Abstracts

AB-984-73
Central Nervous System Control of Baroreceptor Reflexes in the Rabbit—Korner PI, Shaw J, West MJ, Oliver JR (Department of Medicine, University of Sydney, and Hallstrom Institute of Cardiology, Royal Prince Alfred Hospital, Sydney, Australia)—Circulation Research 31:637-652 (Nov) 1972*

Aortic and inferior vena caval balloons were used to alter mean arterial blood pressure, pulse pressure (PP), and right atrial pressure (RAP) in unanesthetized rabbits and to reflexly evoke changes in heart period (pulse interval). Curves relating mean arterial blood pressure to heart period were compared in different groups of rabbits at similar ΔPP and ΔRAP. Median blood pressure (BP 50), average gain (G), and heart period range (maximum to minimum heart period) were calculated from the S-shaped curves. The reflex was evoked from arterial baroreceptors and probably from cardiac and pulmonary baroreceptors. Curves relating mean arterial blood pressure and heart period differed with regard to BP 50 and G in sham-operated, thalamic, and pontine rabbits, indicating that suprabulbar centers normally play a role in the reflex. Curves from sham-operated and pontine rabbits treated with atropine also differed, suggesting suprabulbar control of sympathetic effectors. In intact rabbits, forebrain and diencephalic centers caused vagal and sympathetic effectors to respond over the same arterial blood pressure range, but, in pontine rabbits, the effectors responded over dissimilar ranges. In intact rabbits, changes in mean arterial blood pressure evoked reciprocal and nearly equal changes in vagal and sympathetic effectors, but, in pontine rabbits, a given pressure change altered heart period predominantly through one effector. In sham-operated rabbits, vagal effects on heart period were lower by a constant amount at every level of mean arterial blood pressure than they were in pontine rabbits, suggesting that suprabulbar centers exerted a tonic inhibitory effect on vagal motoneurons not involved in the reflex.

AB-985-73
Ipsilateral Exophthalmos in Subfrontal Epidural Hematomas. Report of Four Cases—Gruszkiewicz J (Department of Neurosurgery, Rambam Government Hospital, Haifa, Israel)—J Neurosurg 37:613-615 (Nov) 1972*

Four cases of subfrontal epidural hematoma with progressive ipsilateral exophthalmos are described, and the pathogenesis discussed.

AB-986-73

A case of cerebral arteriovenous malformation treated by embolization with Silastic pellets is described, and the postmortem findings presented.

AB-987-73
Anticoagulant Therapy for Senile Dementia—Ratner J, Rosenberg G (Maimonides Hospital and Home for the Aged, Montreal 269, P. O., Canada), Krai VA, Engelsmann F—J Amer Geriat Soc 20:556-559, 1972*

A double-blind, one-year study was made of the effectiveness of anticoagulant therapy in senile and/or arteriosclerotic dementia. Seven such hospital patients (average age, 83.4 years) were treated with warfarin (sample oral dosage, 2.5 mg daily, monitored according to the prothrombin time). Seven other such patients (average age, 86.4 years) served as controls, and were given placebo tablets. All 14 subjects were assessed with respect to 25 variables reflecting cognitive functions and mental changes, before treatment, and at six and 12 months after starting treatment. The results were evaluated statistically. In the anticoagulant group the t-tests showed no significant differences for the means in 24 of 25 variables during the one-year treatment period. The control patients showed no significant changes in the psychological variables after six months; however, after one year, they showed significant deterioration in four variables and a trend toward deterioration in most of the others.

Thus the anticoagulant group appeared to deteriorate less than the control group. Only further studies will elucidate the possible influence of undertaking therapy in patients who already may have been too deteriorated to benefit from it significantly.

AB-988-73
Cerebral Angiomas: The Sequelae of Surgical Treatment—Amacher AL (Pediatric Neurosurgeon, War Memorial Children's Hospital, London, Ontario, Canada), Alcock JM, Drake CG—J Neurosurg 37:571-575 (Nov) 1972*

Fifty patients underwent 55 operations upon intracerebral angiomas; 86% had suffered intracerebral or subarachnoid hemorrhage, 8% intractable seizures, and 6% intractable headache and progressive ischemic symptoms. There was one postoperative death, a mortality rate of 2%. The operative results are considered in relation to the indications for operation and the degree of removal. The importance of postoperative angiography is stressed.

*Authors' abstract.
†These abstracts were assembled for publication by the Neurological Information Network of the National Institute of Neurological Diseases and Stroke through contract number PH-43-66-933 with Dr. Robert Siekert, Head, Abstract Section, Mayo Clinic, Rochester, Minnesota 55901.
AB-989-73
Arteriovenous Malformations of the Brain. A Long-Term Clinical Study—Forster DMC (Department of Neurosurgery, Karolinska Sjukhuset, Stockholm, Sweden), Steiner L, Håkanson S—J Neurol 37:562-570 (Nov) 1972*

The quality of survival of 150 patients with arteriovenous malformations of the brain is presented. The mean period of follow-up was over 15 years. The surgically operated and conservatively managed groups are compared, a comparison that in the long run appears to favor the operated cases. The results are discussed and indications for surgery summarized.

AB-990-73
Production of Clinical Form of Chronic Subdural Hematoma in Experimental Animals—Watanabe S (Department of Neurosurgery, Juntendo University School of Medicine, Tokyo, Japan), Shimada H, Ishii S—J Neurol 37:552-561 (Nov) 1972*

A method for producing a clinical form of experimental chronic subdural hematoma is reported. When blood is mixed with cerebrospinal fluid and incubated, a peculiar clot is formed which, when inoculated into the subdural space of dogs or monkeys, grows gradually. Histologically the capsule of the hematoma is comparable to that seen in human chronic subdural hematoma. In some animals progressive hemiparesis develops.

AB-991-73
Traumatic Intracerebral Hematoma. Report of 63 Surgically Treated Cases—Jamieson KG (Ladhope, 131 Wickham Terrace, Brisbane 4000, Australia), Yelland JDN—J Neurol 37:528-532 (Nov) 1972*

A series of 63 cases of surgically treated traumatic intracerebral hematomas is reported. Age and sex incidence, cause and mechanism of injury, site of hematoma and its presentation and outcome are analyzed.

AB-992-73
The Effects of Mass-Induced Intracranial Pressures on Arterial Hypertension and Survival in Awake Cats—Goodman SJ (Division of Neurosurgery, Harbor General Hospital, Torrance, California 90509), Becker DP, Seelig I—J Neurol 37:514-527 (Nov) 1972*

Intracranial pressures above and below the tentorium, arterial blood pressure, heart rate, and respiratory rate were recorded continuously before, during, and after expansion of a supratentorial mass in awake unsedated cats. In general, as the mass enlarged, the intracranial pressure rose; however, considerable variation was observed among animals with respect to specific mass size and associated intracranial pressures. There was considerable variation in the relationship of supratentorial pressure to infratentorial pressure. No animal survived that had sustained a mass-induced pressure exceeding 1100 mm H₂O, and survival was shorter with greater pressures. Systemic hypertension occurred always and only when the infratentorial pressure exceeded 600 mm H₂O, regardless of the magnitude of the associated supratentorial intracranial pressure. The methodological limitations of previous studies of mass-induced intracranial hypertension appear to have been substantially reduced by the technique described.

AB-993-73
Two Types of Spontaneous Intracerebral Hemorrhage Due to Hypertension—Benes V (Prof. Res. Neurosurgical Clinic, Charles University, Prague-Stresovic, Czechoslovakia), Koukolik F, Obrovská D—J Neurol 37:509-513 (Nov) 1972*

Analysis of 150 postmortem examinations indicates that spontaneous intracerebral hemorrhage in hypertensive patients develops in two ways. In the first, hemorrhage crushes the surrounding tissue, tamponades the ventricles, and produces a fatal increase in intracranial pressure. Operation on such patients does not improve the results obtained by conservative treatment. In the second type, the hemorrhage is self-limited; the hematoma that frequently develops behaves as an expanding lesion, and operative treatment can be helpful after the initial shock interval has passed. Diagnostic differentiation of the two types is not possible immediately after the stroke.

AB-994-73
Reversible Spinal Cord Trauma in Cats. Additive Effects of Direct Pressure and Ischemia—Brody JS (Division of Neurosurgery, Case Western Reserve University School of Medicine, Cleveland, Ohio 44106), Richards DE, Blasingame JP, Nulsen FE—J Neurol 37:591-593 (Nov) 1972*

In the barbiturate-anesthetized cat, spinal cord function was estimated using averaged cortical evoked potentials (CEP) elicited by stimulating the posterior tibial nerve. Although neither spinal cord compression nor an aortic blood pressure one-half the systemic pressure when applied individually blocked the CEP, these same factors when applied in combination produced reversible block of the CEP.

AB-995-73

In anesthetized rabbits rebreathing oxygen or inhaling constant mixtures of CO₂ and O₂, the influence of inactivation of the carotid sinus nerves by section or temporary cold blocking on the respiratory response to increased PȧCO₂ was investigated. In some of the experiments the vagi were intact, in others they were cut. Even during respiration of pure oxygen, in part of the animals blocking of the sinus nerves caused a slight diminution of ventilation which was significant only in the vagotomized preparation (average decrease by
ABSTRACTS

AB-996-73
The Effects of Morphine and N-Allylnormorphine on Canine Cerebral Metabolism and Circulation—Takeshita H, Michenfelder JD, Theye RA (Professor of Anesthesiology, Mayo Clinic and Mayo Foundation, Rochester, Minnesota 55901)—Anesthesiology 37:605-612 (Dec) 1972*

The effects of morphine and nalorphine on cerebral metabolism and circulation were examined in 18 dogs. Incremental doses of morphine caused progressive decreases in CMR$_{O_2}$ and CBF to 85% and 45% of control, respectively, until a dose of 1.2 mg/kg had been given in a one-hour period. Subsequent doses had no further significant effect. The decrease in CBF resulted from both a direct action of morphine (approximately 30%) and the effect of time on experimental canine CBF. A single large dose of morphine (2 mg/kg) had similar effects on CMR$_{O_2}$ and CBF. These effects were reversed by nalorphine (0.3 mg/kg), which initially produced overshoots in both CMR$_{O_2}$ and CBF. Subsequent doses of nalorphine had no further effect. EEG changes correlated with CMR$_{O_2}$ changes caused by morphine and nalorphine. Nalorphine given alone (0.3 mg/kg) produced small decreases in both CMR$_{O_2}$ and CBF, an effect not magnified by subsequent larger doses.

AB-997-73
Sympathetic Neural Influence on Norepinephrine Vasosconstriction in Brain Vessels—Edvinsson L (Department of Histology, University of Lund, Biskopsgatan 5, S-223 62 Lund, Sweden), Nielsen KC, Oworm C, West KA—Arch Neurol 27:492-495 (Dec) 1972*

The mass effect of norepinephrine on the brain circulation was studied using changes in cerebral blood volume (CBV) of mice as the experimental model. Tyramine (which releases norepinephrine from the rich plexus of perivascular adrenergic nerves) significantly reduced CBV in a dose-dependent manner. This vasoconstriction was abolished by previous cranial sympathectomy. Administration of levarterenol (into the tail vein) was ineffective unless the animal was subjected to cranial sympathectomy at least 24 hours before the injection, i.e., when a sufficient degree of denervation supersensitivity ensued. The results imply that a norepinephrine-induced vasoconstriction in the circulation of the brain depends on the quantitative access of the amine to the adrenergic receptor area. The vasoconstrictor response may be influenced by such features as the amount of adrenergic innervation, the types of adrenergic receptors present, and the properties of the barrier.

AB-998-73
Effect of Peripheral Resistance on Carotid Blood Flow After Carotid-Subclavian Bypass—Cook CH, Stemmer EA (5901 East Seventh Street, Long Beach, California 90801), Connolly JE—Arch Surg 105:9-13 (July) 1972*

Carotid-to-subclavian bypass grafts are frequently employed to treat the subclavian steal syndrome. This laboratory study evaluated the effects on carotid blood flow of varying vascular resistance in the carotid and axillary arteries. In the presence of a functioning carotid-axillary bypass graft, distal carotid blood flow decreased whenever resistance to flow in the distal carotid artery was increased or when resistance in the axillary artery was decreased.

These observations explain the mechanism responsible for the occasional failure of a patient to improve following carotid-subclavian bypass grafting. As shown by these experiments, distal obstruction in the carotid artery can result in stealing of blood from the cerebral circulation by carotid-to-subclavian bypass. These studies indicate that obstructing lesions of the carotid artery must be repaired at the time of carotid-subclavian bypass.

AB-999-73
Participation of Central Noradrenergic Neurons in Arterial Baroreceptor Reflexes in the Rabbit. A Study With Intracisternally Administered 6-Hydroxydopamine—Chalmers JP (Department of Medicine, University of Sydney, New South Wales, 2006. Australia), Reid JL—Circulation Research 31:789-804 (Nov) 1972*

Rabbits were given intracisternal injections of 6-hydroxydopamine (6-OH-DA) that caused selective ablation of central noradrenergic neurons without damaging peripheral sympathetic nerves. Administration of 6-OH-DA (600 \mu g/kg, intracisternally) to normal rabbits produced a permanent bradycardia of about 30%, which was initiated centrally and mediated mainly through the vagus, and caused a brief reduction in mean arterial blood pressure, which was due to transient withdrawal of alpha-sympathetic tone. Treatment with 6-OH-DA (600 \mu g/kg) completely prevented the increases in arterial blood pressure seen on the seventh and the fourteenth day after sinoaortic denervation in control rabbits, although there was a transient increase in blood pressure for one day after denervation in the group treated with 6-OH-DA. Central norepinephrine concentrations were reduced in all areas, especially in the spinal cord (to less than 10% of control), in the denervated rabbits treated with 6-OH-DA compared with the levels in denervated controls. When 6-OH-DA (600 \mu g/kg, intracisternally) was given to rabbits with neurogenic hypertension produced by buffer nerve section, it caused an immediate and persistent return of pressure to the level that existed before denervation. Probably, the integrity of central noradrenergic neurons is necessary for the development of sustained increases in arterial blood pressure following sinoaortic denervation. We suggest that central noradrenergic nerves form

*Authors’ abstract.
an essential link in the baroreceptor reflex arc, possibly at the bulbospinal level.

AB-1000-73


The occurrence of drug interactions was studied in outpatients on anticoagulant or adrenergic neuron-blocking drugs. In the anticoagulant group (254 patients) a theoretical potential drug interaction with warfarin was noted in 33% of patients with drugs supplied by prescription and in 30% of patients with drugs taken as self-medication, though a probable adverse drug interaction was documented in only 9% of patients. The deficiency in the transfer of information about current drug therapy and the lack of awareness of patients about the hazards of anticoagulant therapy was clear.

In the 64 patients on the adrenergic neuron-blocking drugs guanethidine, bethanidine, or debrisoquine a theoretical potential drug interaction was noted in 34%, but a probable adverse drug interaction was documented in only three patients. Further studies are required of other well-recognized groups of patients on drugs which are known to interact to assess the relevance and clinical importance of the formidable lists of interactions which are now available to doctors who prescribe drugs.

AB-1001-73

Atherosclerosis in Human Populations—Strong JP (Louisiana State University Medical Center, New Orleans, Louisiana)—Atherosclerosis 16:193-201, 1972*

This report presents a comparison of atherosclerotic lesions in populations of similar ethnic origin but in diverse environmental settings. The large differences in average extent of atherosclerosis among the white populations and among the Negro populations suggest that environmental conditions may be important determinants of the prevalence and extent of atherosclerotic lesions.

AB-1002-73


In an international study of cerebral atherosclerosis the extent of atherosclerotic lesions in extracranial and intracranial arteries was determined using unaided visual estimation. Lesions were carefully defined and observations were recorded in a standardized manner. Specimens were coded so that the evaluators were not aware of the source.

Results of reliability tests confirm previous studies which have indicated that experience and training are essential for the successful application of visual evaluation methods. In the present studies the evaluators, on the average, were able to reproduce consensus estimates to within five units of percent surface involvement even after a period of six months. The method is simple, rapid and suitable for large-scale studies requiring quantitation of atherosclerotic lesions in arteries.

AB-1003-73

Cerebral Atherosclerosis in Negros and Caucasians—Solberg LA, McGarry PA (1542 Tulane Avenue, New Orleans, Louisiana 70112)—Atherosclerosis 16:141-154 (Sept-Oct) 1972*

Arteries from autopsied cases in three geographic locations, New Orleans, Oslo, and Kingston, have been collected and evaluated for extent of atherosclerosis. Negros have more atherosclerosis in the intracranial arteries and as much or more in the cervical arteries, while Caucasians have more atherosclerosis in the aorta and coronary arteries. These findings parallel mortality rates from cerebrovascular disease and coronary heart disease. No certain explanation for the racial differences in atherosclerosis can be given. Hypertension appears to exert a strong atherogenic influence, especially on intracranial arteries, increasing the risk of brain infarction. In the biracial New Orleans population the influence of hypertension appears to be greater in Negros.

AB-1004-73

Hyperbradykininemia: A New Orthostatic Syndrome—Streeter DHP (Department of Medicine, Section of Endocrinology, State University of New York Upstate Medical Center, Syracuse, New York 13210), Kerr LP, Kerr CB, Prior JC, Dalakos TG—Lancer 2:1048-1053 (Nov 18) 1972*

Five patients presented with a familial syndrome of orthostatic lightheadedness or syncope and facial erythema associated with an excessive orthostatic fall in pulse pressure and rise in heart-rate (compared with 94 normal subjects), ecchymoses, and purple discoloration of the legs after standing. The five patients almost invariably had plasma concentrations of bradykinin above the normal range and normal plasma-kallikreinogen concentrations. In at least some of the patients, hyperbradykininemia was probably caused by impaired destruction of circulating bradykinin, since plasma-bradykininase-I concentrations were commonly below the levels found in normal subjects. There was considerable improvement in symptoms and in the blood-pressure and pulse-rate changes during treatment with propranolol, fludrocortisone, or cyproheptadine.

AB-1005-73


*Authors' abstract.

Stroke, Vol. 4, May-June 1973
Cerebral blood flow (CBF) and oxygen consumption of the brain (CMRO₂) are measured in 20 comatose patients. Coma was caused by cerebral vascular disturbances in seven cases, by cardiac arrest with successful resuscitation in 11 cases and by strangulation and CO-intoxication in one patient, respectively. Patients have been divided into three groups according to the clinical course. 1. Irreversible coma: all eight patients died after an average of five days from central dysregulation. 2. Partial recovery: after an intermittent improvement of consciousness, all seven patients died, after an average of 26 days due to secondary complications. 3. Full recovery: all five patients survived with normal consciousness.

In group 1 mean CBF and CMRO₂ were significantly reduced and hardly measurable at all in three cases of brain death. In accordance with the literature a reduction of cerebral O₂-consumption to or below 1.0 ml/100 g · min has a poor prognosis and may be taken as indication of a "dying brain." Mean CBF was only slightly decreased or even normal in groups 2 and 3, because 5 of the 12 patients had a luxury perfusion during the coma. Mean CMRO₂ was in the range of 2 to 3 ml/100 g · min in these groups. The prognostic value of the findings especially for the diagnosis of brain death is discussed.

Cerebrovascular Response to CO₂ During Hyperthermia—Colton JS, Frankel HM (Department of Physiology and Bureau of Biological Research, Rutgers University, New Brunswick, New Jersey 08903)—Amer J Physiol 223:1041-1043 (Nov) 1972*

Cerebral blood flow (CBF) responses to changes in arterial blood carbon dioxide tension (PA CO₂) were determined in dogs at body temperature (Tb) of 37.5 and 41.7 C. Arterial PA CO₂, PA O₂, and pH were determined as well as mean arterial blood pressure (MAP), heart rate (HR), and cerebral vascular resistance (CVR). PA CO₂ was controlled by administering gas mixtures of 0, 4, and 7% CO₂ in 21% O₂ during artificial hyperventilation. It averaged 18, 36, and 52 mm Hg at 37.5 and 18, 39, and 61 mm Hg at 41.7 C, respectively. MAP showed no change with Tb or PA CO₂. CVR decreased significantly with increased Tb, at all PA CO₂. Regression analysis of the CBF-PA CO₂ data indicated a linear relationship over the range of PA CO₂ used. Comparison of regression coefficients at 37.5 and 41.7 C indicated an increased sensitivity (greater slope) during hyperthermia.

Species Difference in Carotid Body Response of Cat and Dog to Dopamine and Serotonin—Black AMS (Cardiovascular Research Institute, University of California, San Francisco, California 94122), Comroe JH Jr, Jacobs L—Amer J Physiol 223:1097-1102 (Nov) 1972*

Cyanide, nicotine, dopamine, norepinephrine, tyramine, serotonin (5-hydroxytryptamine), and phenyl- 
diguanide injected intra-arterially close to the carotid body of the anesthetized dog produced reflex hyperpnea typical of carotid body stimulation; when these com- pounds were injected similarly into the cat, only cyanide and nicotine produced reflex hyperpnea. The characteristic action of intracarotid dopamine in the cat was transient depression of respiratory rate and depth, even after extirpation of the ipsilateral superior cervical sympathe- 
tic ganglion and nodose ganglion. Intracarotid dopamine also decreased or abolished electrical activity in nerve fibers from carotid chemoreceptors. In the cat neither norepinephrine nor tyramine, injected into the carotid, caused consistent reflex changes in respiration. Norepi- 
nephrine usually produced no change or a decrease in frequency of action potentials in chemoreceptor fibers; tyramine produced a decrease, no change, or a very brief increase in electrical activity. Intracarotid 5-hy- 
droxytryptamine and phenyl diguanide produced im- mediate reflex apnea, bradycardia, and hypotension originating in the nodose ganglion; they never produced respiratory stimulation, even after excision of the nodose ganglion. They occasionally, however, caused a brief increase in electrical activity in carotid chemore- 
ceptor fibers.

ABSTRACTS

AB-1006-73

Cerebrovascular Response to CO₂ During Hyperthermia—Colton JS, Frankel HM (Department of Physiology and Bureau of Biological Research, Rutgers University, New Brunswick, New Jersey 08903)—Amer J Physiol 223:1041-1043 (Nov) 1972*

AB-1007-73

Species Difference in Carotid Body Response of Cat and Dog to Dopamine and Serotonin—Black AMS (Cardiovascular Research Institute, University of California, San Francisco, California 94122), Comroe JH Jr, Jacobs L—Amer J Physiol 223:1097-1102 (Nov) 1972*

AB-1008-73

Metabolism and Function of Dog's Brain Recovering From Longtime Ischemia—Hinzen DH (Institute of Normal and Pathological Physiology, University of Cologne, Germany), Müller U, Sobotka P, Gebert E, Lang R, Hirsch H—Amer J Physiol 223:1158-1164 (Nov) 1972*

After complete ischemia of 30 or 60 minutes' duration, changes of cerebral cortical high-energy phosphates and carbohydrates were concomitantly studied with alterations of bioelectrical activity of the cerebral cortex (electrocorticogram and strychnine-induced electrical potentials) in isolated perfused dog's heads after 1, 3, or 8 hours' recovery. During recovery after ischemia of 30 minutes, cerebral cortical energy reserves were rapidly and completely restored to the normal range; incomplete recovery of electrocorticogram was observed after 8 hours of postischemic reprefusion. After 60 minutes of complete ischemia, metabolic recovery was incomplete and only transient; no spontaneous electrocorticographic activity could be detected. Strychnine solution topically applied to the cerebral cortices stimulated electrical potentials ("strychnine spikes") during recovery after both 30 and 60 minutes' ischemia. The results show an apparent discrepancy between postischemic recovery of cerebral cortical energy metabolism and electrocorticogram. On the basis of our results, it can be concluded that the long-lasting depression of electrocorticogram after prolonged complete ischemia cannot be interpreted by a lack of energy reserves or absence of excitability of the cerebral cortex.
ABSTRACTS

AB-1009-73
Assessment of Cyclobenzaprine in the Treatment of Spasticity—Ashby P (Division of Neurology and the Department of Rehabilitation Medicine, Prince Henry Hospital, Sydney, Australia), Burke D, Rao S, Jones RE—J Neurol Neurosurg Psychiat 35:599-605 (Oct) 1972

The efficacy of cyclobenzaprine 60 mg/day in the treatment of spasticity was assessed in a double-blind crossover trial of two weeks' duration in 15 patients suffering from cerebral or spinal spasticity. Independent clinical and electromyographic methods were used. The effects of cyclobenzaprine did not differ significantly from those of placebo. The administration of a higher dosage, 150 mg/day, to one patient revealed a dose-related response, but the degree of improvement was clinically small. Apart from a skin rash there were no significant untoward effects of therapy.

AB-1010-73
Direct Assessment of Platelet Adhesion to Glass: A Study of the Forces of Interaction and the Effects of Plasma and Surface Factors: Platelet Function, and Modification of the Glass Surface—George JN (Department of Physiology and Medicine, The University of Texas Medical School, San Antonio, Texas)—Blood 40:862-874 (Dec) 1972

Platelet adhesion to glass has been directly determined with a cover slip chamber. These studies have separated the functions of platelet adhesion to a foreign surface from platelet cohesion (aggregation). The forces of the platelet-glass interaction have been studied, and the qualitative variables affecting this interaction have been defined. Fibrinogen and calcium or magnesium are required for adhesion of either unwashed or washed platelets in plasma. Platelet adhesion in fresh serum requires thrombin and probably the fibrinogen of the platelet surface, since washed platelets are not adherent in fresh serum. Platelets incubated at 37°C for 48 hours can neither spread nor adhere to glass, a defect that may reflect decreased platelet surface area and membrane deformability. Platelets are equally as adherent to siliconized glass as to untreated glass surfaces. However, platelets cannot adhere to glass treated with the hydrogen-bonding polymer, poly(ethylene oxide). In contrast to silicone, poly(ethylene oxide)-treated glass surfaces do not impede blood coagulation. These surface properties further distinguish the two major factors involved in thrombogenesis: platelet adhesion and plasma coagulation.

AB-1011-73
The Changes of Left and Right Ventricular Volumes Induced by Propranolol and Subsequent Carotid Occlusion—Machida K (Department of Radiology, University of Tokyo Branch Hospital, Mejirodai 3-28-6, Bunkyo-ku, Tokyo, Japan)—Jap Heart J 13:445-456 (Sept) 1972

Hemodynamic effects of propranolol (0.5 mg/kg) and subsequent carotid occlusion were investigated in 12 pentobarbital-anesthetized intact dogs, including the measurement of both ventricular volumes by thermodilution method. The role of \( \beta \)-sympathetic nerve during pentobarbital anesthesia is remarkable judging from the changes induced by propranolol; that is, decreased cardiac output (3.69 to 2.87 L/min) and heart rate (186.6 to 138.7 beats/min), and increased left ventricular end-diastolic volume (3.28 to 4.03 ml/kg) and end-diastolic pressure (4.0 to 10.9 mm Hg) without increase of left ventricular stroke work, reflecting the negative inotropism of the drug. Subsequent carotid occlusion increased heart rate and myocardial contractility with the considerable vasoconstriction, that is, normalized mean circumferential shortening rate as a velocity of contraction of muscle fiber, and end-diastolic volume as a ventricular preload did not change while ventricular peak force as an afterload increased. The author concludes that the inotropic effect of carotid occlusion is mediated by so-called homeometric regulation together with \( \beta \)-sympathetic nerve activity.

AB-1012-73
The Functional Morphology of the Kidneys and the Hypothalamic Neurosecretory System in Rabbits With Ischemic Cerebral Hypertension—Postnov YV (Department of Pathomorphology, Central Research Laboratory of the Ministry of Public Health of the USSR, Moscow), Gorkova SI—Virchows Arch (Path Anat) 357:99-112, 1972 (Springer-Verlag, publisher)

Rabbits with cerebral ischemic hypertension exhibited increased volume of the nucleus supraopticus of the hypothalamus with hypertrophy of its neurones and morphological signs of enhanced secretory activity of the hypothalamo-hypophyseal neurosecretory system. The kidney of rabbits with cerebral ischemic hypertension undergoes a substantial morphological adaptation suggesting the existence of a special regime of kidney functioning. The main feature of such adaptation is pronounced hypertrophy of the medullary layer, particularly of the renal papilla, which is indicative of functional overloading of the inner medulla in such animals including an enhancement of its resorptive function.

The above changes in the "hypothalamic secretory system—renal medulla complex" appear to be associated with the mechanism of escape from the corticosteroid overloading due to enhancement of the secretory function of the adrenal cortex in rabbits with this form of arterial hypertension.

AB-1013-73
The Precise Management of Heparin Therapy—Baden JP (Department of Surgery, University of Nebraska College of Medicine, Omaha, Nebraska 68105), Sonnenfield M, Ferlic RM, Sellers RD—Amer J Surg 124:777-779 (Dec) 1972

A rapid bedside test for precise control of heparin therapy has been devised. This test, called the Ba Son test, correlates well with the WBCT but is much simpler to perform. It is used to manage all patients on heparin anticoagulation therapy at the authors' institution.
ABSTRACTS

Temporal Arteritis and Polymyalgia Rheumatica. Clinical and Biopsy Findings—Fauchald P, Ryvold O (Center Hospital, Østfold County, Fredrikstad, Norway), Øystese B—Ann Int Med 77:845-852 (Dec) 1972*

The clinical, laboratory, and histological findings in 94 patients with temporal arteritis or polymyalgia rheumatica are reported. In 61 patients biopsy specimens from the temporal artery showed arteritis; the other group of 33 patients had clinical polymyalgia rheumatica and a negative biopsy. The frequency of systemic signs was the same in both groups, and the age and sex distribution were the same. Out of 49 patients with myalgia without local findings in the temporal region 20 exhibited arteritis at biopsy. It is difficult to maintain a practical clinical distinction between the two conditions by clinical or histological criteria. The relapse rate was 26% among patients with arteritis and 18% among biopsy-negative patients; it is therefore recommended to continue corticosteroid therapy for a minimum of two years. By repeat biopsies during and after the treatment it was shown that histological changes in the temporal artery may persist for a long time.

Venous and Arterial Occlusive Disease Treated by Enzymatic Clot Lysis—LeVeen HH (Veterans Administration Hospital, Brooklyn, New York 11209), Diaz CA—Arch Surg 105:927-936 (Dec) 1972*

Acute and chronic arterial occlusion (35 cases) and venous occlusion (23 cases) were treated by infusions of purified streptokinase. Success was judged by angiography.

Twenty-two patients with venous occlusion completed streptokinase therapy. Of ten patients with thrombosis of less than 14 days, lysis occurred in all. After two weeks but less than three weeks, the conditions of five of seven improved. Thrombi older than three weeks responded in two of six cases. Five cases of early thrombosis unresponsive radiologically to heparin sodium responded favorably to streptokinase.

Thrombosis unresponsive to heparin responded favorably to streptokinase. Of 10 patients with thrombosis of less than 14 days, lysis occurred in all. After two weeks but less than three weeks, the conditions of five of seven improved. Thrombi older than three weeks responded in two of six cases. Five cases of early thrombosis unresponsive radiologically to heparin sodium responded favorably to streptokinase.

Thrombus formation, despite efficient heparin anticoagulation, takes place on the dialysis membranes of the Gambro-Alwall dialyzer, causing a high blood-loss to the patient. This thrombus formation is associated with a fall in the patient's platelet-count over the course of dialysis. To test the hypothesis that platelet retention on these membranes is an early step in the reaction leading to thrombus formation, a double-blind trial of antiplatelet agents (aspirin and a pyrimido-pyrimidine compound [RA 233]) was carried out. These agents significantly lowered platelet-adhesiveness, reduced the fall in platelet-count over the duration of dialysis, abolished the significant fall in plasminogen level seen during placebo therapy, and reduced the dialyzer blood-loss. The results of the trial support the initial hypothesis and also suggest that these antiplatelet agents may be valuable in preventing thrombotic disease.

Stroke on the Wrong Side. Use of the Doppler Ophthalmic Test in Cerebral Vascular Screening—Machleder HI (Department of Surgery, UCLA School of Medicine, Los Angeles, California 90024), Barker WF—Arch Surg 105:943-947 (Dec) 1972*

Of 123 patients undergoing cerebral angiography for evaluation of transient ischemic attacks, 23 (19%) were found to have occlusion of one or both internal carotid arteries. In 15 patients the symptoms were well localized to the hemisphere supplied by the occluded carotid artery. The majority of these patients defied clinical diagnosis prior to angiography despite the usual tests for cerebral vascular insufficiency. The Doppler ophthalmic test gives indications of being, perhaps, the most reliable screening examination for internal carotid artery occlusion.

ABSTRACTS

Carotid Artery Stenosis. Association With Surgery for Coronary Artery Disease—Bernhard VM (Medical College of Wisconsin, Milwaukee, Wisconsin 53226), Johnson WD, Peterson JJ—Arch Surg 105:837-840 (Dec) 1972*

Symptomatic and asymptomatic carotid stenosis was shown in 31 patients with severe coronary artery disease referred for myocardial revascularization. The operative sequence of carotid repair before coronary surgery was elected in 15 patients. Three patients died of myocardial complications after carotid endarterectomy and before coronary surgery could be carried out. Combined carotid endarterectomy and coronary revascularization was carried out in 16 patients, with no mortality and minimal morbidity. Cerebral complications were infrequent, and only one mild neurological deficit could be related to cardiopulmonary bypass. Simultaneous carotid endarterectomy and coronary revascularization was the most effective means for avoiding myocardial complications and reducing the potential neurological deficits.

Human Intracranial Atherosclerosis. A Histochemical and Ultrastructural Study of Gross Fatty Streak Lesions—Hoff HH (Department of Neurology, Baylor College of Medicine, Houston, Texas 77025)—Amer J Path 69:421-438 (Dec) 1972*

A descriptive study of atherosclerotic lesions in human intracranial arteries was undertaken using both

*Authors' abstract.
light and electron microscopic technics. Arterial segments of human middle cerebral, internal carotid and basilar arteries with gross fatty streak lesions were obtained at autopsy within four hours after death, fixed and embedded in plastic. A new techinc has been developed in which 0.5 µ-thick sections can be stained with PAS/alcian blue, thereby enabling clear differentiation, substantiated by simultaneous electron microscopic studies, between the lipid-filled smooth muscle cell, which is surrounded by a PAS-positive basement membrane, and the lipid-filled blood monocyte. These techincs demonstrated that the gross fatty streak comprised a focal intimal thickening bordered on the lumen by a patent endothelial lining and on the media by a usually intact elastic membrane. The lesion contained smooth muscle cells and cells presumed to be blood monocytes, both filled with and devoid of lipid droplets. Although little fragmentcd or new elastica was found in the extracellular space, numerous focci of membranous material could be observed, believed to be cell debris and plasma lipoproteins. The similarity between the morphology of such lesions in intracranial arteries with those found in other arterial beds suggests that the documented differences in the prevalence of atherosclerosis in the various beds has no bearing on either the structure of each type of lesion or its progression.

AB-1020-73
Protection Against Epinephrine-Induced Myocardial Necrosis by Drugs That Inhibit Platelet Aggregation—Haft JJ (Cardiac Section, Veterans Administration Hospital, Bronx, New York 10468), Gershengorn K, Kranz PD, Oestreicher R—Amer J Cardiol 30:838-843 (Dec) 1972*

To investigate the possibility that the myocardial necrosis seen after epinephrine infusion is related to the platelet aggregating effects of epinephrine, ten dogs pretreated with aspirin, ten dogs pretreated with dipyridamole and ten dogs not pretreated were infused with epinephrine, 4 µg/kg per min; their hearts were studied histologically after sacrifice one week later. All of the control animals had necrosis, six with 3+, two with 2+, and two with 1+ necrosis. Seven of the ten dogs pretreated with aspirin and seven of the ten pretreated with dipyridamole had no evidence of myocardial necrosis. Three dogs pretreated with aspirin had 1+ necrosis; three pretreated with dipyridamole had 2+, 1+ and trace degrees of necrosis, respectively. This demonstration of a protective effect of antiplatelet aggregating agents suggests that intravascular platelet aggregation plays a role in catecholamine-induced myocardial necrosis. Clinical acute myocardial infarction seen after prolonged stress (during which catecholine secretion is increased) may be related to similar intravascular platelet thrombosis induced by catecholamines occluding a coronary artery previously narrowed by atherosclerosis.

*Authors' abstract.
model for the study of this phenomenon. During the period of tumor growth these animals develop a coagulopathy which is characterized by two phases. In the initial phase, there is a hypercoagulability with thrombocytosis and significantly increased levels of blood clotting factors V and VIII. In the second phase the coagulopathy is characterized by intravascular coagulation with markedly diminished levels of platelets, fibrinogen, prothrombin, factor V, and factor VIII. In addition, there is evidence of increased fibrinolysis. Postmortem examination of animals in the hypercoagulable and hypocoagulable phases revealed no evidence of thrombosis. However, blockage of the fibrinolytic mechanism with e-aminocaproic acid resulted in the rapid development of “total vessel” thrombosis and death. Control animals given equal or even larger doses of e-aminocaproic acid experienced no ill effects. These studies clearly demonstrate that malignant tumors predispose to thrombosis. The thrombotic tendency is probably mediated by humoral agents released from the tumor or from the surrounding tissue. The fibrinolytic mechanism acts to prevent the formation of intravascular thrombi, and the administration of drugs that interfere with fibrinolysis has catastrophic consequences.

AB-1025-73

Flow Measurement in the Carotid Body of the Cat by the Hydrogen Clearance Method—Keller HP, Lübers DW (Max-Planck-Institut für Arbeitsphysiologie, Dortmund, Germany)—Pflügers Arch 336:217-224, 1972 (Springer-Verlag, publisher)*

A technique is described which enables the determination of local blood flow in different points of the carotid body. The blood flow measured in the middle zone of the carotid body at mean blood pressure of 120 to 130 mm Hg was about 2000 ml/100 g X min and corresponded to the total flow values known thus far. It was found that the flow/g weight decreases from the arterial inflow toward the periphery. Under our experimental conditions no signs of autoregulation could be detected. Under special experimental conditions different flow distributions were observed in the carotid body.

AB-1026-73

Haemostatic Changes During Dialysis Associated With Thrombus Formation on Dialysis Membranes—Lindsay RM (University Department of Medicine, Royal Infirmary, Glasgow), Prentice CRM, Davidson JF, Burton JA, McNicol GP—Brit Med J 4:454-458 (Nov 25) 1972*

Platelet counts, coagulation factors, and the fibrinolytic system were studied in seven regular dialysis patients during the course of hemodialysis by parallel flow (Gambro-Alwall) and coil (Travenol Ultra-Flo 100) dialysers. Significant falls in the patients' platelet counts and rises in their factor V levels were found with both dialysis systems. The changes were more pronounced over the course of a Gambro-Alwall dialysis, when significant falls in the partial thromboplastin clotting time and in the plasminogen levels were also noted. These hemostatic changes were associated with the retention of platelets on the dialysis membranes and, in the case of the Gambro-Alwall dialyser, with the formation of platelet-fibrin thrombus. This thrombus formation may take place in spite of efficient heparin anticoagulation and may cause excessive blood loss to the regular dialysis patient.

AB-1027-73

Mechanisms of Action of Hypocapnic Alkalosis on Limb Blood Vessels in Man and Dog—Kontos HA (Department of Medicine, Medical College of Virginia, Health Sciences Division, Virginia Commonwealth University, Richmond, Virginia 23219), Richardson DW, Raper AJ, Ul-Hassan Z, Patterson JL Jr—Amer J Physiol 223:1296-1307 (Dec) 1972*

The mechanisms of action of hypocapnic alkalosis on limb blood vessels were investigated in man and in the anesthetized dog. In man hypocapnic alkalosis was produced by voluntary hyperventilation or by intra-arterial administration of tromethamine, and in the dog it was produced by intra-arterial administration of tromethamine or sodium hydroxide. Hypocapnic alkalosis had a biphasic effect on limb blood vessels consisting of an initial vasodilator effect and a subsequent vasoconstrictor action. The initial vasodilatation was primarily related to release of histamine, since it was accompanied by increased blood histamine concentration and since it was inhibited or reversed by antihistamines. The subsequent vasoconstriction probably represented the direct action of hypocapnic alkalosis on vascular smooth muscle. Other mechanisms, such as changes in the activity of vasomotor nerves, release of catecholamines, and changes in calcium ion activity were found to play no significant role in the response of limb blood vessels to hypocapnic alkalosis.

AB-1028-73

Systemic Circulatory Responses to Hypocapnia in Man—Richardson DW, Kontos HA (Department of Medicine, Medical College of Virginia, Health Sciences Division, Virginia Commonwealth University, Richmond, Virginia 23219), Raper AJ, Patterson JL Jr—Amer J Physiol 223:1308-1312 (Dec) 1972*

Hypocapnic alkalosis, induced by voluntary hyperventilation in normal man, was associated with increases in cardiac output and in heart rate and decreases in mean arterial blood pressure and in systemic vascular resistance. These changes were most pronounced one minute following the onset of hyperventilation, were less pronounced at four minutes, and subsided completely seven minutes following the onset of hyperventilation. The circulatory effects of hyperventilation were largely dependent on the associated chemical changes rather than on mechanical or reflex effects, since isocapnic hyperventilation produced no significant changes except a small increase in heart rate. Beta-adrenergic receptor blockade with propranolol did not alter the circulatory responses to hypocapnic hyperventilation. Administration of the antihistamine promethazine significantly reduced the increases in
ABSTRACTS

AB-1029-73
Congenital Factor VII Deficiency With Cerebral Haemorrhage Treated With Prothrombin Concentrate—Marriage K, Ekert H (Department of Hematology, Royal Children's Hospital, Flemington Road, Parkville, Vic. 3052)—Med J Aust 2:942-945 (Oct 21) 1972*

A prothrombin concentrate containing factors II, VII, IX and X (PPSB) was used in the treatment of a child with congenital factor VII deficiency. Intensive treatment with PPSB was given after a cerebral hemorrhage. The in vivo recovery of factor VII was found to be equal to the maximum value theoretically expected. PPSB appears to be a particularly useful preparation for the management of this rare congenital disorder.

AB-1030-73
Inhibition of Thrombosis on Vascular Catheters in Cats—Kricheff II (Departments of Radiology and Pathology, New York University Medical Center, New York, New York), Zucker MB, Tschopp TB, Kolodjiez A—Radiology 106:49-51 (Jan) 1973*

Cats given very small doses of aspirin were shown to have half the incidence of thrombi on catheters placed in the inferior venae cavae as control cats. The mechanism for this has not been established; nevertheless, the result is clear. In view of the well-known effect of aspirin in inhibiting platelet aggregation in man and the demonstration that aggregated platelets initiate catheter thrombus formation, it would seem worthwhile to pursue this study in man.

AB-1031-73

Nonatherosclerotic causes of segmental vascular narrowing were demonstrated by cerebral angiography in three quite unrelated disorders: sickle-cell anemia, reticulum-cell sarcoma, and tertiary syphilis. Sickle-cell anemia and reticulum-cell sarcoma have not previously been shown to be associated with diffuse segmental narrowing.

AB-1032-73
Angiographic Demonstration of Fenestrations of the Intradural Intracranial Arteries—Teal JS, Rumbaugh CL, Bergeron RT, Segall HD (Department of Neuroradiology, Los Angeles County-University of Southern California Medical Center, Los Angeles, California)—Radiology 106:123-126 (Jan) 1973*

Fenestration of partial duplication of intracranial arteries is noted occasionally during anatomical dissection. Since the phenomenon is rarely described in the literature, the authors present five recently observed cases, with a brief explanation of the proposed embryology and potential clinical significance.

AB-1033-73
Practical Use of Medium and Slow-Speed Screens for Cerebral Angiography—Haus AG, Rossmann K (Department of Radiology, The University of Chicago Pritzker School of Medicine, and Argonne Cancer Research Hospital, Chicago, Illinois)—Radiology 106:127-132 (Jan) 1973*

The image quality of several combinations of screen-film systems were tested and compared. With use of fast RP X-Omat processable film, medium speed intensifying screens can be used in place of fast speed screen-medium speed film combinations to produce sharper blood vessel images in cerebral angiography. This is accomplished without increased patient exposure. Slower intensifying screens can be used to produce sharper images of blood vessels by increasing the kVp setting to satisfy exposure time and tube load specifications. The resulting contrast decrease may not be diagnostically acceptable in every case. Slow screen-fast film at reduced frame rate may be used with slight increase in kVp when excellent image quality is desired.

AB-1034-73

Clinical and angiographical findings in three cases of radiation injury to large arteries are presented in order to illustrate the remote effects of irradiation. The previous literature is reviewed, and the prolonged interval prior to the discovery of the abnormalities is discussed.

AB-1035-73
Double Blind Evaluation of Glycerol Therapy in Acute Cerebral Infarction—Mathew NT, Meyer JS (Department of Neurology, Baylor College of Medicine, Houston, Texas), Rivera VM, Charney JZ, Hartmann A—Lancet 2:1327-1329 (Dec 23) 1972*

A double-blind evaluation of the effects of glycerol administration intravenously for four or six days in patients with acute stroke was completed in a stroke center. Fifty-four patients with acute cerebral infarction and eight patients with spontaneous intracerebral hemorrhage were admitted to the study. The neurological status was evaluated by use of a neurological scoring system. Patients with cerebral infarction treated with glycerol showed significant improvement in neurological status compared to the patients treated with placebo (p < 0.01). Six days of treatment with glycerol seem to give better results than treatment for four days. Patients
with spontaneous intracerebral hemorrhage did not seem to benefit from glycerol therapy.

AB-1036-73

Effect of Alpha-Adrenergic Blockade on Response of Cerebral Circulation to Hypocapnia in the Baboon—Hoff JT, Sengupta D, Harper M (Wellcome Surgical Research Institute, Garscube Estate, Beardsen Road, Glasgow G61 1QH), Jennett B—Lancet 2:1337-1339 (Dec 23) 1972*

Cerebral blood flow was measured in anesthetized baboons before and after alpha-adrenergic blockade with thymoxamine and phenoxybenzamine. Contrary to a recent report, the normal vasoconstrictive response of the cerebral blood flow to reduced $P_{\text{a}CO_2}$ was unaffected by alpha-adrenergic blockade.

AB-1037-73

Venous Drainage to the Inferior Sagittal Sinus—McCord GM, Goree JA, Jimenez JP (Department of Radiology, Duke University Medical Center, Durham, North Carolina)—Radiology 105:583-589 (Dec) 1972*

The anatomy and angiography of venous drainage to the inferior sagittal sinus are described. Occasionally, early filling of these veins may define pathological circulation. During the venous phase of the cerebral angiogram, these vessels may demonstrate the anterior midline of the brain, the position of the anterior portion of the callosal cistern, and the inferior margin of the falx. The inferior sagittal sinus and its tributaries, when identifiable, may help to localize mass lesions more accurately. Displacement of the inferior margin of the falx by tumor may be more common than previously believed.

AB-1038-73


Circular tomography has been used during cerebral angiography in patients with various pathological conditions in an effort to improve visualization of the brain and its blood vessels. Useful additional information was obtained in 7 of 24 patients studied; in one patient, the angiotomogram showed a small metastasis that was not visible on the routine angiographical views. The blush over the cerebral hemispheres can be visualized, which should be useful in differentiating extra-axial and superficial intra-axial tumors and infaracts.

AB-1039-73

Radionuclide Cisternography in Subdural Hematomas—Rinaldi I (Departments of Surgical and Medical Neurology, The Hampton Roads Neurological Center, New-

AB-1040-73

Experimental Intracoronary Thrombosis and Selective In Situ Lysis by Catheter Technique—Kordenat RK (Cox Heart Institute, Dayton, Ohio 45429), Kezdi P, Powley D—Amer J Cardiol 30:640-645 (Nov 8) 1972*

Acute myocardial infarction was produced in a group of 20 dogs after the selective placement of a thrombogenic copper wire by catheter technique into either the anterior descending or circumflex branch of the left coronary artery. The time of onset of thrombosis ranged from one to four hours. The resulting thrombus was enzymatically lysed 1 to 24 hours after the occlusion, and signs of infarction were demonstrated. The lysing agent was delivered directly into the coronary artery, by means of a catheter to the site of the thrombus. Minimal amounts of the enzyme were used, and complete canalization of the obstructed vessel was achieved in all cases in which lysis was attempted. In 16 dogs, there was a definite improvement in the hemodynamic and biochemical indexes after lysis and restablishment of blood flow.

AB-1041-73

Rehabilitation in a Nursing Home Setting—Shull JR (Department of Physical Medicine and Rehabilitation, Methodist Hospital, Dallas, Texas)—Southern Med J 65:1360-1363 (Nov) 1972*

The author refers to an all too neglected aspect of management in chronic disease and especially in the nursing home. Much can be accomplished through vision and energy.

AB-1042-73

Atherosclerosis in Diabetes Mellitus. Correlations With Serum Lipid Levels, Adiposity, and Serum Insulin Level—Santen RJ, Willis PW III, Fagans SS (Division of Endocrinology and Metabolism, University Hospital, Ann Arbor, Michigan 48104)—Arch Int Med 130:833-843 (Dec) 1972*

A group of 101 diabetic patients containing equal numbers of patients with and without clinical atherosclerosis and 104 control subjects of similar age and sex were studied. The diabetic patients with atherosclerosis were found to have higher triglyceride and cholesterol levels, higher insulin-glucose ratios, and a higher

*Authors' abstract.
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frequency of pre-β band staining on lipoprotein electrophoresis than diabetic patients without atherosclerosis or control subjects. Diabetic patients with atherosclerosis could be discriminated better from those without atherosclerosis by the use of triglyceride levels than by the use of cholesterol levels. Segregated arbitrarily into three categories of body weight, diabetic patients with atherosclerosis had higher triglyceride levels than similarly classified diabetic patients without atherosclerosis. Basal insulin levels, triglyceride levels, and indices of body weight were highly intercorrelated in the diabetic patients with atherosclerosis. However, fasting levels of serum insulin were similar in the two groups of diabetic patients. There was no clear relationship between carbohydrate intake by dietary history and triglyceride levels.

AB-1043-73
Partition of the Carotid Sinus Baroreceptor Response in Dogs Between the Mechanical Properties of the Wall and the Receptor Elements—Koushanpour E, Kelso DM (Department of Physiology, Northwestern University Medical School, Chicago, Illinois 60611)—Circulation Research 31:831-845 (Dec) 1972*

The purpose of this investigation was to learn what part of the carotid sinus baroreceptor response is attributable to the gross mechanical properties of the wall and what part to the receptor elements. Static pressure forcings were applied to an isolated dog carotid sinus preparation while baroreceptor nerve activity was recorded; carotid sinus deformation was measured from still photographs taken during the experiment. Pressure-nerve activity data were obtained from four dogs and pressure-deformation data from another five dogs. The average electrical power in the nerve signal was used as the measure of nerve activity, and strain-energy density, a scalar quantity, was selected as the best indicator of the mechanical state of the sinus wall. Strain-energy density was calculated by measuring the circumferential and the longitudinal strains and by estimating the corresponding stresses in accordance with a thin-walled, axially symmetric model. The pressure-nerve activity data followed an S-shaped pattern, but the pressure-strain-energy density data were linear over the pressure range of 50 to 250 mm Hg. A curve of strain-energy density versus nerve activity constructed from these two graphs, with pressure as the parametric variable, showed a linear relationship between nerve activity and strain-energy density over the pressure range of 75 to 175 mm Hg, but the slope of the curve rapidly went to zero with increasing pressure. We concluded that the nonlinearity in the pressure-nerve activity relationship was primarily due to the inability of the receptor elements to respond to increasing wall strains.

AB-1044-73
Plasma and Dietary Cholesterol in Infancy: Effects of Early Low or Moderate Dietary Cholesterol Intake on Subsequent Response to Increased Dietary Cholesterol—Glueck CJ, Tsang R, Balistreri W, Fallat F (Departments of Medicine, Fe's Division of Pediatric Research, Children's Hospital Research Foundation, and the General Clinical Research Center, University of Cincinnati, College of Medicine, Cincinnati, Ohio)—Metabolism 21:1181-1192 (Dec) 1972*

Variations in dietary cholesterol and polyunsaturated or saturated fatty acids were studied in the first year of life in 21 normal and 18 hypercholesterolemic neonates to determine if the amount of dietary cholesterol in early infancy affects subsequent adaptation to increased dietary cholesterol in later infancy and childhood. At age 12 months, plasma cholesterol levels in normal (129 mg/100 ml) and hypercholesterolemic infants (200 mg/100 ml) did not appear to be influenced by antecedent low or moderate cholesterol intake in early infancy.

AB-1045-73
Multibolus Technique for Measuring the Distribution of Cerebral Blood Flow Over Short Intervals in Man—Risberg J, Ingvar DH (Department of Clinical Neurophysiology, University Hospital, Lund, Sweden)—Circulation Research 31:889-898 (Dec) 1972*

Repeated measurements of cerebral blood flow distribution were made in man at one-minute intervals: a 133xenon solution was injected into the internal carotid artery, and gamma radiation was recorded extracranially in multiple hemispheric regions. In each study, a full-length 133xenon clearance curve was recorded for 15 minutes and a series of about 15 equal isotope injections separated by one-minute intervals was given. Following each injection in this multibolus series, a sudden increase in activity was recorded from each brain region. The complete series yielded a slowly rising sawtooth curve for each region; the perpendicular heights of these curves are a measure of the amount of isotope arriving at each region of the brain following each injection and this amount of isotope is proportional to the flow in the region, according to the bolus-fractionation principle. The reproducibility of the method during steady-state conditions was tested in four subjects, and the standard error of measurement was found to be 4%. In four other subjects a visual memory test was given during five of the determinations, and it caused transient flow changes in the occipital regions.

AB-1046-73
Hyperbaric Oxygen Therapy: Size of Infarct Determines Therapeutic Efficacy—Glaser SC, Glaser EM (Temple University School of Medicine, Philadelphia, Pennsylvania)—Ann Intern Med 78:77-80 (Jan) 1973*

There are differing reports of the efficiency of hyperbaric oxygen therapy for thrombotic and embolic states. An analysis of the volume of tissue necrotized as a function of the radius of tissue originally supplied with oxygen by the occluded vessel was made. The volume of necrosis increases rapidly as the cube of the original radius. The volume of tissue saved by breathing 100% oxygen at three atmospheres increases more slowly, as the square of the original radius. Thus the percent of tissue saved varies according to the reciprocal of the original radius, and any phenomena
that produce multiple small necrotic areas will respond more favorably to hyperbaric oxygen therapy than any phenomena that produce one large volume of necrosis.

AB-1047-73
Interaction of Sodium Warfarin and Disulfiram (Antabuse®) in Man—O’Reilly RA (Departments of Medicine, Santa Clara Valley Medical Center and the Institute for Medical Research of Santa Clara County, San Jose; and the University of California, San Francisco, California)—Ann Int Med 78:73-76 (Jan) 1973*

To evaluate the interaction of sodium warfarin and disulfiram (Antabuse®), a single dose (1.5 mg/kg body weight) and a 21-day course of sodium warfarin were administered orally, with and without disulfiram orally, to eight normal subjects. A significant augmentation of both the hypoprothrombinemia (P < 0.01) and the plasma warfarin level (P < 0.05) occurred with daily disulfiram compared with warfarin alone, for both the single-dose and 21-day experiments. In the single-dose and 21-day experiments a highly significant correlation of the changes in plasma warfarin levels and in the hypoprothrombinemia occurred, which was positive in 13 and negative in two experiments. We conclude that disulfiram increases the anticoagulant effect of warfarin therapy in most but not all subjects by inhibiting its metabolism in the liver. An augmentation of the therapeutic effect of a drug by disulfiram has thus been shown for the first time in humans.

AB-1048-73
Favorable Experience with Bacterial Endocarditis in Heroin Addicts—Menda KB, Gorbach SL (Department of Infectious Disease, Cook County Hospital; The Hektoen Institute of Medical Research; and the Abraham Lincoln School of Medicine, University of Illinois College of Medicine, Chicago, Illinois)—Ann Int Med 78:25-32 (Jan) 1973*

During a prospective 18-month study we saw 23 cases of bacterial endocarditis in heroin addicts. The infecting organisms were Staphylococcus aureus (16), Streptococcus faecalis (3), Strep. viridans (2), Pseudomonas (1), and mixed streptococci and Enterobacter (1). Solitary tricuspid involvement with Staph. aureus was seen in 11 patients; all had septic pulmonary emboli, but only 5 had splenomegaly, 5 had hematuria, and 1 had peripheral stigmata in the conjunctivae or nail beds. Of seven patients with left-sided endocarditis (mitral or aortic valve disease), all had hematuria, five had peripheral stigmata, and four had splenomegaly. Complications of endocarditis included aortic valve rupture, empyema, severe respiratory insufficiency, embolus to central nervous system with hemiparesis, gastrointestinal bleeding, septic joints, and renal failure. All patients survived, including three in whom the initial antibiotic failed and three who subsequently relapsed and required retreatment. Improved survival can be obtained with early diagnosis and intensive management of complications.

AB-1049-73
Some Effects of Acute Anoxia and Prolonged Asphyxia on Rat Brain—De Souza SW, Dobbing J (Department of Child Health, University of Manchester, Manchester M13 0JF, United Kingdom)—Exp Neurol 37:340-346 (Nov) 1972 (Academic Press, publishers)*

The effects of prolonged asphyxia at room temperature (22 to 24 C) and body temperature (37 C) and repeated acute anoxia at body temperature were studied in adult rats (10- to 18-weeks old). The effects of prolonged asphyxia at body temperature were also studied in young rats (four weeks old). Rats dying during repeated acute anoxia at body temperature and prolonged asphyxia at room temperature showed an increase in brain sodium/potassium ratio only, whereas rats dying during prolonged asphyxia at body temperature also had an increase in brain water. Rats recovering from prolonged asphyxia at body temperature showed an increase in brain sodium/potassium ratio that was not present four hours later.

AB-1050-73

A method of angiography is described. The common carotid artery is punctured with digital compression of the artery proximal to the site of injection. The method appears to be of benefit in preferential staining of arteriovenous aneurysms of the scalp and/or dura in the supply of the external carotid artery. This method is of value for angiographical subtraction due to suppressed filling of certain intracranial arteries which may result in better visualization of the malformation.

AB-1051-73

A case is reported of a young man presenting with rapidly progressing proptosis of the right eye with decreasing visual acuity. A loud bruit could be heard over the right eye. Biopsy of the skin confirmed the diagnosis of pseudoxanthoma elasticum (PXE). Angiography revealed a right carotid-cavernous sinus fistula. In addition, bilateral carotid and vertebral rete mirabile are reported. The pathogenesis of pseudoxanthoma elasticum is reviewed. The authors conclude the carotid and vertebral rete mirabile in this case is probably an incidental developmental anomaly associated with an unusual disorder of connective tissue.

AB-1052-73
Scan Visualization of Mycotic Aneurysm of a Branch of Right Middle Cerebral Artery—Samuels LD (561 South...
ABSTRACTS

17th Street, Columbus, Ohio 43205—J Nucl Med 13: 695-696 (Sept) 1972

A case is reported of a 13-year-old girl with meningitis and subacute bacterial endocarditis who died following rupture of a mycotic aneurysm of a branch of the right middle cerebral artery. Previous scan using technetium-99m pertechnetate revealed a superficial vascular lesion on the right which corresponded to the site of the ruptured aneurysm at postmortem examination. The author points out that other workers have visualized arteriovenous malformations when they reached 3 x 3 cm in size. The author concludes the rectilinear scanner can be useful for detecting CNS vascular lesions.

AB-1053-73
Automatic Computer Analysis of Digital Dynamic Radionuclide Studies of the Cerebral Circulation—O’Reilly RJ, Cooper REM, Ronai PM (Director of Nuclear Medicine, The Institute of Medical and Veterinary Science, Box 14, Rundle St. Post Office, Adelaide, South Australia 5000) —J Nucl Med 13: 658-666 (Sept) 1972

An empirical technique for automated off-line computer analysis of dynamic radionuclide studies of the cerebral circulation using a scintillation camera and associated digital data-acquisition equipment is described. The functions of the computer program are outlined in the paper. Automated analysis is suited to high load work situations. Compared to the manual methods previously used, the automated system is more accurate and faster. Digital analysis using this technique has proved more sensitive in the detection of unilateral occlusive cerebrovascular disease than simultaneously recorded analog data.

AB-1054-73
Reversed Flow Through the Ophthalmic Artery as a Cause of Rubeosis Iridis—Huckman MS (Department of Diagnostic Radiology, Presbyterian-St. Luke’s Hospital, Chicago, Illinois 60612), Haas J—Amer J Ophthal 74: 1094-1099 (Dec) 1972

Carotid arteriography demonstrated retrograde collateral circulation through the ophthalmic artery on the involved side in two cases of carotid artery occlusion with rubeosis iridis and neovascular glaucoma. Neovascular glaucoma may not be the result of occlusion of the carotid artery but may result from an ophthalmic artery “steal” phenomenon. This concept is supported by the presence of neovascular glaucoma in patients with surgically corrected carotid-cavernous sinus fistula.

AB-1055-73
Anatomical Observations on the Arterial Supply to the Lumbosacral Spinal Cord of the Cat—Chambers G, Eldred E, Eggert C (Department of Anatomy and Brain Research Institute, University of California, Los Angeles, California 90024) —Anat Rec 174: 421-434 (Dec) 1972

Following latex injection of the vasculature of the lumbosacral spinal cord of the cat, the patterns of the arterial supply were examined to determine precautions that may be taken to avoid embarrassment of the cord’s circulation during rhizotomy. An average of 4.1 significant radicular branches were found to supply the single ventral spinal artery. It was noted that one or two radicular arteries at the third or fourth lumbar levels on the left were invariably large. Anastomotic channels between dorsolateral and ventral arterial channels were poorly developed, especially at mid-dorsum. The dorsal radicular artery pierced the ventral root in 82 of 97 roots examined in order to reach a position along the ventral aspect of the dorsal root. This penetration occurred central to the ganglion in most cases.

AB-1056-73

Percutaneous catheterization of the brachial artery is described as a method for continuous blood pressure measurement. The advantages include the simplicity of the procedure, its low risk and little stress to the patient. This method permits 24-hour monitoring of pressure and allows recording of rapid pressure changes.

AB-1057-73
Local Hypothermia in the Treatment of Spinal Cord Injuries. Report of Seven Cases—Koons DD, Gildenberg PL, Dohn DF (Cleveland Clinic, Cleveland, Ohio), Henoch M—Cleveland Clin Quart 39: 109-117 (Fall) 1972

Seven cases of spinal cord injury treated with localized cooling at the time of laminectomy are reported. The technique used in cooling is described. Five of the seven cases were in the complete or irreversible category; four of these five failed to recover any function after surgery. One patient recovered dramatically from total quadriplegia to independent ambulation. The maximum benefit from cooling seems to be obtained with the first four hours after injury.

AB-1058-73

In 17% of 6,534 patients studied there was evidence of subclavian or innominate arterial occlusion or stenosis of 30% or more. The criteria of “subclavian steal” were fulfilled in 168 patients, and associated lesions of other extracranial vessels were noted in more than 80% of this group. Postsurgical complications tended to be higher when the thorax was entered. When survival rates for medically and surgically treated groups were compared, there was no notable difference. Strokes did not occur in the follow-up period in those patients with only subclavian artery disease (whether the patients were treated medically, surgically or not at all).
Endarterectomy was performed in 60 patients with a follow-up period of up to six years. Patients had witnessed transient cerebral ischemic episodes; some of the patients came to surgery with residual neurological deficits, including severe mental deficiency and coma. The results of the study indicate that the removal of atheroma from the carotid bifurcation obviates further attacks of cerebral ischemia. In cases with pre-existing neurological deficits notable benefit from surgery was not observed. There is no basis for surgery in the comatose patient.

Platelet and Fibrinogen Consumption in Man—Harker LA (BB 1229 University Hospital, RM-10, Seattle, Washington 98195), Slachter SJ—New Eng J Med 287:999-1005 (Nov 16) 1972

Three types of consumptive processes involving the homeostatic apparatus have been defined. This work has resulted from studies of survival and turnover measurements of platelets and fibrinogen in 35 normal subjects and 104 patients. The first process represents an exaggeration of the physiological homeostatic response and is characterized by combined platelet and fibrinogen consumption. This process may occur in patients with venous thrombosis, tissue trauma, cancer, and bacteremia; it can be modified by heparin. The second process reflects platelet thrombus formation on abnormal surfaces in the arterial system; it is characterized by selective platelet destruction. Certain inhibitors of platelet function may reverse this process. Adrenocortical steroids have been advocated to suppress vascular inflammation. Destruction of fibrinogen is involved in the third process. This process may be seen following the infusion of urokinase and seems typical of the primary fibrinolytic syndromes.


An attempt at surgical correction of a carotid-cavernous sinus arteriovenous fistula included the introduction of a muscle embolus into the fistula with the aid of a Fogarty catheter. Although clinical improvement was remarkable (reduction in pulsatile tumor and disappearance of headache), postoperative angiography revealed the persistence of an A-V communication. At 14 months postoperatively the patient was asymptomatic, but a thrill and murmur were noted when the patient reclined with the head turned to the left.

The Cortico-Subcortical Arterial Angio-Architecture in the Human Brain—De Reuck J (Department of Neurology, University of Ghent, Ghent, Belgium)—Acta Neurol (Belgium) 72:323-329 (Sept-Oct) 1972

In an attempt to evaluate the vasculature of the cortex and subcortical area, 20 adult and six newborn brains were injected with a colloidal solution of barium sulfate. The vascular architecture of the cortico-subcortical areas was essentially the same in adult and newborn brains. The isocortex has a much more complex vascularization than the archicortex and paleocortex; each cell layer receiving its own particular blood supply. The cerebellum has a relatively simple vasculature with cortical branches ending in the layers of the Purkinje and granular cells. The penetrating branches of the cerebral and cerebellar cortex are terminal, which contrasts to the many anastomoses at the surface. At the level of each cortical cell layer, the terminal branches form vascular end zones.

Cryptic Hemangioma of the Choroid Plexus. A Cause of Intraventricular Hemorrhage—Doe FD, Shuangshoti S, Netsky MG (Department of Pathology, University of Virginia School of Medicine, Charlottesville, Virginia 22901)—Neurology 22:1232-1239 (Dec) 1972

Microscopic hemangiomas of the choroid plexus may be the source of intraventricular hemorrhage; five cases are reported. In two the lesion was bilateral. A case of cryptic hemangioma in an adult is described, although these tend to occur in the neonate. The neonatal rupture of cryptic angioma is felt to result from abnormally increased intracranial pressure. In the adult fibrinoid degeneration is suggested as a mechanism of rupture of angiomatous vessels. Cryptic hemangiomas are usually unilateral and are often associated with other anomalies.

Carotid Endarterectomy Shunt-Clamp—Brisman R (Letterman General Hospital, Box 282, San Francisco, California 94129), Nova HR—J Neurosurg 37:621 (Nov) 1972

A balloon “shunt clamp” has been designed to facilitate the placement of an internal shunt which maintains blood flow through the internal carotid artery during carotid endarterectomy. The instrument consists of a silicone rubber tube with a balloon at the distal end which is inserted into the internal carotid artery. When inflated with saline, the balloon obliterates the space between the interior of the vessel and the exterior of the shunt. The advantages for such a device include limited amount of dissection ordinarily required to pass a ligature around the internal carotid artery. Higher dissection may be accomplished within the artery for removal of a plaque without dissecting externally in the region of the hypoglossal nerve.
ABSTRACTS

AB-1065-73

Retinal Strokes. I. Incidence of Carotid Atheroma—Kollarits CR, Lubow M (466 West Tenth Avenue, Columbus, Ohio 43210), Hissong SL—JAMA 222: 1273-1275 (Dec 4) 1972

Fifty-three patients out of 70 patients seen with retinal strokes had a clinical picture suggestive of retinal artery occlusion due to emboli from atheromatous disease of the carotid bifurcation. In 43 of 45 of the patients studied angiographically (96%), carotid bifurcation atheroma were demonstrated as the probable source of emboli. Similar carotid atheromatous disease was seen in 24% of 100 consecutive carotid angiograms in hospital patients 60 years of age or older. The data from the present study suggest that most retinal strokes are caused by emboli from carotid bifurcation atheroma.

AB-1066-73


Optic disc vasculitis is described in eight cases. This condition may be seen in either sex in young adults. The patients usually complain of unilateral blurring of vision with visual acuity only slightly affected. The fundus examination may reveal signs of central retinal vein occlusion or marked edema of the optic disk. Though the disease is usually self-limiting, systemic steroid therapy has been advocated in the past and reported as having a beneficial effect.

AB-1067-73


Extensive postmortem studies of the brains of three patients with difficulties in memory and spatial disorientation are reported. In the case with a unilateral lesion there was initial dysphasia followed by memory difficulties with spatial disorientation. These problems disappeared, leaving a persistent difficulty with color recognition predominated. Destruction common to five of the hemispheres studied included the cortex (cornu ammonis, hippocampal gyrus, lingula), subcortex (stratum sagittale occipitale externum), and thalamus (n. ventrocaudalis). It is the authors' impression that the hippocampus and hippocampal gyrus on the two sides of the brain form the indispensable substratum of memory in man.

AB-1068-73


Aneurysms of the common carotid artery, believed to be congenital, were successfully resected in two patients. The first patient experienced transient five-minute to ten-minute episodes of left arm weakness and numbness, and on examination a low-pitched, systolic murmur was heard over the distal left common carotid artery. The second patient had headaches preceded by visual defects including blurring of vision followed by homonymous hemianopsia. The visual defects varied from right to left side and often were accompanied by a mild hemiparesis and hemianesthesia. Physical examination revealed a palpable systolic thrill over the right neck and a systolic bruit over the midportion of the right common carotid artery. Resection of these aneurysms with restoration of vascular continuity can be accomplished with very little risk and is the recommended form of treatment.

AB-1069-73

Regional Cerebral Blood Flow With the Anger Camera—Holman BL (Department of Radiology, Harvard Medical School, Boston, Massachusetts 02115), Davis DO, Pochten EH—J Nucl Med 13:916-923 (Dec) 1972

Following intra-arterial injection of 133Xe, regional blood flow was quantified using the Anger camera. In five angiographically normal patients, the average hemispheric blood flow ranged from 43.3 to 60.2 (mean 50.5) cc/min/100 gm—values which are similar to normal values reported by other techniques. Regional differences were noted with 18.9% higher flow over the convexity than the midportion of the hemisphere, and flow at the base averaged 7.1% lower than the midportion. It is believed the Anger camera is an accurate external detector for measuring regional blood flow with an inert gas.

AB-1070-73

Physiological Monitoring in Surgery for Carotid and Vertebral Artery Occlusive Disease—Scharf AG (633 North Central, Glendale, California 91203)—Int Surg 57: 961-964 (Dec) 1972

Several significant points which must be evaluated when undertaking carotid reconstructive surgery are outlined by the authors. Impending neurological damage is signaled by venous jugular oxygen saturation of 50% or less. An arterial stump pressure drop to 50% of the preocclusion level may jeopardize the cerebral collateral blood flow. Mean cerebral blood flow is severely reduced if systemic arterial blood pressure drops to under 70 mm Hg. Heart survival time is four minutes; with hyperventilation and resuscitation, brain survival time is 8 to 10 minutes.

AB-1071-73

Familial Intracranial Aneurysms—Toglia JU (Department of Neurology, Temple University Health Science Center, Philadelphia, Pennsylvania 19140), Samii AR—Dis Nerv Syst 33:611-613 (Sept) 1972

Case histories of a black family and a white family, each with two members having intracranial aneurysms,
are reported. Familial aneurysms may have locations of choice and multiple aneurysms are more likely familial than single aneurysms. If a relative of a patient with an intracranial aneurysm has severe vascular headaches, the authors suggest he be submitted to angiography.

AB-1072-73
Retinal Cotton Wool Spots and Cytoid Bodies—Ferry AP (Departments of Ophthalmology and Pathology, Mount Sinai School of Medicine of the City University of New York, New York 10029)—J Mount Sinai Hosp NY 39:604-609 (Nov-Dec) 1972

An attempt is made to clarify the terms "cytoid body" and "cotton wool spot." In the past these terms have been incorrectly used synonymously. It is generally agreed that focal ischemia is the causative factor in the pathogenesis of cotton wool spots. Cytoid bodies are histological components of a cotton wool spot. Cytoid bodies occur commonly throughout the central nervous system and are not specific to the retina. Cytoid bodies probably represent an axonal reaction presenting as bulbous terminal swellings of a damaged nerve fiber.

AB-1073-73
Recurrent Electrocardiogram Changes in Subarachnoid Hemorrhage—Goldfinger P (Division of Cardiology, Department of Medicine, Mount Sinai School of Medicine of the City University of New York, New York 10029)—NY State J Med 72:2771-2772 (Nov 15) 1972

The electrocardiographical findings are reported in a 58-year-old woman with two documented episodes of subarachnoid hemorrhage. Following each episode, the ECG picture of subendocardial infarction developed was characterized by ST segment depression, deep T waves in leads III and V2, and prolongation of the Q-T interval. The changes gradually disappeared; the patient did not complain of chest pain at any time. A repeat ECG and double two-step exercise test obtained three and one-half years later were normal.

AB-1074-73
Smoking and Warfarin Dosage—Mitchell AA (Boston University Medical Center, Waltham, Massachusetts)—New Eng J Med 287:1153-1154 (Nov 30) 1972

In an attempt to evaluate the effect of smoking upon the maintenance dose of warfarin, three groups were evaluated. Heavy smokers were those smoking more than 20 cigarettes per day, light smokers smoked 20 or less cigarettes per day and nonsmokers never smoked or had failed to smoke during the previous year. By comparing maintenance doses in these three groups it was found that there was no evidence that patients who smoke cigarettes require different maintenance doses of warfarin from those patients who are nonsmokers.

AB-1075-73
Observations on Temporal Arteritis—Wadman B, Werner I (Department of Medicine, University Hospital,


In 53 cases of temporal arteritis, 48 verified by biopsy, the clinical and laboratory findings are reported. A typical history and tender thickening of one or both temporal arteries was noted in the remaining five patients. In all cases the ESR was over 50 mm per hour and greater than 100 in 42 patients. Slight anemia, hypoalbuminemia, and raised α-2-globulin and fibrinogen were noted in most cases. Elevated serum alkaline phosphatase was noted in 29 patients. In 16 patients the BSP test was abnormal, the more severe abnormality presenting in those with ocular involvement.

AB-1076-73

In 297 carotid endarterectomies the mean internal carotid back pressure (Pbc) was measured prior to surgery and found to be less than 50 mm Hg in 73 operations. In 50% of this group of patients in which a shunt was not used, neurological deficits developed. In those patients in whom a shunt was used, neurological deficits appeared in five patients (10%), and in all of these the arterial occlusion time for insertion of the shunt exceeded two and one-half minutes. In 244 operations, Pbc levels were in excess of 50 mm Hg at the original measurement or were brought to that level by induced hypertension. Six patients in whom shunts were not used developed mild transient neurological deficits presumably caused by operative ischemia (occlusion times 31 to 39 minutes).

AB-1077-73
Aneurysms of the Extracranial Carotid Artery—Kaupp HA, Haid SP, Jurayj MN, Bergan JJ (Department of Surgery, Northwestern University Medical School, Chicago, Illinois 60611), Trippel OH—Surgery 72:946-952 (Dec) 1972

Two types of aneurysms were encountered in the surgical treatment of 13 aneurysms of the cervical carotid artery in eight patients. Saccular, unilateral lesions affecting the internal carotid or common carotid trunk differed morphologically from fusiform, bilateral bifurcation aneurysms. Resection of the aneurysm with end-to-end anastomosis proved the favorable method of treatment. Cerebral perfusion protection through intraluminal shunting was not uniformly required.

AB-1078-73
Six-Year Follow-Up Study in the Use of Gas Endarterectomy—Sawyer PN, Pasupathy CE, Fitzgerald J, Kaplitt MJ, Costello M, Keates JRW, O'Malley G, Lapovsky A (Vascular Surgical Services, Department of Surgery and Surgical Research, and the Division of Neurology, Department of Medicine, State University of New York,

Stroke, Vol. 4, May-June 1973
ABSTRACTS

Downstate Medical Center, Brooklyn, New York)—Surgery 72:837-848 (Dec) 1972

In 315 patients gas endarterectomy has been utilized in the peripheral vasculature. Ninety-eight percent of carotid artery reconstructions have remained patent, while an overall initial patency rate of 85% has been the experience in 138 patients undergoing femoropopliteal reconstructions. The overall results indicate that gas endarterectomy is a practical technique with low morbidity and mortality rates.

AB-1079-73

Axillary-axillary bypass graft was utilized in the treatment of two patients with occlusion of the innominate artery and in one patient with stenosis of the subclavian artery. To evaluate the effects produced by the grafting procedure the patients were studied preoperatively and postoperatively with the directional ultrasonic velocity detector. In all of the patients studied the surgical procedure restored normal flow direction and velocity patterns. Results of special studies reveal that there is a significant regression of collateral network after revascularization of the affected vessels. It was also of importance to note the graft was effective without compromising the blood supply of the donor site.

AB-1080-73
Arteriographic Demonstration of Vascular Lesions in the Study of Neurologic Deficit in Advanced Haemophilus Influenzae Meningitis—Thomas VH, Hopkins JJ (Royal Children’s Hospital, Parkville, Victoria 3052, Australia)—Develop Med Child Neurol 14:783-787, 1972

Cerebral angiography was carried out in five patients with severe neurological sequelae following Haemophilus influenzae meningitis. Narrowing or occlusion of the terminal carotid arteries or their branches was noted in all cases. In one patient venous sinus occlusion and dilatation of capillaries in the region of the middle cerebral artery were present also. In this patient the clinical features were consistent with cerebral necrosis in the corresponding area.

AB-1081-73
Cerebral Angiography in Children and Adults With Mental Retardation, Part II: Mentally Retarded Group—Takaku A, Suzuki J (Division of Neurosurgery, Institute of Brain Diseases, Tohoku University School of Medicine, 5-13-1, Nagamachi, Sendai, Japan)—Develop Med Child Neurol 14:766-782, 1972

Cerebral angiograms of 108 patients with mental retardation were compared with those of an earlier control series. The main differences in the patient group included a longer internal carotid artery compared to the maximum diameter of the skull, an anterior cerebral artery which resembled the distribution of that seen in the normal fetus, and a decreased amount of contralateral filling. In addition, 44 of the 108 mentally retarded patients had various changes in the cerebral arteries which were easily discernable from the controls but could not be expressed by measurement or statistical analysis.

AB-1082-73
Arteriovenous Malformations of the Brain—Parsons WR, Raaf J (Section of Neurological Surgery, Good Samaritan Hospital and Medical Center, Portland, Oregon)—Amer Surg 38:621-628 (Nov) 1972

The results of treatment of 32 patients with arteriovenous malformations of the brain are reported. Of 18 patients treated conservatively, two died of unrelated causes and two died of recurrent hemorrhage. Of 14 patients treated surgically, three died postoperatively and two died of recurrent hemorrhage. From review of the literature the authors report that surgical treatment of arteriovenous malformations is attended by a 25% risk of death or significant neurological disability. They conclude that surgery should be restricted to those patients in whom the risk of death or severe neurological deficit appears to be greater than the surgical risk (25%). Therefore, only a small percentage of patients with arteriovenous malformations of the brain should be treated surgically.

AB-1083-73
Cerebral Angiography in Children and Adults With Mental Retardation, Part I: Control Series—Takaku A, Suzuki J (Division of Neurosurgery, Institute of Brain Diseases, Tohoku University School of Medicine, 5-13-1, Nagamachi, Sendai, Japan)—Develop Med Child Neurol 14:756-765, 1972

In an attempt to produce a control series for a later study in mental retardation, cerebral angiography was carried out in 14 fetuses, 70 normal children and 20 adults. Definite differences could be detected when comparing the fetus and young child to older children and adults. In each group characteristic changes are delineated; in the younger age groups the course of the cerebral arteries is straight and smooth with little undulation.

AB-1084-73
Relation Between EEG, Regional Cerebral Blood Flow and Internal Carotid Artery Pressure During Carotid Endarterectomy—Trojaborg W, Boysen G (Laboratory of Clinical Neurophysiology and Surgical Laboratory of Circulation Research, Department D, Rigshospitalet, Copenhagen, Denmark)—Electroenceph Clin Neurophysiol 34:61-69 (Jan) 1973

In 52 patients undergoing reconstructive carotid surgery, changes in carotid activity monitored by the EEG were related to regional blood flow (intra-arterial injection of 133Xenon) and internal carotid artery pressure. In 14 patients, a two-minute test occlusion induced flattening or slowing of the EEG. When the
pressure in the internal carotid artery above the stenosis fell to 15 to 46 mm Hg and cerebral blood flow (CBF) fell to 11 to 19 ml/100 gm per minute, flattening occurred. Slowing of the EEG was seen when the internal carotid artery pressure fell to 29 to 50 mm Hg and rCBF fell to 16 to 22 ml/100 gm per minute. Frequency analysis of the EEG failed to demonstrate a relation between CBF and the mean frequency which was probably due to focal cerebral anoxia induced by the previous occlusion or the test occlusion.

AB-1085-73

In experimental animals exposed to sufficient carbon monoxide to produce carboxyhemoglobin concentrations of approximately 15%, the aorta was found to have a cholesterol content 2.5 times greater than control animals. In another series of animals exposed to various concentrations of oxygen, it was noted that those exposed to hypoxic levels (i.e., 16% and 10% O2 for eight weeks) had three to three and one-half times the cholesterol in the aorta as did the control group; however, in those animals exposed to higher concentrations of oxygen (25% O2) the accumulation in the aorta decreased significantly. It is speculated that exposure to carbon monoxide or hypoxia increases vascular permeability leading to the formation of subendothelial edema, lipid accumulation and other arterial injuries. Since carboxyhemoglobin levels may be as high as 20% in smokers who inhale, the increased risk of atherosclerosis in this group may be significant.

AB-1086-73
Heparin Coating of Catheters Against Thromboembolism in Percutaneous Catheterization for Angiography—Björk L (Department of Diagnostic Radiology, Akademiska Sjukhuset, University of Uppsala, Sweden)—Acta Radiol (Diag) 12:576-578, 1972

In an attempt to reduce the frequency of thromboembolism following percutaneous introduction of catheters for angiography, a special heparin preparation has been applied to the surface of the catheter. In 7,166 consecutive cardio-angiographies and thoracic aortographies, thromboembolism developed in 13 (0.18%) patients (overall frequency of thromboembolism without heparin coating is 0.2 to 1.6%). In abdominal and peripheral angiographies, thromboembolism occurred in seven of 2,461 patients (0.28%). The heparin coating did not result in excess bleeding at the site of arterial puncture.

AB-1087-73
The Fate of Muscle and Cotton Wrapped About Intracranial Carotid Arteries and Aneurysms. A Laboratory and Clinicopathological Study—Sachs E Jr (Department of Neurosurgery, Dartmouth Medical School, Hitchcock Clinic, Mary Hitchcock Memorial Hospital, Hanover, New Hampshire 03755)—Acta Neurochir 26:121-137, 1972

In dogs, muscle wrapped about the internal carotid artery failed to induce an early, dense or even late satisfactory envelopment by fibrous tissue. In spite of muscle wrapping of intracranial aneurysms in two patients, both died of recurrent hemorrhage within 10 to 22 days following the procedure. In dogs and two human cases cotton was noted to produce a dense, fibrotic response which may have accounted for success previously attributed to muscle wrapping. An ideal encasement material has not been discovered but a plastic coating sufficiently strong and nontoxic, which closely adheres to the vessel without production of heat, may suffice.

AB-1088-73
L'Angioscintigraphie dans les lésions neurologiques d'origine vasculaire (The Angio-Scintigraphy in Neurological Lesions of Vascular Origin)—Noterman J (Service de Neurochirurgie de l'Université Libre de Bruxelles, rue Héger-Borčet, 1, B-1000 Bruxelles, Belgique), Fruhling J—Acta Neurochir 26:89-98, 1972

In the early diagnosis of vascular accidents, angioscintigraphy is more precise than classical scintigraphy and safer than angiography. It provides sufficient diagnostic precision for those cases where surgical therapy is not indicated. A quantitative approach is possible if special electronic equipment is employed which also enables permanent storage of studies for comparison at a later date.

ITEMS OF INTEREST
Animal Model: Canine Systemic Lupus Erythematosus—Lewis RM (Tufts University School of Medicine, 135 Harrison Avenue, Boston, Massachusetts)—Amer J Path 69:537-540 (Dec) 1972

Dr. Lewis reports that he has a colony of dogs derived from animals affected with systemic lupus erythematosus and that members of this colony are available for study.

Symposium on Coronary Heart Disease—Resnekov L (Guest Editor) (Section of Cardiology, University of Chicago Pritzker School of Medicine, Chicago, Illinois)—Med Clin N Amer 57 (Jan) 1973

This symposium contains several review articles on atherosclerosis.

The Biological Role of the Clot-Stabilizing Enzymes: Transglutaminase and Factor XIII—Laki K (Editor) (Laboratory of Biophysical Chemistry, National Institute of Arthritis, Metabolism, and Digestive Diseases, Bethesda, Maryland 20014)—Ann NY Acad Sci 202 (Dec 8) 1972

In this symposium are papers on the stability of fibrin-clot in pregnancy, atherosclerosis, and in those patients receiving oral contraceptives.
ABSTRACTS

Renaissance in the Microcirculation—Johnson PC (Department of Physiology, University of Arizona College of Medicine, Tucson, Arizona 85724)—Circulation Research 31:817-823 (Dec) 1972

A brief review of recently described techniques.

Polymyalgia Arteritica—Hamrin B (Department of Internal Medicine, Malmö General Hospital, Malmö, Sweden)—Acta Med Scand (Suppl) 533:1-131, 1972

Morphological Changes in the Large Arteries in Polymyalgia Arteritica—Östberg G (University Department of Pathology, Malmö General Hospital, Malmö, Sweden)—Acta Med Scand (Suppl) 533:133-164, 1972

Thrombosis on Prosthetic Surfaces: A Review of Etiologic Factors and Preventive Measures—Foster ED (Departments of Surgery and Hematology, Royal Victoria Hospital and McGill University, Montreal, Quebec, Canada), Smith MR, Dobell ARC—Canad J Surg 15:339-349 (Nov) 1972

Abstracts

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