Abstracts

**AB-1089-73**

**Hypertension in the Inner City. I. Analysis of Clinic Dropouts**—Finnerty FA Jr (Georgetown University Medical Division, D. C. General Hospital, Washington, D. C. 20003), Mattie EC, Finnerty FA III—Circulation 47: 73-75 (Jan) 1973

Sixty dropouts from hypertensive clinics were interviewed in depth to determine reasons for noncompliance. Waiting time and a poor doctor-patient relationship were the major reasons given. The average waiting time prior to examination by the doctor was 2.5 hours, and the average waiting time at the pharmacy was 1.8 hours. In contrast the average time spent with the doctor was 7.5 minutes. The poor doctor-patient relationship deteriorated further since patients were examined by a different physician on each visit. A physician was not essential for compliance, however, since 54% of the patients readily accepted a health aide. In order to enhance compliance our group reorganized its hypertensive clinic using the patients' complaints as guidelines. Operating the clinic with emphasis on a personalized doctor-patient relationship and utilizing a meaningful appointment system has reduced the number of dropouts from 42% in 1966 to 1969 to 8% in 1970 to 1971.

**AB-1090-73**

**Ventricular Opacification During Carotid Angiography Secondary to Rupture of Intracranial Aneurysm. Case Report**—Teal JS (Department of Neuroradiology, Los Angeles County-University of Southern California Medical Center, Los Angeles, California), Wade PJ, Bergeron RH, Rumbaugh CL, Segall HD—Radiology 106:581-583 (Mar) 1973

Rupture of intracranial aneurysms during cerebral angiography is a rare occurrence. A case of such a rupture with extravasation of contrast material into the cerebral ventricular system and onto the floor of the middle cranial fossa is presented. The role of angiography as a possible causative factor is discussed.

**AB-1091-73**

**Fibromuscular Dysplasia Involving the Intracranial Vessels. Case Report**—Issue A (Department of Radiology, Cyprus Community Hospital, Pompano Beach, Florida 33060), Kier EL, Ostrow D—J Neurosurg 37:749-752 (Dec) 1972

A case of fibromuscular dysplasia involving the intracranial internal carotid artery and middle cerebral artery in a previously healthy man is presented.

Symptoms were characteristic of cerebral ischemia with occlusion of a branch of the middle cerebral. The clinical significance, associated lesions, and differential diagnoses are mentioned.

**AB-1092-73**

**Corneal Reflex in Hemisphere Disease**—Ross RT (Section of Neurology, Department of Medicine, University of Manitoba, and the Winnipeg General Hospital, Winnipeg R3E 0Z3, Canada)—J Neurosurg Psychiat 35:877-880 (Dec) 1972

The contralateral corneal reflex may be absent in patients with a deep lesion of the parietal lobe. Frontal and temporal lobe lesions apparently do not interfere with this reflex.

**AB-1093-73**

**Rapid Amelioration of Motor Aphasia**—Mohr JP (Massachusetts General Hospital, Department of Neurology, Boston, Massachusetts 02114)—Arch Neurol 28:77-82 (Feb) 1973

Three right-handed individuals suffered left inferior frontal infarction with clinical evidence of language and dyspraxic deficit to corroborate dominance of the left cerebral hemisphere. Pathologically, the infarction involved not only the inferior frontal gray matter including Broca's area, but the depths of the underlying white matter, through which are considered to pass intrahemispherical and transcallosal projections relating Broca's area and motor cortex to the other cortical areas and the bulbar apparatus. All three cases showed dramatically rapid amelioration of a deficit in speaking aloud.

Explanation of these cases required a revision of current concepts of the means by which the inferior frontal regions of both sides mediate speaking aloud, and the means by which the dominant posterior Sylvian region controls the inferior frontal(s).

**AB-1094-73**

**Routine Biplane Magnification Cerebral Angiography**—Gold LHA, Krause D, Amplatz K (Department of Radiology, University of Minnesota Hospitals, Minneapolis, Minnesota 55455)—Radiology 106:321-324 (Feb) 1973

A flexible grid and air-gap magnification technique has been employed with routine biplane cerebral angiography. This has resulted in excellent high-resolution radiographs and visualization of the entire cranium on the film. The magnification factor is 1.5. More than 100 patients have been examined by this technique, and the authors have abandoned the routine nonmagnification cerebral angiography.

**AB-1095-73**

**Optic Nerve Involvement in Diabetes**—Yanko L (Department of Ophthalmology, Hadassah University Hospital, Jerusalem, Israel)
Jerusalem, Israel), Ticho U, Ivry M—Acta Ophthal 50:556-564, 1972*

Six patients with unilateral or bilateral neuritis and uncontrolled diabetes mellitus are reported. In addition, the pathogenesis of optic nerve involvement in diabetes mellitus is reviewed. It is suggested that diabetic optic neuropathy may be the result of a capillary disorder in the superficial optic disc area similar to the capillary changes found in diabetic retinopathy.

**AB-1096-73**


Maximal tolerable compression was produced in 28 dogs by advancing a screw through the anterior portion of the C-5 vertebral body into the spinal canal until limb weakness occurred. Chronic vascular insufficiency was established in the cervical cord of 17 dogs by blocking or ligating the spinal and vertebral arteries and their branches in various combinations. Vascular insufficiency was also established in combination with maximal compression. Neurological, microangiographic, and histological findings in all groups of dogs were compared. Dogs in the last group with the most severe injury had more abnormal findings in surface vessels than did all other dogs. When the dogs were bled to the point of weakness, that point also appeared soonest in the last group. From these findings, the authors conclude that the effects of vascular insufficiency and compression are additive and that this may be an explanation of the clinical signs in patients with cervical spondylotic myelopathy who appear to have relatively slight mechanical compression.

**AB-1097-73**

Immunosuppression in Arterial and Venous Allografts—Carpenter EW, Lindemauer M (2215 Fuller Road, Ann Arbor, Michigan 48105)—Arch Surg 106:75-78 (Jan) 1973*

Segments of arteries and veins were interposed in canine carotid arteries as isografts and allografts. The dogs were given azathioprine and prednisone for immunosuppression. In this study immunosuppressive drugs did not significantly alter the gradual deterioration and necrosis of allograft arteries and veins. The allograft vessels failed due to rejection-induced thrombosis that was not altered by immunosuppression.

**AB-1098-73**

Subclavian Revascularization by Means of a Subcutaneous Axillary-Axillary Graft—Mozerzky DJ, Sumner DS—Arch Surg 106:20-23 (Jan) 1973*

A new operation for revascularizing the subclavian artery has been described in detail. The procedure involves creation of a subcutaneous axillary-axillary bypass. Three cases are presented in which the operation has successfully corrected the hemodynamic defect. The major disadvantages of carotid-subclavian bypass and direct endarterectomy of the subclavian or innominate arteries are obviated by axillary-axillary bypass. The procedure has a definite place in the management of patients with symptomatic occlusive lesions of the proximal subclavian and innominate arteries.

**AB-1099-73**

Regional Cerebral Blood Volume in Humans. X-Ray Fluorescence Studies—Grubb RL Jr (Division of Radiation Physics, Edward Mallinckrodt Institute of Radiology, Washington University School of Medicine, St. Louis, Missouri 63110), Phelps ME, Ter-Pogossian MM—Arch Neurol 28:38-44 (Jan) 1973*

Absolute regional cerebral blood volume (rCBV) was measured in vivo by the method of stimulated x-ray fluorescence of an iodinated contrast material. This is a noninvasive intravenous technique which allows the study of a volume of the brain approximately 1 cc in size. Initially, the method was validated in dogs and monkeys by demonstrating a good correlation between rCBV values obtained by fluorescence and rCBV values obtained with red blood cells labeled with radioactive chromium (51Cr) in frozen, excised brain samples. Absolute regional cerebral blood volume was then measured in normal human volunteers, giving an average value of 3.20 cc/100 gm tissue.

**AB-1100-73**

Hemodynamic Aspects in the Management of Carotid-Cavernous Fistula—Nornes H (Department of Neurosurgery, Rikshospitalet, Pilestredet 32, Oslo, Norway)—J Neurosurg 37:687-694 (Dec) 1972*

A method for intraoperative evaluation of the hemodynamic state in patients with carotid-cavernous fistula is described. Electromagnetic flow probes were applied on the internal carotid artery (ICA) in the neck and on the intracranial part of the artery distal to the fistula in five patients. Fistula "steal" ranged from 90 to 975 ml/min. Forward flow rate in the intracranial portion of the ICA, distal to the fistula, was from 40 to 170 ml/min. The reverse flow rate during test occlusion of the ICA in the neck was between 35 and 60 ml/min. The ratio reverse flow/forward flow is assumed to give an indication of the collateral capacity of the cerebral vasculature and of the tolerance to trap ligation of the ICA. The pulsatile pattern of the intracranial ICA flow in this series varied considerably, and this parameter is also found to be of importance in the evaluation of the capacity of the collateral arterial system. The monitoring of cervical ICA flow proved to be a reliable way to supervise the procedure of plugging the fistula with flow-carried muscle emboli in conjunction with trap ligation.

**AB-1101-73**

Microsurgical Treatment of Intracranial Saccular Aneurysms—Krayerbuhl HA (Kantonsspital Zürich, Rämistrasse

Stroke, Vol. 4, July-August 1973

*Authors' abstract.*
ABSTRACTS

100, 8006 Zürich, Switzerland), Yasargil MG, Flamm ES, Tew JM Jr—J Neurosurg 37:678-686 (Dec) 1972*

A consecutive series of 250 patients with cerebral aneurysms operated on with microsurgical techniques is presented. Good results were obtained in 83% of the entire series and in 94% of patients who were Grades 1, 2, and 3 preoperatively. The overall mortality rate was 3%; it was 1.6% for Grades 1, 2, and 3 patients, and there were no deaths in the 112 patients in Grades 1 and 2. The microsurgical techniques and the preoperative and operative factors that influenced the results are discussed.

AB-1102-73
Physical Factors in the Initiation, Growth, and Rupture of Human Intracranial Saccular Aneurysms—Ferguson GG (Department of Biophysics, Faculty of Medicine, University of Western Ontario, London 72, Ontario, Canada)—J Neurosurg 37:666-677 (Dec) 1972*

An investigation using glass models disclosed that the apex of a bifurcation is subjected to hemodynamic forces which may initiate the aneurysmal process by producing focal destruction of the internal elastic membrane. A prediction from model studies that turbulence occurs within intracranial aneurysms was confirmed in a clinical study. Bruits, indicative of turbulent blood flow, were recorded from the sacs of 12 of 19 cases studied at the time of craniotomy. Turbulence causes degenerative changes that weaken the wall of an aneurysm and allow it to enlarge. Measurement in four cases revealed that intra-aneurysmal pressure is the same as systemic arterial pressure. An in vitro study of the static elastic properties of human intracranial aneurysms demonstrated that they are relatively nondistensible in comparison to major intracranial arteries. This altered elasticity reflects the destruction of the elastic tissue in the wall of an aneurysm. An analysis of the physical factors influencing whether an aneurysm ruptures showed that the probability of rupture increases with an increase in intra-aneurysmal pressure, an increase in aneurysmal size, a decrease in the minimum wall thickness of an aneurysm, or a decrease in the strength of its structural components.

AB-1103-73

Analysis of the use of the clip-graft for intracranial aneurysms indicates that the clip-graft is chiefly applicable to internal carotid and anterior communicating artery aneurysms. The development of the right-angle clip holder has extended its use to anterior communicating artery aneurysms that project posteriorly or superiorly. The dangers of dissection in the septal region are discussed. With few exceptions, the clip-graft is not applicable to the verteobasilar system or middle cerebral artery trifurcation aneurysms, although it has been used for aneurysms arising from the trunk of the latter vessel.

AB-1104-73
Structural Changes of the Intradural Arteries Following Subarachnoid Hemorrhage—Conway LW (Arnett Clinic, Lafayette, Indiana 47902), McDonald LW—J Neurosurg 37:715-723 (Dec) 1972*

The histology of the intradural arteries was studied in 12 consecutive autopsy cases of patients dying one day to 15 months after their initial spontaneous subarachnoid hemorrhage. In all patients surviving four weeks or more and in one surviving four days, the lumina of the intracranial arteries were narrowed by subendothelial granulation tissue which thickened the intima. In all seven cases with structural changes in the intracranial arteries, vessels near the site of hemorrhage were involved; in four cases vessels remote from the site of hemorrhage were also involved. Changes were usually restricted to large arteries with a prominent muscular layer and confined to the subarachnoid space. The presence and degree of intimal thickening correlated with the distribution and amount of subarachnoid blood or its breakdown products. This process apparently does not represent an obliterative endarteritis involving vessels exclusively supplying infarcted brain, but is probably a reaction to mechanical or anoxic damage to the intima following vasocostriction. It is suggested that this arterial structural change might be confused with delayed or prolonged "vasospasm."

AB-1105-73
Small Strokes in the Carotid Territory Associated With a Normal Carotid Arteriogram—Bradshaw P, Gumpert J (Department of Neurology of the United Sheffield Hospitals, Sheffield)—J Neurol Neurosurg Psychiat 35:810-817 (Dec) 1972*

Appropriate percutaneous carotid arteriography was carried out in 69 patients who presented with transient ischemic attacks (TIAs) in the carotid territory. Major abnormalities were detected in 19 which included internal carotid stenosis (nine), internal carotid occlusion (seven), intracranial aneurysm (two), and cerebral angioma (one). Forty-five patients had normal angiograms and five had slight irregularity of the internal carotid artery without stenosis. The symptoms and signs pertaining to the normotensive and hypertensive groups are presented. The outcome of stroke in 35 normotensive was as follows: three died of related disease, three are severely disabled, two have slight disability, eight have minor neurological residua, and 19 are normal. Fifteen patients had a diastolic blood pressure of above 105 mm Hg and the outcome of stroke in these patients treated with hypotensive agents was as follows: two died of related disease, two have severe and two moderate disablement, four have slight disability, one has minor residua, and four are normal. The pathogenesis of TIAs in relation to the two groups and the use of anticoagulant drugs and hypotensive agents are discussed.
Disseminated Intravascular Coagulation—Pierce LE (Washington Hospital Center, Washington, D. C.)—Amer Family Phys 7:118-125 (Feb) 1973*

Generalized DIC begins as a hypercoagulable state. It may be induced by the entry of procoagulant material into the circulating blood or by activation of clotting factors at the surface of abnormal vasculature. Excessive platelet aggregation and thrombin activation lead to depletion of platelets and plasma clotting factors, which may then produce a hemorrhagic state. Occlusion of small vessels causes tissue necrosis. Plasminolytic clot digestion results in the release of split products. Treatment with heparin prevents further thrombosis and permits repletion of clotting factors and platelets.

Neurosurgical Complications of Anticoagulant Therapy—Sreerama V, Ivan LP (Acting Head, Department of Neurosurgery, Ottawa General Hospital, Ottawa, Ontario, Canada), Denney JM, Richard MT—Canad Med Assoc J 108:305-307 (Feb 3) 1973*

Ten cases of subdural hematoma and one case of spinal epidural hematoma encountered in patients who were receiving anticoagulant therapy are discussed.

This surprisingly large number of complications was observed within three years in a single hospital and represents 36.6% of all chronic and subacute subdural hematomas seen during the same period. The cases are analyzed and the conclusion reached that the causal relationship between anticoagulant therapy and hemorrhage cannot be denied.

Suggestions are made as to how to decrease the danger of such complications.

Incorporation of 125I-Labelled Fibrinogen into Coronary Arterial Thrombi in Acute Myocardial Infarction in Man—Erhardt LR, Lundman T, Mellstedt H (Department of Medicine, Karolinska Institutet at Serafimerlasarettet, S-112 83 Stockholm, Sweden)—Lancet 1:387-390 (Feb 24) 1973*

Seven patients who died of acute myocardial infarction were given 100 μCi 125I-labelled fibrinogen after admission to a coronary-care unit. In all patients a coronary thrombus was found at necropsy, and the presence of radioactivity in these thrombi was investigated. In six of the patients the whole thrombus contained radioactivity. In one patient who was given the 125I-labelled fibrinogen 47 hours after the start of symptoms there was a central portion of the thrombus without radioactivity. The findings suggest that the coronary thrombus in acute myocardial infarction might be a secondary event and that thrombus formation takes place over a long time.

Direct Mass Spectrographic Measurement of Regional Intracerebral Oxygen, Carbon Dioxide, and Argon—Roberts M (Division of Neurosurgery, University of Connecticut School of Medicine, Hartford, Connecticut), Owens G—J Neurosurg 37:706-710 (Dec) 1972*

During ten operative procedures on eight patients with various intracranial lesions a membrane mass spectrometer was used to measure the regional partial pressure of oxygen (P O2), carbon dioxide (P CO2), and argon (pA) in sub cortical white matter. The P O2 varied from 12 to 49 mm Hg, and the P CO2 from 31 to 123 mm Hg. Lowering intracranial pressure to 0 by ventricular drainage increased the P O2 and argon washout values (except in necrotic brain where no increase occurred) and decreased the P CO2 values. In one patient restoration of intraventricular pressure to the initial level of 220 mm H2O resulted in a 20% decrease in P CO2, a 15% decrease in argon washout rate, and a 21% increase in P O2. These data suggest that regional cerebral blood flow, P O2, and P CO2, are influenced by intracranial hypotension as well as the condition of local brain tissue.

Induced Seizures as Therapy for Experimental Stroke in Monkeys—Roberts M (Division of Neurosurgery, University of Connecticut School of Medicine, Hartford, Connecticut 06112), Owens G, Vilinskas J, Thomas DD—J Neurosurg 37:711-714 (Dec) 1972*

Seizures were induced in 12 monkeys rendered hemiparetic by middle cerebral artery occlusion. In a control group of five hemiparetic monkeys seizures were not induced. A mass spectrometer was used to monitor regional oxygen tension (P O2), carbon dioxide tension (P CO2) and the partial pressure of argon (pA) within the ischemic brains. Seizure activity resulted in a 74.3% mean increase in P O2 and 16.9% mean decrease in P CO2. The mean argon washout time was decreased 29.1%. The changes were transient and recovery from hemiparesis was no better in the experimental group than in the control group.

"Twin" Intracranial Aneurysms Causing Subarachnoid Haemorrhage in Identical Twins—Fairburn B (Consultant Neurosurgeon, Oldchurch Hospital, Romford, Essex, England)—Brit Med J 1:210-211 (Jan 27) 1973*

The case histories of a pair of identical twins presenting with subarachnoid hemorrhage from an intracranial aneurysm are reported. Not only did their subarachnoid hemorrhages occur at almost the same age but both their aneurysms were at the same point on the circle of Willis, at a site where aneurysm formation is comparatively rarely seen. The evidence for a genetic factor in intracranial aneurysms is reviewed.

Mortality From Stroke Among U. S. Veterans in Georgia and Five Western States. V. Seventh and Eighth Revisions of the International Classification of Diseases as They Relate to Stroke—Acheson RM, Nefzger MD (Department of Epidemiology, The Johns Hopkins University School of Hygiene and Public Health, Baltimore, Maryland—Stroke Vol. 4, July-August 1973

*Authors' abstract.

702
ABSTRACTS

21205), Heyman A—Amer J Epidem 96:396-400, 1972*

The death certificates of 10,677 U. S. veterans who died in Georgia or five western states (Colorado, Idaho, Montana, Utah and Wyoming) during the year from July 1, 1967 to June 30, 1968 were screened to identify all those on which a cerebrovascular disease diagnosis had been entered. Such certificates and a 30% sample of all other certificates were coded to both the seventh and eighth revisions of the International Statistical Classification of Diseases, Injuries and Causes of Death. Unlike the seventh revision, the eighth, by providing additional categories, separates cerebral hemorrhage from such nonspecific entries as "stroke" and other acute but ill-defined forms of the disease. The eighth revision also isolates cerebral infarction specified as due to occlusion of extracranial vessels or embolism, but there were few such diagnoses in this sample of death certificates. The numbers of certificates coded with stroke as the underlying cause of death by the two versions of the International Classification were very similar: 763 by the seventh revision and 760 by the eighth. Thus, in comparison with the seventh revision, the eighth revision of the International Classification gives more diagnostic detail, but its use will require little if any adjustment in the study of secular changes in mortality from the cerebrovascular diseases as a group.

AB-1113-73

This is a review of 26 cases of traumatic subdural hygroma (TSH). Special attention was paid to frequency of occurrence, angiographical features, and the relationship between subdural fluid appearance and clinical course, since these have been seldom reported previously. TSH was infrequent among the intracranial mass lesions following head injury. Cerebral angiography was useful in diagnosis. There were occasional postoperative difficulties when the subdural fluid was xanthochromic or blood-tinged.

AB-1114-73

An anonymous quotation at the beginning of one chapter of a recently published book states: "Vascular disease of the spinal cord is the Cinderella of neurology." Although there is an increasing number of reports dealing with spinal cord involvement in vascular disease and circulation disorders, knowledge regarding the pathophysiology of spinal cord blood supply appears scanty when compared with the present wealth of data on cerebrovascular pathophysiology. Ischemic spinal cord lesion is still seldom diagnosed clinically, and the generic diagnosis "myelitis" is usually made in such cases. Recent studies including selective spinal cord angiography and experimental investigations on the regulation of spinal cord hemodynamics provided better insights to the pathogenesis of disorders of spinal cord blood supply, the incidence of which is roughly estimated at 5% of all vascular disorders of the CNS. At the Vienna meeting sponsored by the Österreichische Arbeitsgemeinschaft für Angiologie a review was given of the present state of knowledge of the functional anatomy, pathophysiology, and pathology of spinal cord blood supply, and attention was focused on its practical implication for clinical neurology, neuroradiology, vascular surgery, and neurosurgery.

AB-1115-73
Effects of Progestogen Oral Contraception With Norethisterone on Blood Clotting and Platelets—Poller L (Hematology Department, University Hospital of South Manchester, Withington Hospital, Manchester), Thomas JM, Thomas PW—Brit Med J 4:391-393, 1972*

The effects on clotting tests and platelet function of six months' continuous administration of the 19-norsteroid, progestogen-only contraceptive, norethisterone, have been studied in four groups of women. In a group of women who have not previously taken oral contraceptive no acceleration of clotting or platelet factors was found, but in contrast a tendency to reduced coagulability was observed. Women who had previously been taking combined estrogen-progestogen preparations showed reduced clotting and platelet parameters when norethisterone was substituted. No changes in clotting or platelets were found in women who changed from 17-acetoxy steroid progestogen chloramadinone acetate or in a group of women started postpartum.

AB-1116-73

A semilogarithmic relationship has been established between changes in intraocular pressure and ocular vascular volume after acute common carotid occlusion. This relationship has been used to derive a series of equations that relate the ocular blood volume change after acute common carotid occlusion and the resultant pressure changes in the intraocular vascular compartment by a theoretical constant termed the coefficient of vascular rigidity and a variable, $P_{CO}$ that reflects the pressure dynamics in the carotid system after acute carotid occlusion. A method for estimating $P_{CO}$ in patients using multiple weight carotid compression tonography is described. $P_{CO}$ was found to vary from normal values in patients with chronic cerebrovascular disease.
Clinical and Biochemical Indicators of Cardiovascular Disease Among Men Living in Hard and Soft Water Areas—Stitt FW, Clayton DG, Crawford MD (Medical Research Council Social Medicine Unit, Department of Public Health, London School of Hygiene and Tropical Medicine, WC1E 7HT), Morris JN—Lancet 1:122-126 (Jan 20) 1973

Clinical and biochemical measurements are compared in middle-aged male Civil Servants, 244 living in six hard-water and 245 in six soft-water towns. Mean values for blood pressure, plasma cholesterol, and heart rate were higher in the soft-water group. The increase of values for blood pressure, plasma cholesterol, and heart rate levels could be important in explaining a substantial part of the difference in cardiovascular mortality between these hard-water and soft-water towns.

Lipid Metabolism of the Heart and Arteries in Relation to Ischaemic Heart-Disease—Opie LH (Ischemic Heart Disease Laboratory, Department of Medicine, Groote Schuur Hospital and University of Cape Town, South Africa)—Lancet 1:192-195 (Jan 27) 1973

A knowledge of the lipid metabolism of the arterial wall and the myocardium makes it possible to identify metabolic factors, other than increased cholesterol and triglyceride levels, which might be important in the development of ischemic heart disease. Special attention is paid to the possible roles of catecholamines and free fatty acids both in accelerating the atheromatous process and in increasing the oxygen demand of the heart.

Stimmung und Krankheitseinsicht bei Aphosen (Emotional State and Awareness of the Speech Defect in Aphasic Patients)—Poeck K (Abteilung Neurologie der Rheinisch-Westfälischen Technischen Hochschule Aachen, D-5100 Aachen, Goethestr. 27-29, Bundesrepublik Deutschland)—Arch Psychiat Nervenkr 216:246-254, 1972 (Springer-Verlag, publisher)

The emotional state and awareness of defective speech was studied in 51 aphasic patients (26 with amnesic, 11 with Broca's, 9 with Wernicke's, and 5 with global aphasia) by means of two questionnaires. Emotional state was rated by three independent examiners in five categories ranging from a depressive to euphoric mood. Awareness of the disease was judged according to the patient's answers to seven questions on his receptive and expressive language abilities. The judgments and answers were subjected to statistical analysis.

There was no correlation between the variety of aphasia and any particular emotional state or degree of insight into the speech defect. Patients with Wernicke's aphasia were not euphoric, nor did they display anosognosia. Patients with amnesic aphasia were not characterized by full awareness of the defect. Mood and self-criticism varied independently. The results are discussed with regard to the theoretical concept of the aphasias.

Delayed Arterial Spasm Following Subarachnoid Hemorrhage—Marshall WH Jr (Division of Diagnostic Radiology, Stanford University School of Medicine, Stanford, California)—Radiology 106:325-327 (Feb) 1973

Delayed arterial spasm was observed in recently studied (1967 to 1970) patients with subarachnoid hemorrhage from a middle cerebral artery aneurysm. The smallest arterial measurements were obtained 5 to 13 days after the most recent hemorrhage. This pattern was not found in patients studied previously (1959 to 1967). The factor or factors responsible for such delayed spasm are not known. Age did not affect susceptibility to spasm.

Angiographic Demonstration of Spinal Cord Arterial Occlusion in Postradiation Myelomalacia—Di Chiro G (Section on Neuroradiology, National Institute of Neurological Diseases and Stroke, National Institutes of Health, Bethesda, Maryland 20014), Herdt JR—Radiology 106:317-319 (Feb) 1973

A verified case of myelomalacia following radiotherapy of 6,000 rads to the cervicothoracic cord for treatment of a hemangiblastoma is reported. Selective spinal cord arteriography was carried out before and after radiotherapy. A radiculomedullary artery and the anterior spinal artery in the cervicothoracic territory were large and supplied a tumoral blush. In the postradiation arteriogram, the same vessels were occluded and the blush disappeared. This study supports the theory that postradiation neural changes are mainly secondary to vascular damage.

Spinal Cord Infarction Secondary to Occlusion of the Anterior Spinal Artery—Laguna J, Cravito M (Laboratory of Neuropathology, Department of Pathology, New York University School of Medicine, New York, New York 10016)—Arch Neurol 28:134-136 (Feb) 1973

In an 82-year-old man with an aneurysm of the descending aorta, a cholesterol embolus caused complete occlusion of the anterior spinal artery and spinal cord infarction. There was paraplegia of sudden onset and loss of pain perception, with preservation of touch, vibration, and position senses. The infarction was largely confined to the anterior horns and gray commissure, and extended from the tenth thoracic segment through the lumbosacral cord.

Nonbacterial Thrombotic Endocarditis in Patients With Malignant Neoplastic Diseases—Rosen P (Department of Pathology, Memorial Hospital, New York, New York)

*Authors' abstract.
ABSTRACTS

10021), Armstrong D—Amer J Med 54:23-29 (Jan) 1973*

Seventy-five patients with malignant neoplastic disease and nonbacterial thrombotic endocarditis (NBTE) were studied. The over-all frequency of NBTE was double that observed in other reported autopsy series not limited to patients with cancer. The incidence in autopsy patients with bronchiolar and adenocarcinoma of the lung was twice that of patients with pancreatic and prostatic adenocarcinoma and seven times that of patients with breast cancer. The development of NBTE could not be ascribed to duration of illness or nutritional state. Since 14 patients died of cerebral infarcts and five had major myocardial infarcts resulting from thromboemboli, these and other complications of NBTE should be anticipated particularly in patients with those cancers most often associated with vegetative endocarditis.

AB-1124-73
Fibrinolytic Activity in Hawaiian and Japanese Men in Hawaii—Moellering RC Jr (Department of Medicine, Massachusetts General Hospital, Boston, Massachusetts 02114), Rosenblatt G, Bassett DR—Hawaii Med J 31:468-475 (Nov-Dec) 1972*

Determinations of blood fibrinolytic activity were performed on a number of Hawaiian and Japanese men living in Hawaii as part of a retrospective study of coronary heart disease (CHD). In general, fibrinolytic activity was greater in Japanese than in Hawaiians, the latter having a greater prevalence of CHD. In these subjects, fibrinolytic activity showed a significant positive correlation with obesity, blood pressure, and serum lipids and a negative correlation with age and the level of linoleic acid in depot fat. However, no clear cut positive correlation with obesity, blood pressure, and serum lipids and a negative correlation with age and the level of linoleic acid in depot fat. However, no clear cut evidence was found of a relationship of fibrinolytic activity to the presence of diabetes mellitus, or to previous history of smoking, or to CHD as determined by the presence of previous myocardial infarction.

AB-1125-73
The Stroke Registry: A Prospective Method of Studying Stroke—Steinberg FU (Department of Rehabilitation Medicine, Jewish Hospital of St. Louis, and Washington University School of Medicine, St. Louis, Missouri)—Arch Phys Med Rehab 54:31-35 (Jan) 1973*

All new stroke patients admitted to the hospital over a period of 14 months were registered. A total of 124 cases were collected. For each patient over 100 items of information were compiled and coded. Follow-up data were obtained six months and 12 months after discharge from the hospital. Of the 124 patients 107 had completed strokes and 17 had transient ischemic attacks. Forty-three percent of the patients with completed strokes were independent in self-care at the time of discharge from the hospital; 51% were able to walk without human aid. After six months 74% of the discharged patients were alive; after 12 months only 44% were at home. The registry material can be used for multiple correlations of various data. For instance, diabetics had a significantly higher one-year mortality rate than patients without diabetes. Patients with sensory and motor involvement had the same chance of survival as patients without sensory impairment; as expected, they did significantly less well in achieving independence in self-care and ambulation.

AB-1126-73
Carotid-Cavernous Fistula: A Controlled Embolus Technique for Occlusion of Fistula With Preservation of Carotid Blood Flow. Technical Note—Black P (Division of Neurological Surgery, The Johns Hopkins Hospital, Baltimore, Maryland 21205), Uematsu S, Perovic M, Walker AE—J Neurosurg 38:113-118 (Jan) 1973*

A case is described in which a carotid-cavernous fistula was eliminated successfully with preservation of the carotid circulation by a small ball-shaped muscle embolus introduced via an arteriotomy in the cervical carotid. The intent is to lodge the embolus in the fistula without occluding the carotid siphon. A long thread is attached to the embolus to permit its withdrawal if its position in the siphon proves unsatisfactory. Neither the intracranial nor cervical carotid artery is ligated.

AB-1127-73
Closure of Carotid-Cavernous Fistula With Polyurethane Foam Embolus. Technical Note—Ohta T (Department of Neurosurgery, Osaka City University Medical School, Abeno-ku, Osaka, Japan), Nishimura S, Kikuchi H, Toyama M—J Neurosurg 38:107-112 (Jan) 1973*

This report describes a traumatic carotid-cavernous fistula treated by embolization with a newly developed polyurethane foam attached to 5-0 monofilament suture thread by a technique which does not necessitate either craniotomy or occlusion of the carotid artery in the neck. Carotid angiography three weeks after surgery showed satisfactory closure of the fistula and normal intracranial circulation from the involved carotid artery.

AB-1128-73
Carotid Cavernous Fistula: Direct Repair with Preservation of the Carotid Artery. Technical Note—Parkinson D (Department of Neurosurgery, Faculty of Medicine, University of Manitoba, Winnipeg, Manitoba, Canada)—J Neurosurg 38:99-106 (Jan) 1973*

The techniques and advantages of the direct approach to carotid cavernous fistulas with repair of the fistula and preservation of the carotid artery are discussed with illustrative case reports. The surgical significance of the anatomy of the paraellar venous structures and their relationship to the carotid artery are discussed. Two points emphasized are that it is possible to operate within the cavernous sinus and still be outside both the venous and arterial components of the fistula, and that, by one means or another, the carotid should be preserved.
ABSTRACTS

AB-1129-73
Effects of Prostaglandins E, E, A, A, and F on Canine Carotid Arterial Blood Flow, Cerebrospinal Fluid Pressure, and Intracranial Pressure—Nakano J (Department of Pharmacology, University of Oklahoma College of Medicine, Oklahoma City, Oklahoma), Chang ACK, Fisher RG—J Neurosurg 38:32-39 (Jan) 1973

The effects of intra-arterial (i.a.) or intravenous (i.v.) injection of prostaglandins E, E, A, A, and F on the carotid circulation, intracranial pressure (IOP), and cerebrospinal fluid pressure (CSFP) in anesthetized dogs are reported. Direct i.a. injection of PGE, PGE, or PGA decreases the carotid vascular resistance whereas PGE increases it. The i.v. injection of PGE, PGE, and PGA increases heart rate, carotid arterial blood flow, IOP, and CSFP as systemic arterial pressure decreases, while the i.v. injection of PGE decreases all but the IOP. Both systemic arterial pressure and IOP increase during a single i.v. infusion and decrease during a continuous i.v. infusion of PGA. This suggests that the changes in IOP and CSFP by the prostaglandins are not only a direct effect but also reflect indirect influence on carotid arterial blood flow. During a continuous i.v. infusion of PGE, PGE, or PGA, carotid arterial blood flow gradually decreases toward control values after its initial marked increase. It is concluded that a single i.a. or i.v. injection or a short i.v. (ten minute) injection of PGE or PGE may be more effective than a prolonged continuous i.v. infusion of PGE or PGE for alleviating cerebral vascular spasm.

AB-1130-73
Effect of Extracranial-Intracranial Vascular Bypass Graft on Experimental Acute Stroke in Dogs—Crowell RM (Neurosurgical Service, Massachusetts General Hospital, Boston, Massachusetts 02114), Olsson Y—J Neurosurg 38:26-31 (Jan) 1973

Anastomosis of the superficial temporal artery (STA) to a middle cerebral artery (MCA) branch was completed about two hours after occlusion of the MCA root in 20 dogs. Occlusion of the MCA root without bypass grafting was performed in 11 control animals. All dogs were evaluated clinically. Two days to three months (usually two weeks) after surgery, STA catheter angiograms were made and the animals sacrificed by perfusion fixation. The brains were evaluated pathologically. Animals with patent or occluded STA-MCA bypass grafts fared better both clinically and pathologically than the controls. Hemorrhagic infarction and blood-brain barrier damage were common in untreated dogs and uncommon in treated animals. STA-MCA bypass grafts rarely led to occlusion of intrinsic collateral blood supply to the brain. The data suggest that prompt STA-MCA branch anastomosis might lead to restoration of neurofunctional function and parenchymal structural integrity in certain patients with acute middle cerebral artery occlusion.

AB-1131-73

Subarachnoid hemorhage was produced in monkeys by injecting fresh arterial blood. Serial angiographical studies of the basilar artery then showed vasospasm, occurring as a biphasic response similar to that seen following subarachnoid hemorrhage in man. Papaverine had previously been found to be the most potent vasodilator for topical use to release spasm resulting from experimentally induced subarachnoid hemorrhage. This drug was therefore administered, in various dilutions, as a slow infusion into the subarachnoid space of these monkeys. In a concentration of 0.03%, papaverine proved to be effective in reducing the vasospasm without toxicity.

AB-1132-73
Inhibition of ADP-Induced Platelet Aggregation by Furosemide—Rossi EC (Northwestern University School of Medicine, Chicago, Illinois 60611), Levin NW—J Lab Clin Med 81:140-147 (Jan) 1973

Furosemide in vitro is an inhibitor of primary ADP-induced platelet aggregation. As such, furosemide also inhibits collagen-induced aggregation and the secondary wave of epinephrine-induced aggregation. Concentrations of furosemide which clearly inhibit collagen-induced platelet aggregation do not inhibit collagen-induced release of ADP. Thus the effect of furosemide is distinct from that of aspirin and other anti-inflammatory drugs which inhibit platelet release but do not inhibit primary ADP-induced platelet aggregation. The inhibitory effect of furosemide is competitive, is demonstrable in heparinized as well as citrated platelet-rich plasma, and is not corrected by calcium. The concentration of furosemide required for in vitro inhibition (1 to 5 mM) cannot be achieved in vivo. However, the study of compounds related to furosemide could lead to the discovery of a clinically useful inhibitor of primary ADP-induced platelet aggregation.

AB-1133-73
Brain Blood Flow in the Conscious and Anesthetized Rat—Goldman H (Departments of Psychiatry and Pharmacology, Ohio State University, Columbus, Ohio 43210), Sapirstein LA—Amer J Physiol 224:122-126 (Jan) 1973

Circulation to ten parts of the rat brain has been investigated by means of a relatively convenient indicator-fractionation technique. As in the conscious cat, blood flow was greater to superficial than to deep cerebral regions. Flows to cortex, olfactory bulb, and brain stem were comparable to those in the cat, whereas flows to the hypothalamus, hippocampus, and cerebellum were higher in the rat. During pentobarbital anesthesia, perfusion of most brain regions in the rat tended toward a basal value, one similar to that of the pons and medulla. In effect, the greater the perfusion for any
part, the more was its flow depressed by pentobarbital; the relationship was linear for all parts examined except for hippocampus.

AB-1134-73
Hypertension in the Inner City. II. Detection and Follow-up
—Finnerty FA Jr (Georgetown University Medical Division, D. C. General Hospital, Washington, D. C. 20003), Shaw LW, Himmelsbach CK—Circulation 47:76-78 (Jan) 1973*

Sixty-one percent (6,480 of 10,564) of the subjects in three census tracts were screened simply and efficiently in supermarkets. The prevalence of hypertension in the subjects over 25 years of age was 24%. Fifty percent (457 of 953) found to be hypertensive on initial screening failed to keep their first verification appointment. The number was reduced to 279 (29%) by personal contact or home visits by one of the cardiovascular group. Subsequent experience demonstrated that dropouts could be reduced to under 5% by scheduling the verification visit 24 to 48 hours after initial screening. At the second verification visit there were originally 108 "no-shows" which could be reduced to 36 by personal contact. Because of a fall in diastolic blood pressure below 90 mm Hg during the two verification visits, 296 patients were excluded from the study. Of the 953 initially hypertensive subjects, 284 (30%) were available for study. These patients were randomized into three groups, a stepped-up care group (group A) and two usual medical care groups (groups B and C). Of the original 98 patients, 84% are currently being followed in group A, whereas only 33% in group B and 17% in group C are under medical care. The diastolic blood pressure has returned to normal in 70% in group A, in 10% in group B, and in 17% in group C.

AB-1135-73
Residual Lesions of Infantile Cerebral Phlebothrombosis—Friede RL (Institute of Pathology, Case Western Reserve University, Cleveland, Ohio)—Acta Neuropath (Berlin) 22:319-332, 1972 (Springer-Verlag, publisher)*

Three cases of residual lesions following cerebral phlebothrombosis in early infancy are described; lesions in a fourth case are tentatively attributed to phlebothrombosis. The pertinent literature is reviewed. Cerebral phlebothrombosis is typically a disease of early infancy, occurring in the course of general dehydration or infectious diseases, or with congenital cardiac anomalies; the association of the lesion with birth trauma is extremely uncommon. Residual lesions may be absent; they may vary greatly in form and extent, involving cerebellum as well as cerebral hemispheres bilaterally near the midline, without strict symmetry. Neomembranes are frequent; phlebectasia and telangiectasia may occur within the lesion or in the surrounding tissue.

AB-1136-73

The pressure-flow relationship of the total ocular vascular bed in the enucleated eye and of the anterior uveal circulation in the living in situ eye were determined. In the enucleated eye, perfusion of the ophthalmic artery with lactated Ringer's solution, fresh plasma, or oxygenated whole blood resulted in a linear pressure-flow relationship indicative of a passive vascular bed. In the living in situ eye, in which a fistula was created between one common carotid artery and the temporal long posterior ciliary artery, autoregulation of blood flow was detected in 40% of the eyes. Measurements of anterior uveal blood flow without creating a carotid-ciliary artery fistula demonstrated a high degree of autoregulation of blood flow at ciliary artery blood pressures above 60 to 90 mm Hg in all eyes. The results indicate that the myogenic hypothesis represents the major mechanism of autoregulation in the anterior uveal circulation.

AB-1137-73
The Tissue Tube as a Vascular Prosthesis—Kott I, Peirce EC II, Mitty HA, Geller SA, Jacobson JH II (1176 Fifth Avenue, New York, New York 10029)—Arch Surg 106:206-207 (Feb) 1973*

Silicone rubber tubes covered by a polyester fiber mesh were implanted adjacent to either a femoral or carotid artery in 13 dogs. The rods were pulled out eight to ten weeks later and a segment of the carotid or femoral artery was excised and replaced by the newly formed tissue tube. Angiographical studies confirmed the patency of the grafts in ten of 12 animals. The ability to achieve long-term patency in vessels of this size by use of a prosthe-
and then production increased slowly. Inhibition of 
$^{14}$CO$_2$ rate (25 mM) did not interfere with platelet 
aggregation. Stimulation of $^{14}$CO$_2$ production from C$_1$
by aggregating agents was unaffected by malonate.
These data indicate that platelet aggregation coincides 
with stimulation of the HMPS, but the increase in 
Kreb's cycle activity occurs later and is not essential for 
platelet aggregation.

**AB-1139-73**
Some Hemodynamic Effects of Sodium Nitroprusside—Styles M, Coleman AJ (Department of Anaesthetics, University of Natal Medical School, Durban, South Africa), Leary WP—*Anesthesiology* 38:173-176 (Feb) 1973*

Arterial hypotension to about 45 mm Hg below control was induced in 12 patients by infusion of a 0.01% solution of sodium nitroprusside. The drug was found reliable, free of tachyphylaxis, and evanescent of action. During the hypotensive phases arterial oxygen saturation was maintained at 95 to 99%. Cardiac output decreased insignificantly by a mean value of 200 ml/min in conscious individuals, but increased by about 850 ml/min in anesthetized subjects. Blood pressures returned to 90% of control values within 120 seconds of discontinuation of sodium nitroprusside. The use of the drug merits further investigation.

**AB-1140-73**
The Interaction of Serum and Arterial Lipoproteins With Elastic of the Arterial Intima and Its Role in the Lipid Accumulation in Atherosclerotic Plaques—Kramtch DM, Hollander W (Boston University School of Medicine, Boston, Massachusetts 02118)—*J Clin Invest* 52:236-247 (Feb) 1973*

Arterial elastin appears to be a protein-lipid complex with the lipid component being bound to elastin peptide groups. In atherosclerotic lesions the lipid content of elastin increases progressively with increasing severity of atherosclerosis. The increases in the lipid content of plaque elastin are mainly due to large increases in cholesterol with about 80% of the cholesterol being cholesterol ester. This deposition of cholesterol in elastin accounts for a substantial part of the total cholesterol accumulation in atherosclerotic lesions of all stages. The present in vitro study suggests that the mechanism involved in the deposition of lipids in arterial elastin may be an interaction of the elastin protein with serum or arterial low density or very low density lipoproteins (LDL and VLDL) resulting in a transfer of lipids, but not of lipoprotein protein to the elastin. No significant lipid transfer occurred from the high density lipoproteins or chylomicrons. The amount of lipid taken up by plaque elastin was strikingly higher than by normal elastin and consisted mainly of cholesterol with over 80% of the cholesterol being cholesterol ester. The precondition for the lipid accumulation in plaque elastin appeared to be an altered amino acid composition of the elastin protein consisting of an increase in polar amino acids and a reduction in cross-linking amino acids. Subsequent treatment of lipoprotein-incubated arterial elastin with hot alkali and apolipoproteins did not reverse the binding of lipoprotein lipid to diseased elastin.

**AB-1141-73**
Effects of Methoxyflurane on Canine Cerebral Metabolism and Blood Flow—Michenfelder JD, Thye RA (Department of Anesthesiology, Mayo Clinic, Rochester, Minnesota 55901)—*Anesthesiology* 38:123-127 (Feb) 1973*

The rate of cerebral oxygen consumption ($CMR_{O_2}$) and the cerebral blood flow (CBF) were determined in eight dogs at three end-expired concentrations of methoxyflurane (means <0.1%, 0.25%, and 0.44%). With each increase in concentration above <0.1%, a significant decrease in $CMR_{O_2}$ was observed (approximately 10% and 25% less than the <0.1% value, respectively). The cerebrovascular effects of methoxyflurane were less striking. At 0.25%, a small but significant increase in CBF and a decrease in (cerebrovascular resistance) CVR were observed, compared with the <0.1% values. No further significant change was observed at higher concentrations. The cerebrovascular responses to changes in $P_{ACO_2}$ were tested at 0.25% end-expired methoxyflurane. Over a range of $P_{ACO_2}$ of approximately 20 mm Hg (30 to 50 mm Hg), the expected responses of CBF and CVR were observed. The authors conclude that methoxyflurane resembles halothane in its overall cerebral metabolic effects but, unlike halothane, produces only modest changes in CVR and CBF.

**AB-1142-73**

Dimethothiazine was selected from laboratory data as a drug with a high activity against decerebrate rigidity and little soporific action. Its use in the treatment of spasticity was examined. By intravenous injection spasticity could be greatly reduced or abolished and relatively high oral doses produced reduction in extensor tone in the lower limbs. An uncontrolled trial of oral treatment was conducted in 42 adult patients with spasticity arising from cerebral or spinal lesions. Spasticity was reduced in 30 and markedly reduced in 15 of the 30 patients. In 20 patients some functional benefit was apparent. The use of the drug was, however, limited by the effects of prolonged high-dosage medication with a phenothiazine derivative and by the release of flexor spasm.

**AB-1143-73**
Relations Between Metabolic Increase of Plasma Free Fatty Acids and the Occurrence of Atherosclerotic Thrombo- 
arteritis in Rabbits—Scott RA, Henson DE, Lesak A, Turner RJ, Malikova S, Hass GM (Department of Pathology, Presbyterian-St. Luke's Hospital, Chicago, Illinois 60612)—*Am J Path* 70:209-244 (Feb) 1973*

Rabbits maintained for several weeks on a regimen of modest amounts of vitamin D and dietary cholesterol

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*Authors' abstract.

708

Stroke, Vol. 4, July-August 1973
ABSTRACTS

were placed in three groups in accordance with their response to repeated subcutaneous injections of nicotine in mineral oil. The group that had the greatest increase in plasma FFA following nicotine injections gradually developed, over a period of about 12 weeks, severe calcific atheroarteriosclerosis with peripheral thromboarteritis. Those that had a moderate increase in plasma FFA, following nicotine injections developed calcific atheroarteriosclerosis but no thromboarteritis. Those that had the least increase in plasma FFA following nicotine injections developed no arterial lesions. Comparable or much greater increases in plasma FFA occurred in rabbits on the vitamin D-cholesterol regimen when adrenaline, ACTH or heparin was injected rather than nicotine. These animals did not develop calcific atheroarteriosclerotic thromboarteritis or any other lesions which could be correlated with the increased levels of plasma FFA. Inasmuch as nicotine, vitamin D or dietary cholesterol in the amounts used were innocuous when used alone, the interactions between the effects of at least these three factors need to be known in individual animals before the pathogenesis of the calcific atheroarteriosclerotic lesions with thrombosis can eventually be understood.

ABSTRACTS

AB-1144-73
Patterns of Brain Damage in Infants and Children With Congenital Heart Disease. Association With Catheterization and Surgical Procedures—Terplan KL (219 Bryant Street, Buffalo, New York 14222)—Amer J Dis Child 125: 175-185 (Feb) 1973*

Detailed histological analysis of the brain in 500 patients with congenital heart defects revealed a relatively common occurrence (above 17%) of thromboembolic infarctions. They occurred four to five times more often in surgical than in nonsurgical cases, with 18 in direct association with catheterization and 21 following catheterization and surgical procedures. Careful search of meningeal arteries around infarcted areas is essential for recognizing the thromboemboli. Anoxic cortical necroses, diffuse or segmental, were four times higher in the surgical group, depending on gradual or rapid reduction of blood flow during and after cardiac surgery. Except for the early infancy group, venous thromboses causing infarctions were uncommon. Cardiac catheterization within the neonatal period proved hazardous in 21 cases in infants with severe anomalies. Continued febrile episodes following catheterization or surgery might suggest an acquired or preexisting encephalitis for which viral studies are indicated.

AB-1145-73

The authors describe the standardization of a new technique for studying platelet aggregation, based on the filtration pressure exerted by aggregates on a given filter.

First results concern the study of the filtration pressure of whole blood, platelet-enriched plasma and the effect of ADP on concentrations ranging from 0.1 to 100/ml. The filtration pressure of PRP increases with the dose of ADP used. Biological and clinical applications of the method are considered both for aggregates of cells and for substances preventing aggregation.

AB-1146-73

Giant-cell arteritis is a panarteritis in which inflammatory changes with necrosis and granulomatous reaction occur mainly in the media and the internal elastic lamina.

The disease involves mainly the large-sized and medium-sized arteries of the head.

An uncommon case of isolated involvement of both vertebral arteries is reported.

AB-1147-73
Effectiveness of a Low Saturated Fat, Low Cholesterol, Weight-Reducing Diet for the Control of Hypertriglyceridemia—Hall Y, Stamler J, Cohen DB, Mojonnier L, Epstein MB, Berkson DM, Whipple IT, Catchings S (Department of Community Health and Preventive Medicine, Northwestern University Medical School; The Chicago Health Research Foundation; and the Heart Disease Control Program, Division of Adult Health and Aging, Chicago Board of Health, Chicago, Illinois)—Atherosclerosis 16: 389-403 Nov-Dec 1972*

In 114 men, 98 of them obese and 50 hypertriglyceridemic (control value ≥ 1.80 mmole per liter), an assessment was made of the long-term effect on serum lipids of the Coronary Prevention Evaluation Program diet—a diet low in saturated fat and cholesterol, moderate (not high) in polyunsaturated fat, moderate (not low) in total fat and carbohydrate, and calorie-controlled to lower weight.

After one year on diet, serum triglycerides were reduced 17.3%, serum cholesterol 12.1%, weight 5.3%. Serum triglycerides fell significantly only in the 50 men with hypertriglyceridemia (with or without hypercholesterolemia). Fall from hypertriglyceridemic levels was significantly greater in men who reduced and stayed reduced than in those who at one year had regained weight. However, both subgroups with elevated triglyceride levels exhibited significant falls, suggesting that diet quality as well as calorie deficit played a part in the decline. These decreases were effectively maintained during the second year on the Program diet.

Mean daily nutrient intake on the CPEP diet reported as percent of calories was: total fat: 30.7, saturated fat: 9.5, polyunsaturated fat: 6.7, carbohydrate: 47.3. Cholesterol intake was 289 gm/day and alcohol intake was 9 gm/day (2.6% of calories). Carbohydrate intake averaged 217 gm/day, chiefly from grains, fruits and
ABSTRACTS

A Case of Massive Hypertriglyceridemia Corrected by Nicotinic Acid or Nicotinamide Therapy—Carlson LA, Fröberg S, Orö L (Department of Internal Medicine, Karolinska Hospital, Stockholm, King Gustaf V Research Institute, Stockholm and the Department of Geriatrics, University of Uppsala, Uppsala, Sweden)—Atherosclerosis 16:359-368, 1972*

A case of massive hypertriglyceridemia with fasting plasma triglycerides around 1000 mg/dl is described. Large amounts of chylomicra were present in fasting plasma and the amounts of low-density and high-density lipoproteins were very low. Postheparin plasma lipolytic activity was normal and intravenous heparin rapidly cleared the patient's abnormally prolonged alimentary lipemia with a concomitant rise in plasma free fatty acid levels.

Nicotinic acid or nicotinamide given in doses of 3 gm or more daily reduced plasma triglyceride levels to about 2 to 3 mmoles per liter and raised the reduced levels of low- and high-density lipoproteins. The mode of onset of this therapeutic effect was slow and the effect persisted for several weeks after withdrawal of either nicotinic acid or nicotinamide.

The pathogenesis of the hypertriglyceridemia as well as the mode of action of nicotinic acid and nicotinamide is discussed.

Cerebral Arteriovenous Malformation as a Cause of Cardiac Hypertrophy in Adults—Fujishima M, Tanaka K, Omae T (Second Department of Internal Medicine, Faculty of Medicine, Kyushu University, Fukuoka, Japan)—Jap Heart J 13:471-477 (Nov) 1972*

Seventeen adult patients with cerebral arteriovenous malformation were studied on cardiac effects of this disease. Of all 17 patients tested, the electrocardiogram revealed left ventricular hypertrophy in five, sinus bradycardia in four, WPW syndrome in one, and no abnormality in seven others. There were three patients having a slight increase in the cardiothoracic ratio over 51%, and 14 having normal heart size determined from the chest x-ray taken.

Of all 11 patients, in whom brain circulation was measured by the intravenous RISA technique, cranial blood flow (CBF) increased significantly in five, remained within normal value in four, and slightly decreased in two patients. Left ventricular hypertrophy on ECG was observed in three of five patients with a high CBF, but in none from the patients with normal or subnormal CBF, suggesting that the occurrence of ventricular hypertrophy was highly related with an increased CBF.

The relationship between cerebral arteriovenous malformation and cardiac changes is discussed.

Failure of Dipyridamole (Persantin) in Reducing the Infarct Size Following Experimental Coronary Occlusion—Watanabe T, Shintani F, Fu L, Kato K, Koyama S (Cardiovascular Institute, 8-1-22 Aksaka, Minato-ku, Tokyo)—Jap Heart J 13:512-520 (Nov) 1972*

This study examined the systemic and coronary hemodynamic effects of dipyridamole on experimental myocardial infaracts. Electrograms were recorded from the left ventricular surface 15 minutes after ligation of the left anterior descending coronary artery. Average ST segment elevation and number of sites with ST segment elevation greater than 2 mV, indices of the magnitude and extent of acute myocardial ischemic injury, were increased in nine dogs following intravenous infusion of dipyridamole (0.01 to 0.05 mg/kg/mm) from 4.6 ± 0.3 (mean value ± SEM) during control simple occlusion to 6.8 ± 0.9 mV (P < 0.025), and 6.2 ± 0.6 to 8.1 ± 1.2 (P < 0.05), respectively. This was accompanied by significant decreases in mean blood pressure from 105 ± 5 to 79 ± 6 mm Hg (P < 0.025) and in mean value of coronary perfusion pressure index (mean blood pressure x heart rate x diastolic duration in aortic pressure) from 4,100 ± 180 to 3,130 ± 210 mm Hg sec/min (P < 0.01), respectively. Coronary blood flow measured by a flow probe applied around the root of the circumflex coronary artery was markedly increased from the mean value of 115 ± 6 during control occlusion to 284 ± 45 (arbitrary unit, P < 0.01).

Thus, we concluded that dipyridamole does have deleterious effects on acute myocardial ischemic injury by reducing coronary perfusion pressure which importantly influence the blood supply to the ischemic zone of myocardium, in spite of augmented total coronary blood flow.

New Concept on Atherogenesis and Treatment of Atherosclerotic Diseases—Shimamoto T (Department of Medicine, Tokyo Ika-Shika National University School of Medicine, Tokyo, Japan)—Jap Heart J 13:537-562 (Nov) 1972*

"Das initiale fettfreie Odem" has been long known by the German school as the initial stage of human...
ABSTRACTS

Atherosclerosis, and a highly similar phenomenon was found by the author and his collaborators (1960) to be regularly produced as an immediate response to a single administration of atherogenic substances like cholesterol or adrenaline in rabbits and rhesus monkeys. Moreover, the authors found that such an edematous arterial response is induced by a reduction of the active selective-permeability of endothelial cells resulting in an acute infiltration of plasma substances such as β-lipoprotein, fibrinogen and γ-globulin into the arterial wall; at the same time, the repellent function of endothelial cells against platelet is reduced. As a consequence, the sticking of platelets onto endothelial surfaces, as well as the reduction of adhesive platelet count and the shortening of several clotting times due to the release of platelet factors, occurs, and ADP-induced platelet aggregability is enhanced. When such an impairment of the function of endothelial cells was observed, these cells exhibited a contraction often accompanied by bleb formation. The contraction and blebbing of endothelial cells are proposed to be a key mechanism of atherogenesis and thrombogenesis by the author.

To prevent or treat atherosclerosis and thrombosis, a substance capable of preventing or restoring the above-mentioned fundamental functions of endothelial cells, and of inhibiting the enhancement of platelet aggregability due to atherogenic stress, is essential. One such substance is pyridinolcarbamate, which has also been shown to relax endothelial cells and platelets. This compound has been tested experimentally and clinically in many countries of the world for almost ten years, and a survey of the results of the clinical investigations has been briefly made on its efficacy as an antiatherosclerotic and anti-thrombotic agent.

AB-1152-73
Rarity of Transient Focal Cerebral Ischemia in Cardiac Dysrhythmia—Reed RL, Siekert RG (Department of Neurology, Mayo Clinic and Mayo Foundation, Rochester, Minnesota 55901), Merideth J—JAMA 223:893-895 (Feb 19) 1973*

Transient focal cerebral ischemic attacks are rare in patients who have episodes of cardiac dysrhythmias of the type associated with significant reduction in cardiac output. Of 290 patients who received pacemakers for disturbances of cardiac rhythm or conduction, only four had focal neurological symptoms or signs, and only two (1%) had focal cerebral symptoms that could be related to a specific episode of cardiac dysfunction. The vast majority of the 290 patients had symptoms of general cerebral ischemia, primarily syncope.

AB-1153-73
Plasma Heparin: A Unique, Practical, Submicrogram-Sensitive Assay—Thye Yin E (Department of Medicine, The Jewish Hospital of St. Louis, St. Louis, Missouri 63110), Wessler S, Butler JV, Cole S—J Lab Clin Med 81:298-310 (Feb) 1973*

A unique quantitative assay for heparin is described. It can detect as little as 0.01 unit (10^-3 μg) heparin per milliliter plasma. The assay is based on the original observation of the accelerating effect of trace amounts of heparin on the neutralization of activated factor X by its plasma inhibitor and has both a specificity and a sensitivity greater than those of the whole blood clotting time or the activated partial thromboplastin time. The reagents employed are easily prepared, the entire test can be completed in less than five minutes on plasma samples, and can be performed either manually or with the use of automatic clot timers. The assay can be used to measure plasma heparin during and following cardiopulmonary bypass, during therapeutic heparin administration in large and small doses intravenously and subcutaneously, and to document the antithrombotic response to minidose heparin prophylaxis of venous thrombosis.

AB-1154-73
Intravascular Platelet Aggregation in the Heart Induced by Stress—Hafi JI (Cardiac Section, VA Hospital, Bronx, New York 10468), Fani K—Circulation 47:353-358 (Feb) 1973*

Sixteen rats, stressed by immersion in ice-cold water for 25 to 45 minutes, were found to have platelet aggregates in myocardial small vessels on electron microscopic study. None of six similar non-stressed control rats had platelets in myocardial vessels. It is concluded that stress, probably via catecholamine secretion that enhances platelet stickiness, can induce intravascular platelet aggregation. It is possible that this mechanism plays a part in the relationship between stress and acute clinical myocardial infarction.

AB-1155-73
Ultrastructure of the Central Nervous System After Prolonged Hypoxia. II. Neuroglia and Blood Vessels—Yu MC, Bakay L, Lee JC (Division of Neurosurgery, State University of New York, Buffalo, New York)—Acta Neuropath (Berlin) 22:235-244, 1972 (Springer-Verlag, publisher)*

The neuroglial cells and small blood vessels of the central nervous system of the rats under hypoxia for one to 24 days were examined by electron microscopy. In the first week, the astrocytes were moderately swollen, particularly their perivascular processes. The endothelium of small vessels contained an increased number of mitochondria, accompanied by moderate thickening of the basal lamina. From the seventh to twenty-fourth days, intracellular edema in the astrocytes and oligodendrocytes became manifest. In the gray matter, the astrocytes exhibited great dilatation of the endoplasmic reticulum (ER) and increased translucency of the cytoplasm. Many astrocytic processes arranged themselves in lamellar whorls which encircled parts of cytoplasm or were wrapped around altered presynaptic terminals. In the white matter, profuse accumulation of the gliofilaments was observed in many astrocytes. The oligodendrocytes of the gray matter displayed marked dilatation of the ER cisternae whereas in the white matter, they frequently contained an increasing number of lipofuscin granules and lysosomes. The pericytes of the small blood vessels were greatly enlarged and contained numerous osmiophilic inclusion bodies.

*Authors' abstract.
ABSTRACTS

AB-1156-73

Chronic hypoxia was induced in rats by subjecting them to a low oxygen atmosphere (10% O₂ and 90% N₂) up to 24 days. Electron microscopy revealed striking alterations in nerve cells of the central nervous system. During the first four days, moderate swelling was noted in the Golgi complex in the mitochondria of some neurons. From the sixth to twenty-fourth days, alterations of these organelles became more pronounced: Many neurons and their processes exhibited varying degrees of cytoplasmic swelling, and inclusion bodies resembling myelin-figures were found in the perikarya. Bizarre forms of tubular profiles occurred within the axoplasm of many nerve fibers. The presynaptic terminals became greatly enlarged, containing either unusual multilamellar bodies or clumped vesicles. These results indicated that prolonged hypoxia causes profound changes in the central nervous tissue that do not occur in the acute state.

AB-1157-73
Internal Cerebral Vein Thrombosis—Johnsen S, Greenwood R, Fishman MA (500 South Kingshighway, St. Louis, Missouri 63110)—Arch Neurol 28:205-207 (Mar) 1973*

Two patients had cerebral venous thrombosis localized to the deep venous system. In one case the diagnosis was made antemortem by means of cerebral angiography and a ventricular shunting procedure was performed because of impending hydrocephalus. This patient survived with minimal neurological sequelae.

AB-1158-73
Brain Metabolism During Hypoglycemia. Effect of Insulin on Regional Central Nervous System Glucose and Energy Reserves in Mice—Ferrendelli JA (Department of Pharmacology, Washington University School of Medicine, St. Louis, Missouri 63110), Chang M-M—Arch Neurol 28:173-177 (Mar) 1973*

Adenosine triphosphate (ATP), phosphocreatine, glucose levels, and metabolic rates were measured in several regions of the central nervous system (CNS) of normal and hypoglycemic (insulin) mice. Following insulin treatment, there was a progressive deterioration of neuronal function, a uniform, marked decrease of glucose reserves, and a uniform depression of metabolic rate throughout the CNS; however, ATP and phosphocreatine levels were unaltered. These results indicate that the functional encephalopathy resulting from hypoglycemia is not due to a lack of chemical energy. Also, the present results indicate that the clinically apparent depression of neural function in progressively descending levels of the CNS during hypoglycemia is not a result of a depletion of glucose reserves or depression of metabolic rate more rapidly in the rostral portions of the CNS than in the more caudal portions.

AB-1159-73
Effect of Hypercapnia on CSF Turnover and Blood-CSF Barrier to Protein—Hochwald GM (Department of Neurology, New York University Medical Center, New York, New York 10016), Malhan C, Brown J—Arch Neurol 28:150-155 (Mar) 1973*

Formation of cerebrospinal fluid (CSF) and transfer of albumin from blood to CSF was measured during steady state ventricular perfusion. In both normal and experimentally induced hydrocephalic cats elevation of arterial carbon dioxide pressure (P CO₂) by 10% carbon dioxide (CO₂) inhalation resulted in a decrease in absorption of CSF by approximately 50%. Under these conditions, there was no increase in CSF formation. The pH, P CO₂, and their changes in perfusate and CSF were similar and reflected those measured in blood. Hypercapnia caused more than an 11-fold increase in the influx of albumin into the perfusate of normal cats only. This effect was rapid and to a large extent reversible when the 10% CO₂ was removed from the breathing gas. The failure to detect a similar increase in permeability of the blood-CSF barrier to protein in hydrocephalic cats was attributed to the pathological changes in the choroid plexus due to the kaolin.

AB-1160-73
Quantitative Evaluation of Normal and Pathologic Cerebral Blood Flow Regulation to Perfusion Pressure. Changes in Men—Olesen J (Department of Neurology, New York Hospital, Cornell-Medical Center, New York, New York 10021)—Arch Neurol 28:143-149 (Mar) 1973*

Using the xenon Xe 133 ( Xenonel 133) intracarotid method in man, regional cerebral blood flow (rCBF) was measured in 35 small areas of a hemisphere. It was shown that intracarotid infusion of trimethaphan camsylate (Arfonad) has no effect on rCBF. Marked increases and moderate decreases of perfusion pressure normally cause no measurable change in regional cerebral perfusion pattern nor in absolute flow (rCBF autoregulation). Therefore, autoregulation is impaired when the rCBF changes more than explained by methodological error. With disease, all degrees of impairment from normal regulation to a completely passive vascular bed may be seen. The derangement may be quantified by the vasoreactivity impairment index (VI):

rCBF change, %
mean arterial blood pressure change, %

Autoregulation is abnormal in many acute cerebral disorders. The possible diagnostic value of this fact is exemplified and discussed.

AB-1161-73
Evidence for Direct Control of Coronary Vascular Tone by Oxygen—Gellai M, Norton JM, Detar R (Department of Physiology, Dartmouth Medical School, Hanover, New Hampshire 03755)—Circulation Research 32:279-289 (Feb) 1973*

The interaction between the effects of oxygen and adenosine on acetylcholine-induced contractile tension
ABSTRACTS

was observed in helical coronary arterial strips suspended in physiological salt solution. It was found that (1) steady-state contractile tension was unaffected or depressed 5 to 20% when oxygen pressure (P_02) was diminished to levels as low as 5 to 10 mm Hg. (2) contractile tension was markedly depressed at a P_02 of 0 mm Hg. (3) adenosine-induced relaxation of contractile tension was inversely proportional to P_02 in the tissue bath, and (4) in the presence of adenosine at a concentration just adequate to inhibit contractile tension at a P_02 of 10 mm Hg, contractile tension was directly proportional to bath P_02. The latter two observations were usually most apparent at a P_02 between 10 and 40 mm Hg. It is proposed that the vasodilating effect of adenosine on the intact coronary vasculature may be most effective during myocardial hypoxia and that physiological control of coronary vascular tone may be more closely related to variations in local P_02 than to variations in local concentrations of adenosine.

AB-1162-73

Dependency of Pial Arterial and Arteriolar Diameter on Perivascular Osmolarity in the Cat. A Microapplication Study—Wahl M, Kuschinsky W, Bosse O, Thurau K (Department of Physiology, University of Munich, Pettenkoferstr. 12, West Germany)—Circulation Research 32:162-169 (Feb) 1973*

The effect of perivascular osmolarity on the diameter of pial arteries was studied in cats by the microapplication technique. Between 251 and 360 milliosmoles/liter, concentration-response curves were obtained for single vessels. Constriction occurred when perivascular osmolarity was decreased below 317 milliosmoles/liter, and dilatation occurred at osmolarities above this value. The effect was the same whether the osmolarity was changed by addition of mannitol or NaCl. Reduction of sodium concentration from 156 to 133 mEq/liter at constant osmolarity did not affect arteriolar diameter, but greater reductions in sodium concentration induced vasoconstriction. The results indicate that the resistance of pial arteries can be influenced by local changes in perivascular osmolarity.

AB-1163-73


The clinical, histological, and radiological appearances of a 37-year-old man with Buerger's disease are presented. Over the course of one-and-a-half years the patient required bilateral lower limb amputations and was found to have occlusion of the abdominal aorta and iliac arteries. The diagnosis of thrombo-angiitis obliterans is discussed with reference to other possible causes of the aortic occlusion. It seems most likely that this patient's aortic occlusion is in fact a manifestation of Buerger's disease.

*Authors' abstract.

AB-1164-73

How Reliable Is the Middle Meningeal Artery in the Diagnosis of Small Epidural Haematoma?—McGrath TW, Sondheimer FK (Departments of Diagnostic Radiology, St. Mary's Hospital and Medical Center, Mount Zion Hospital and Medical Center, and the University of California, San Francisco, California)—Brit J Radiol 46:131-138 (Feb) 1973*

Medial convexity of the temporal portion of the middle meningeal artery has been accepted as a reliable angiographical sign of the presence of an epidural hematoma. Examination of the course of the middle meningeal artery in 11 skulls and 21 normal angiograms, however, revealed that medial convexity of this artery is frequently a normal finding. In fact, the middle meningeal artery appeared to be bowed medially in the majority of cases; the medial displacements ranged from 0.3 to 1.7 cm from the inner table of the skull. An anteroposterior projection with the head obliqued 10° to the side of the suspected extradural collection is described. With this view, an epidural hematoma can be differentiated from specious displacement of the middle meningeal artery, because this "displacement" is primarily related to anterior tapering of the skull.

AB-1165-73

An Angiographic Study of Sequential Changes in Hypertensive Intracerebral Haemorrhage—Yamaguchi K, Uemura K, Takahashi H (Division of Radiology, Research Institute of Brain and Blood Vessels, Akita, Japan)—Brit J Radiol 46:125-130 (Feb) 1973*

In order to assess the changes with time in the space-occupying signs due to hypertensive intracerebral hemorrhage, sequential angiograms on 29 conservatively treated and 38 operated cases have been reviewed. Based on the observation of the conservatively treated cases, natural progress of the changes in space-occupying signs due to the hemorrhage has been demonstrated graphically. One of the most interesting aspects in this process is that an angiographically demonstrable increase in size of the local swelling, often accompanied by some clinical improvement of the patient, has been noted in about two-thirds of the repeat-angiograms obtained within three weeks of onset. The mechanism and the diagnostic significance of the phenomenon are briefly discussed, with the following conclusion: When angiographical information is utilized not only in diagnosis but also in attempts to establish criteria for operation or conservative treatment, it is of great importance to take into consideration that any increase in the size of the mass may occur after an angiogram performed soon after the hemorrhage.

AB-1166-73

Complications of Percutaneous Radial-Artery Cannulation: An Objective Prospective Study in Man—Bedford RF, Wollman H (Department of Anesthesia and Pharmacology, University of Pennsylvania School of Medicine, Philadelphia, Pennsylvania 19104)—Anesthesiology 38:228-236 (Mar) 1973*

One hundred five percutaneous radial-artery cannulations were prospectively studied in 100 patients. The
patients were examined daily for complications, utilizing physical examination and Doppler flow measurements. Forty of the 105 cannulations (38%) resulted in radial-artery thrombosis. Arterial occlusion occurred in 25% of 43 vessels cannulated for less than 20 hours, in 50% of 40 cannulations lasting 20 to 40 hours, and in 41% of 22 cannulations lasting 40 to 144 hours. Radial arterial pulses, produced by retrograde ulnar-artery flow, were palpable distal to 73% of the radial-artery thrombi, and Doppler flow signals were audible distal to 90% of the thrombi.

All of the 20 thrombosed vessels which were followed during return visits were recanalized. The longest time taken for recanalization was 75 days. No major ischemic complication was observed in any patient, despite the high incidence of temporary thrombosis.

Forearm amputation after cardiac catheterization was averted when a nonthrombotic arterial occlusion was recognized within eight hours of the onset of brachial catheterization. The diagnosis was facilitated and documented by operative arteriography. The patient was successfully treated by forearm fasciotomy.

ABSTRACTS

AB-1169-73

Brain Oxygen Supply and Neuronal Activity Under Normal and Hypoglycemic Conditions—Bicher HI (Department of Anatomy, Medical University of South Carolina, Charleston, South Carolina 29401), Reneau DD, Bruley DF, Knisely MH—Amer J Physiol 224:275-282 (Feb) 1973*

The regulatory mechanisms involved in maintaining a constant brain oxygen supply were studied under normal and hypoglycemic conditions in anesthetized, curarized cats. Physiological parameters (tissue P\textsubscript{O\textsubscript{2}} and neuronal firing in the same microarea of cortex, a P\textsubscript{O\textsubscript{2} carotid artery blood flow and blood pressure) were determined and the information was fed to an analog computer for on-line prediction of tissue oxygen levels. Compensation for anoxic anoxia in normal animals was based on a delay mechanism, increased blood flow, and diminished cellular activity and found to be quick and accurate. Hypoglycemic animals showed slow compensation, based mainly on blood flow changes. Computer simulations were accurate, validating the use of the proposed mathematical equations.

AB-1170-73

Electrophysiological Studies on Organization of Central Vasopressor Pathways—Gebber GL, Taylor DG, Weaver LC (Department of Pharmacology, Michigan State University, East Lansing, Michigan 48823)—Amer J Physiol 224:470-481 (Feb) 1973*

A study was made of the responses evoked in the external carotid postganglionic sympathetic nerve of the cat by single shocks and trains of stimuli applied to pressor regions of the brain and spinal cord. The levels of the neuraxis explored included the hypothalamus, midbrain, medulla, and cervical spinal cord. The evoked potentials were analyzed with an average-response computer. Two distinct systems of vasopressor pathways were identified at each of the levels explored. Sympathetic nerve responses evoked from the more slowly conducting system of pathways were inhibited by baroreceptor reflex activation. Postganglionic potentials evoked from the more rapidly conducting system were not blocked by baroreceptor reflex activation. Potentials evoked from both systems also were distinguished on the basis of onset latency, duration, ability to follow high-frequency stimulation, and response patterns to single shocks and trains of stimuli. It is concluded that vasopressor outflow from the brain to the external carotid nerve is organized into two systems of parallel pathways, each of which is related differently to the baroreceptor reflex arc.

AB-1171-73

Changes in Regional Blood Flow and Cardiodynamics Evoked by Electrical Stimulation of the Fastigial Nucleus in the Cat and Their Similarity to Orthostatic Reflexes—Doba N, Reis
ABSTRACTS

DJ (Laboratory of Neurobiology, Department of Neurology, Cornell University Medical College, New York, New York)—J Physiol 227:729-747 (Dec) 1972

Electrical stimulation of the rostral fastigial nucleus in anesthetized cats produced various changes in regional blood flow and cardiodynamics. Cardiovascular changes included increased mean arterial pressures, decreased blood flow and increased vascular resistance in various peripheral vascular beds, and a small increase in heart rate and myocardial contractile force. All the changes represented activation of sympathetic preganglionic neurons. The cardiovascular effects of fastigial stimulation simulate the compensatory (orthostatic) reflex response to maintenance of an upright posture. Stimulation of this particular nucleus appears to excite the neural network subserving orthostatic reflexes.

AB-1173-73

In an attempt to overcome the many complications encountered when using prosthetic vessels less than 5 mm in diameter, the authors studied the process of "autogenization" of prostheses. Implanting a highly porous prosthesis into an animal (dog) for four to six weeks allows sufficient time for formation of a smooth pseudo-intima and adventitia. The vessel can then be transplanted to other sites in need of small vessel revascularization. This process was carried out in dogs with transplant to abdominal aorta and iliac arteries. The animals were sacrificed at times ranging from 62 to 293 days. Prosthetic sizes ranged from 3 to 4 mm in diameter and 5 to 10 cm in length. Excision of the prosthesis and arteriography revealed patency in most of the grafts. Complications included thrombosis, narrowing of the anastomosis, and infection.

AB-1174-73

In an attempt to measure the specific change in cerebral blood flow (CBF) in response to changes in P_{CO₂}, paired CBF measurements were made at two levels of P_{CO₂} in 29 subjects. A positive correlation has been demonstrated between mean CO₂ reactivity and conductance (the reciprocal of resistance). This study suggests that CO₂ reactivity may be greater at high blood pressures than at lower blood pressures when measured at the same conductance. However, under physiological conditions conductance values are generally low for patients with high blood pressure and effective CO₂ reactivity therefore is relatively small.

AB-1175-73
Evidence of Vasoconstrictor Sympathetic Nerves in Brain Vessels of Mice—Edvinsson L (Department of Histology, University of Lund, Lund, Sweden), Nielsen KC, Owman C, West KA—Neurology 23:73-77 (Jan) 1973

Cerebral blood volume (CBV) was measured in mice using a radioisotope dilution method in an attempt to determine the sympathetic influence on intracranial blood vessels. CBV could be reduced by 15% by bilateral extirpation of the superior cervical sympathetic ganglia. The day following the surgical procedure, CBV increased to a level 15% above control values; this vasodilatation occurred as a consequence of disappearance of neurotransmitter. CBV was within normal limits within one week. The normalization was felt to represent a return to normal vascular tone as a consequence of sensitivity to circulating catecholamines. CBV decreased 18% following electrical stimulation of nerve trunks leading to superior cervical sympathetic ganglia; phenoxybenzamine, an alpha adrenergic receptor blocking agent, could prevent the decrease in CBV secondary to electrical stimulation.

AB-1176-73
Autogenous Peritoneum as an Arterial Patch Graft—Sterioff S Jr, Smith GW (Department of Surgery, Baltimore City Hospitals, Baltimore, Maryland 21224)—Amer Surg 38:653-656 (Dec) 1972

In 22 mongrel dogs a 2 x 0.2 cm arteriotomy in the anterior surface of the aorta was patched with a 2 x 1 cm piece of autogenous peritoneum. Postmortem at two to six months revealed no ruptured or occluded vessels. Histological examination revealed a patent lumen with smooth cellular intima. Peritoneum tissue proved to have the advantageous properties of being accessible, uninfected, nonthrombogenic, and durable.

AB-1177-73
Spontaneous Intracerebellar Hemorrhage. Diagnosis and Surgical Treatment—Freeman RE, Onofrio BM, Okazaki H, Dinapoli RP (Section of Publications, Mayo Clinic, Rochester, Minnesota 55901)—Neurology 23:84-90 (Jan) 1973

Intracellular hemorrhages account for 6.1% of all intracranial intraparenchymal hemorrhages according to a review of several large autopsy series. The present study of 16 cases fails to reveal a sex predilection for
cerebellar hemorrhage. In 75% of the cases, hypertension was the leading etiological agent. Cerebellar hemorrhage should be considered in the presence of hypertension with rapidly progressive, non-localizing neurological impairment and loss of consciousness. Diagnostically, posterior fossa angiography and air contrast study may be of significant help. Suboccipital craniectomy and clot evacuation is the treatment of choice in the patient whose condition is deteriorating.

**AB-1178-73**

*Results of Carotid Compression Tonographic Test in Carotid and Vertebral Basilar Occlusion*—Solis C, Zylberglajt F, Barrios RR (Rio Negro 1222, Montevideo, Uruguay)—*Amer J Ophthal 74:1113-1120 (Dec) 1972*

In normal subjects, homolateral carotid compression produces a descent of one to three scale units in the continuous ocular tonogram; upon decompression there is quick recovery. The authors describe six different abnormal responses in 33 of 35 patients with carotid artery occlusions. The most frequent of these responses was contralateral tonographic descent upon compression of the unaffected carotid artery; this response definitely established the presence of stenosis or occlusion of the internal carotid artery. Excessive tonographic descent was noted in 14 of 31 patients with vertebrobasilar insufficiency, indicating prevalence of carotid arteries in cerebral blood supply.

**AB-1179-73**

*Clofibrate for the Treatment of Occlusive Cerebrovascular Disease*—Hirsch SB, Wechsler AF, Tourtellotte WW (Veterans Administration Wadsworth Hospital Center, Los Angeles, California)—*New Eng J Med 287:671 (Sept 28) 1972*

Thirty-nine male patients with clinical evidence of a recent cerebral infarction were treated with either placebo or clofibrate. In the 20 patients receiving clofibrate there was improvement in the initial neurological condition without evidence of subsequent stroke. In the 19 patients receiving placebo clinical improvement appeared in only eight patients; three of this group suffered one or more additional strokes while five had recurrent transient ischemic attacks. From this preliminary study the authors feel the results are highly suggestive of a beneficial effect of clofibrate in the prophylactic treatment of patients with cerebral infarction due to occlusive vascular disease.

**AB-1180-73**

*Arteriovenous Communications in the Human Brain*—Ogata J, Feigin I (Departments of Pathology, New York University Medical Center and Bellevue Hospital, New York, New York 10016)—*J Neuropath Exp Neurol 31:519-525 (July) 1972*

In an attempt to prove the existence of naturally occurring arteriovenous communications, suspensions of particulate material measuring up to 70 μ in diameter were injected into the internal carotid arteries at postmortem. In 12 of 15 bodies injected the particulate material could be identified in the venous effluence of the internal jugular vein. In an additional three cases in which the brain was removed, the embolus could be traced from the middle cerebral artery to the superior sagittal sinus. The authors conclude that there are arteriovenous communications present in the normal brain and spinal cord which are likely to play a role in cerebrovascular circulation.

**AB-1181-73**

*Spinal Cord Emboli in Dogs and Monkeys and Their Relevance to Aortic Atheroma in Men*—Finlayson MH, Mersereau WA, Moore S (Departments of Pathology and Neurology, Montreal General Hospital and McGill University, Montreal, Canada)—*J Neuropath Exp Neurol 31:535-547 (July) 1972*

In an attempt to induce thrombotic emboli and platelet aggregates, a vinyl catheter was suspended in the aorta of 16 monkeys and 30 mongrel dogs. The study was done to duplicate some of the possible effects of human aortic atheroma on the aortic tree. Arterial occlusions associated with small spinal cord infarcts in the central gray matter were the predominant findings when the animals were sacrificed. When arterial occlusions were found in relation to an infarct, they involved the major branches of the anterior spinal artery. It is suggested that emboli arising in the atheromatous human aorta may produce spinal cord lesions.

**AB-1182-73**

*The Innervation of Human Intracranial Arteries: A Study by Scanning and Transmission Electron Microscopy*—Nelson E (Department of Neurology, University of Maryland School of Medicine, Baltimore, Maryland 21201), Takayanagi T, Kennels ML, Kawamura J—*J Neuropath Exp Neurol 31:526-534 (July) 1972*

Two well-established techniques, scanning (SEM) and transmission (TEM) electron microscopy, were utilized in examining the external features of human intracranial arteries including large vessels at the base of the brain and secondary and tertiary branches of the middle and posterior cerebral arteries. Bundles of myelinated and unmyelinated nerve fibers could be identified as linear structures on the external surface of the arteries. These techniques are advocated in the further study of extent and distribution of vascular innervation.

**AB-1183-73**


The authors review the medical literature concerning the familial incidence of intracranial aneurysms following their description of a case concerning two sisters. They conclude that intracranial aneurysms may be associated with a number of inherited disorders considered to fall in the realm of connective tissue disorders. However, in families with intracranial aneurysms there appear to be an increased number of subjects with intracranial angiomas.

Stroke. Vol. 4, July-August 1973
ABSTRACTS

AB-1184-73
The Effect of Neurominidase on Platelet Aggregation Induced by ADP, Norepinephrine, Collagen or Serotonin—Davis JW, Yue KTN, Phillips PE (Hematology Research Laboratory, Veterans Administration Hospital, Kansas City, Missouri, and the Departments of Medicine and Pathology, University of Kansas School of Medicine, Kansas City, Kansas)—Thromb Diath Haemorrh 28:221-227, 1972

Platelet aggregation induced by norepinephrine, collagen, ADP, or serotonin is enhanced when human platelet-rich plasma (PRP) is incubated with neuraminidase. N-acetylneuraminic acid, a product of the action of neuraminidase, had no effect on platelet aggregation when incubated with PRP. Platelet aggregation enhancement by neuraminidase may be related to release of sialic acid from platelet membranes, thereby reducing the negative platelet surface charge.

AB-1185-73

Women receiving two oral estrogen-progestagen compounds (Neogynon and Noracyclin-22) were studied twice monthly for six months to evaluate platelet function. In both groups, platelet counts in rotated plasma were decreased. In the Neogynon group a significant increase in non-spread platelets was noted. Platelet aggregation was significantly increased in both groups. The authors note that increased platelet aggregation during oral contraceptive therapy is regarded as a predisposing factor to thrombosis.

AB-1186-73
Effect of Lidoflazine (R 7904) on Human Platelet Function In Vitro—de Clerck F (Cardiovascular Research Department, Janssen Pharmaceutica Research Laboratories, Beerse, Belgium)—Thromb Diath Haemorrh 28:228-236, 1972

Lidoflazine and cinnarizine were compared to dipyridamole in their effect on human platelet function in vitro. Dipyridamole and lidoflazine inhibited platelet aggregation by collagen, and ADP aggregation was inhibited to a lesser extent; cinnarizine was only marginally active. Both dipyridamole and lidoflazine inhibited clot retraction and lidoflazine was shown to reduce the platelet release reaction. Plasma coagulation and platelet factor 3 availability were not affected by any of the three drugs.

AB-1187-73

A new technique for determination of blood pressure in various branches of the choroidal and retinal vasculature has been described. Hemoharometry involves measurement of the blood pressure within a vessel by raising the intraocular pressure by suction ophthalmodynamometry to overcome internal pressure and collapse the vessel or restrict its flow. In normal controls the central retinal artery pressure was found to be 40 mm Hg below systolic blood pressure. In patients with diabetic retinopathy, central retinal artery pressure showed slight variation from the normal curve.

AB-1188-73
A Possible Role for Mast Cells in Controlling the Diameter of Arterioles on the Surface of the Brain—Rosenblum WI (Medical College of Virginia, Health Science Center, Virginia Commonwealth University, Richmond, Virginia 23219)—Brain Res 49:75-82 (Jan 15) 1973

Pial arterial constriction in mice was produced by applying 48/80 locally, a compound known to release mast cell contents. If the mast cell contents were depleted prior to testing of vascular reactivity, the local response to 48/80 was blocked, leaving the response to another contractile agent intact. Pial vasoconstriction may be produced by 48/80 through release of mast cell content in the arachnoid membrane; however, the local constrictor effect of 48/80 may act independently of pial mast cells, but inhibited by prior release of mast cell content elsewhere in the body.

AB-1189-73
Atrial Myxoma and Central Retinal Artery Occlusion—Jampol LM (Department of Ophthalmology and Visual Science, Yale University School of Medicine, New Haven, Connecticut 06510), Wong AS, Albert DM—Amer J Ophthalm 75:242-249 (Feb) 1973

A two-year history of joint pain, fever, and skin rash preceded the development of aphasia, right hemiparesis, and right hyperreflexia following sudden collapse in a 37-year-old woman. The left central retinal artery was occluded; there were no cardiac murmurs. A left atrial myxoma was found at autopsy. There were emboli in the left middle cerebral artery, left posterior ciliary arteries, left choroid, and probably left retinal arteries. In patients with the sudden occurrence of central retinal artery occlusion without predisposing disease, an atrial myxoma should be suspected.

AB-1190-73
Brain Swelling Due to Experimental Cerebral Infarction. Changes in Vasomotor Capacitance and Effects of Intravenous Glycerol—Meyer JS (Department of Neuology, Baylor College of Medicine, Houston, Texas), Teraura T, Marx P, Hashi K, Sakamoto K—Brain 95:833-852, 1972

Bilateral occlusion of the carotid and vertebral arteries for ten minutes produced reversible brain swelling in 25 baboons. A temporary increase in intracranial pressure and necropsy-confirmed cerebral edema were noted in the animals. Autoregulation was impaired in all animals as was vasomotor capacitance to CO₂ but to a lesser extent. Following cerebral ischemia there was an increase in chloride uptake. The factors reponsible for cerebral edema and impaired autoregulation are discussed. Cerebral blood flow was increased following glycerol infusions; this therapeutic measure reduced intracranial pressure and enhanced cerebral metabolism.
Selective white matter injury with sparing of gray matter occurs secondary to anoxia in contrast to the usual effects. From the study of seven autopsy cases the authors suggest white matter injury is the result of the simultaneous effect of hypoxia and edema. The edema may be from an unrelated cause (trauma, hypertensive disease) or due to acidosis secondary to hypoxia. Histological changes in astrocytes characteristic of edema were evident in generalized hypoxic states. The pattern of change tends to confirm the theory that the edema is essentially extracellular.

In the present study irreversible platelet aggregation could be initiated by 5-hydroxytryptamine (5HT). This process involved the platelet release reaction which could be blocked by preincubation of the platelets with lysolecithin. The first phase of 5HT-induced aggregation also could be inhibited by lysolecithin and, in the absence of secondary aggregation, the primary response was potentiated at low concentrations of lysolecithin and inhibited at higher concentrations. ADP-induced platelet aggregation differs from that induced by 5HT since platelets accumulated 5HT which involves specific 5HT receptor sites. It is proposed that lysolecithin may cause changes in membrane organization which may expose more 5HT receptor sites and potentiate 5HT uptake and aggregation.

Dermal gangrene allegedly can result from coumarin therapy. Severe necrosis of the lateral aspects of both thighs appeared in a patient receiving coumadin following aortic valve replacement. Ninety cases have been reported in the literature; etiology, prevention, and treatment have remained an enigma.

Following embolization of a polyethylene catheter to the right atrium in a patient under treatment for shock, successful retrieval was accomplished using a Dormia ureteral stone basket catheter introduced through the cephalic vein. The authors list safeguards in utilization of indwelling catheters, and suggestions for insertion of these devices are enumerated.

In an attempt to better evaluate inaccessible cerebral damage in comatose patients, the authors propose a radioisotope method for determining the presence of cerebral circulation. Intravenous 99mTc O4 can be detected over the head using a portable scintillation probe and strip recorder, indicating the presence of cerebral blood flow. It was possible to correlate the absence of detectable radioactivity with absent electrical activity shown by EEG in comatose patients. The authors suggest this simple bedside study may be an adjunct to EEG in evaluation of cerebral death.

In 208 consecutive patients with embolic cholesterol crystals in the retinal vessels followed for at least six years a close association with systemic manifestations of atherosclerosis was noted. During the six-year period, 135 patients (65%) with cholesterol emboli died. Coronary artery disease was the cause of death in 56 patients. Strokes occurred in 94 patients; 63 (67%) of those with stroke died. The authors suggest that observation of embolic crystals in the fundus should lead to a full investigation of the patient's vascular status.

A patient with an inoperable aneurysm of the anterior communicating artery underwent a stereotaxic procedure to induce vascular occlusion. Under local anesthesia a bar magnet was inserted transfrontally and positioned adjacent to the fundus of the aneurysm. Following insertion of a needle through the magnet into the aneurysm, a ferrosilicone compound was injected into the aneurysm which was held in place by the magnet until it formed a solid cast. Postoperative angiography revealed partial filling of the aneurysm with little change in the neurological condition of the patient.

A patient with an inoperable aneurysm of the anterior communicating artery underwent a stereotaxic procedure to induce vascular occlusion. Under local anesthesia a bar magnet was inserted transfrontally and positioned adjacent to the fundus of the aneurysm. Following insertion of a needle through the magnet into the aneurysm, a ferrosilicone compound was injected into the aneurysm which was held in place by the magnet until it formed a solid cast. Postoperative angiography revealed partial filling of the aneurysm with little change in the neurological condition of the patient.
and Skeletal Deformities and a Brief Review of the Literature—Russo LS Jr (Medical Service of Beth Israel Hospital, New York, New York 10003)—J Mount Sinai Hosp NY 40:60-67 (Jan-Feb) 1973

Both internal carotid arteries and right vertebral and right brachial arteries were involved with fibromuscular hyperplasia (FMH) in a patient with skeletal deformities and an aneurysm of the left internal carotid artery. Ninety-one cases affecting the extracranial vessels have been reported in the literature, but only 33% present with symptoms directly related to the process. Intracranial aneurysms have been noted in 25%. The overall incidence of this entity is low (0.25% to 0.63%). FMH tends to occur in female (85%) Caucasians. The author suggests the possible association of FMH with a diffuse mesenchymal tissue disorder.

AB-1199-73
Aneurysms of the Common Carotid Artery—Coleman PG, Kittle CF (Department of Surgery, Section of Thoracic and Cardiovascular Surgery, University of Chicago Pritzker School of Medicine, Chicago, Illinois)—Surg Clin N Amer 53:231-240 (Feb) 1973

Common causes of common carotid artery aneurysms include trauma and atherosclerosis. Syphilis and pharyngeal infections were common causes in the past. Uncommon causes include tuberculosis and mycotics. These aneurysms have been more recently noted as complications of angiography or endarterectomy. This type aneurysm may be the source of emboli with subsequent transient neurological deficits. The authors discuss the differential diagnosis of pulsating cervical mass (i.e., thyroid tumors, bronchial cleft cysts, lymphadenopathy, chemodectomas) and detail the operative technique for correction of the common carotid aneurysm.

AB-1200-73
Surface Thrombogenicity of Arterial Prostheses—Yates SG II, Nakagawa Y, Berger K, Sauvage LR (Reconstructive Cardiovascular Research Center, Providence Hospital, Seattle, Washington)—Surg Gynec Obstet 136:12-16 (Jan) 1973

Arterial prostheses were studied using a surface clotting time test of prosthetic and aortic specimens to determine the influence of preclotting and of healing on surface thrombogenicity. It was determined that a preclotted porus arterial prosthetic surface is exceedingly-thrombogenic and flow surface thrombogenicity decreases as optimal healing occurs. The above method of study is proposed by examining the thrombogenicity of new arterial prostheses.

AB-1201-73
Left Ventricular Inotropic and Peripheral Vasomotor Responses From Independent Changes in Pressure in the Carotid Sinuses and Cerebral Arteries in Anaesthetized Dogs—Hainsworth R, Karim F (Cardiovascular Unit, Department of Physiology, University of Leeds, Leeds LS2 9JT)—J Physiol 228:139-155 (Jan) 1973

Inotropic response in the left ventricle and peripheral vasomotor responses were recorded in dogs following independent alteration of pressure perfusing the isolated carotid sinuses and the pressure perfusing the cerebral circulation. Decrease in carotid sinus pressure resulted in a 45% increase in left ventricular pressure and a 59% increase in vascular resistance. Lowering cerebral perfusion pressure to 50 mm Hg produced little or no inotropic or vasomotor response; however, if Pao2 were lowered to less than 60 mm Hg, lowering of cerebral perfusion to less than 80 mm Hg resulted in marked responses. Therefore, the carotid sinus reflex is important in controlling the inotropic state of the heart and vasomotor activity. Responses from cerebral hypotension may be important as hypoxemia develops.

AB-1202-73
Theoretical Anomalies of the Stapedial Artery—Hogg ID, Stephens CB, Arnold GE (Departments of Anatomy and Surgery [Otolaryngology], University of Mississippi Medical Center, Jackson, Mississippi)—Ann Otol 81:860-870 (Dec) 1972

Interferences with the normal course of blood through several vessels connected by capillary-sized anastomoses in young embryos may result in vascular anomalies of the region of the temporal bone. Connections between vessels closely associated with the facial nerve represent several of these patterns. The stapedial artery may fail to degenerate in the obturator foramen of the stapes if interference should occur prior to the tenth week in the embryo. As a result, there may be a persistent stapedial artery. A fibrous mass in the obturator foramen may be the remnant of a persistent stapedial artery which degenerates later than the tenth week. Certain additional maldevelopments of the central blood supply may accompany a persistent stapedial artery. It is conceivable that transient crossed hemiplegia, sensory losses simulating tubas dorsalis, or partial hearing loss may follow surgical interruption of a persistent stapedial artery.

ITEMS OF INTEREST

The Central Action of Antihypertensive Drugs, Mediated Via Central α-Receptors: A Brief Review—Van Zwieten PA (Department of Biopharmacy, University of Amsterdam, Roetersstraat 1, the Netherlands)—J Pharm Pharmacol 25:89-95 (Feb) 1973


Pathogenetic Factors in Atherosclerosis—Lautsch EV (Department of Pathology, Rutgers Medical School, Piscatway, New Jersey 08854)—Angiology 23:584-594 (Nov) 1972

Hemodynamic Sequelae of Cardiac Arrhythmias—Samet P (Division of Cardiology, Department of Medicine,
Relation of Electrolyte Disturbances to Cardiac Arrhythmias—Fisch C (Department of Medicine, Indiana University School of Medicine, Indianapolis, Indiana)—Circulation 47:408-419 (Feb) 1973

How to Approach an Arrhythmia—Schamroth L (Baragwanath Hospital and University of the Witwatersrand, Johannesburg, South Africa)—Circulation 47:420-426 (Feb) 1973

Defibrination Syndrome or . . .? (Editorial)—Merskey C (Department of Medicine, Albert Einstein College of Medicine, Bronx, New York 10461)—Blood 41:599-603 (Apr) 1973

A review of concepts in the syndrome of disseminated intravascular coagulation.

Sino-atrial Disorder Including the Brady-tachycardia Syndrome. A Review With Addition of 11 Cases—Lloyd-Mostyn RH, Kidner PH, Oram S (Cardiac Department, King's College Hospital, Denmark Hill, London, S.E.5) Quart J Med 42:41-57 (Jan) 1973

A rare cause of syncope.

Surgical Clinics of North America (Feb) 1973

Several review articles on trauma with cerebrovascular implications are in this Symposium on head and neck surgery.

Mount Sinai Journal of Medicine, New York 40:72-81 (Jan-Feb) 1973

In this issue are several articles related to different treatments (conservative, induced hypotensive, and surgical) of intracranial aneurysms.


Abstracts of papers from a Symposium presented at McMaster University Medical Center, Hamilton, Ontario, October 16 to 18, 1972.
Abstracts

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