children or adults with progressive clostridial myoneurosis; and critically ill infants with certain forms of acyanotic and cyanotic congenital heart disease. Extrapolation from these disease entities to other areas of medicine is not warranted. (*Bernhard, W. F.: Current Status of Hyperbaric Oxygenation in Pediatric Surgery, Surg. Clin. N. Amer. 44: 1583 (Dec.) 1964.*)

HYPERBARIC OXYGENATION Hyperbaric oxygenation affects central nervous system function and the cerebral circulation. Photographs of the optic fundus were obtained in eight normal volunteers breathing air or oxygen at 1 to 3.72 atmospheres of absolute pressure during quiet respiration and during hyperventilation. Hyperbaric oxygenation resulted in marked constriction of both arterioles and venules, and the smaller retinal vessels disappeared completely. The retinal vasoconstrictor response results directly from hyperoxia with little or no effect being due to a decrease in arterial blood carbon dioxide tension. In this respect the retinal circulation may differ from that of the brain, since hypocapnia is associated with a profound reduction in cerebral blood flow and an increase in cerebral vascular resistance. (*Saltzman, H. A., and others: Retinal Vascular Response to Hyperbaric Oxygenation, J.A.M.A. 191: 290 (Jan. 25) 1965.*)

HYPERBARIC OXYGEN Ten patients with gas gangrene were treated with hyperbaric oxygen, antibiotics and indicated surgical drainage or debridement. Treatment consisted of 1 hour of oxygen at 3 atmospheres absolute, repeated at 12 hour intervals. All survived except 2 who died following complications related to wide surgical excision of necrotic tissue. The others were successfully managed by incisional drainage only and hyperbaric oxygen. Treatment was characterized by prompt disappearance of *Clostridium perfringens* from the wound and blood stream. (*Glad, R. M., Bouhoutsos, D. C., and Douglass, F. M.: Effect of Hyperbaric Oxygen Therapy and Changing Surgical Concepts of Gas Gangrene, Amer. J. Surg. 109: 230 (Feb.) 1965.*)

PRESSOR AMINES Comparison of the hemodynamic affects of tyramine, ephedrine and norepinephrine in normal man was carried out utilizing systemic (intravenous) and localized (brachial artery) administration of varying concentrations. Tyramine administration led to elevated blood pressure, bradycardia, unchanged cardiac output and moderate arteriolar constriction in the forearm; ephedrine to elevated blood pressure, tachycardia, increased cardiac output and slight forearm arteriolar vasodilatation; and norepinephrine to elevated blood pressure, bradycardia, unchanged cardiac output and marked arteriolar and venous constriction. The vessel responses with tyramine and ephedrine were occasionally just the opposite in some individuals at low dose levels and in subjects exhibiting an initial vasoconstrictor response. There was

frequent reversion to vasodilatation at high dose levels. Responses to norepinephrine were always consistent regardless of dose. Some inconsistency is suggested in the hypothesis that ephedrine and tyramine act exclusively by norepinephrine release. (*Cohn, J. M.: Comparative Cardiovascular Effects of Tyramine, Ephedrine and Norepinephrine in Man, Circ. Res. 16: 174 (Feb.) 1965.*)

EPINEPHRINE ARRHYTHMIA Methoxyflurane 0.5 per cent and halothane 1.0 per cent in oxygen were administered to dogs for 30 minutes under controlled intermittent positive pressure respiration. Thereafter, epinephrine in doses of 10 μg./kg. and 100 μg./kg. was injected into the animal. The incidence of ventricular arrhythmias as a result of intravenous administration of epinephrine during methoxyflurane anesthesia was far lower and severity was milder in degree than during halothane anesthesia. Ventricular fibrillation could not be elicited from 10 μg./kg. of epinephrine during the inhalation of 0.5 per cent methoxyffurane. Only one case of fibrillation was noted with 100 μg./kg of epinenphrine, while in the case of 1 per cent halothane, ventricular fibrillation occurred quite frequently both with 10 μg./kg. and 100 μg./kg. of intravenous epinephrine. (*Saito, T., and others: Epinephrine Induced Cardiac Arrhythmias During Methoxyflurane and Halothane Anesthesia in Dogs (Japanese), Japanese J. Anesth. 13: 347, 1964.*)

QUINIDINE A 39 year old woman was subjected to two general anesthesias in one day, the combined duration of which was eight and one half hours. Curare had been antagonized with neostigmine and the patient was fully conscious with stable vital signs. Without the knowledge of the anesthetist, the patient was given two doses of 200 mg. of quinidine each. This led to severe respiratory depression, necessitating endotracheal intubation and artificial respiration. Effects were promptly antagonized by neostigmine. Quinidine prolongs the refractory period of muscle and decreases excitability of the myoneural junction. Quinidine can cause recurarization following use of tubocurarine. (*Boere, L. A.: Recurarization Following Quinidine, Der Anaesthesist 13: 368 (Nov.) 1964.*)

MORPHINE-LEVALLORPHAN Levallorphan was administered to cats after 10 mg./kg. of morphine. The drowsy pattern in the hippocampus produced by morphine was converted to a hippocampal arousal wave by levallorphan with dosage ratios of 50 : 1 and 10 : 1. The threshold of arousal response, which was elevated by morphine, was lowered by levallorphan. When 10 mg. of morphine and 1.0 mg. of levallorphan (10 : 1) were used, the threshold of recruiting response elevated by morphine was lowered by levallorphan. However, when the splanchic nerve was stimulated there was no evidence of antagonism between the two drugs. Morphine depressed the activity of the hippocampus, which belongs to the limbic system and is concerned with visceral sensation, while levallorphan seemed to have an opposite effect. (*Aono, M.: Electroencephalographic Study in Anaesthesia. I. Antagonistic Effect of Levallorphan Against Morphine (Japanese) Jap. J. Anesth. 13: 103, 1964.*)

ANTIBIOTIC MUSCLE BLOCK Effect of certain antibiotics was observed in studies on denervated tibial muscle of cats. A block at the endplate is produced by tetracycline, streptomycin, dihydrostreptomycin, viomycin and kanamycin. After a short period of competitive blockade initially, a prolonged depolarization occurs, simultaneously with calcium depletion. Administration of calcium antagonizes this effect better than prostigmine. (*Kubikowski, J., and Szreniawski: Mechanism of Neuromuscular Blockade by Antibiotics, (French) Arch. Int. Pharmacodyn. 146: 549 (Dec.) 1963.*)

AMBENONIUM Ambenonium chloride has a potent anticurare effect in man which is 4 to 5 times more powerful than that of neostigmine. Maximum effect occurs in 10 to 15 minutes. Duration of the anticurare effect of ambenonium chloride is several times longer than that of neostigmine, and there is less chance of recurarization. Some of the side effects observed with ambenonium chloride were excessive salivation and mild abdominal