Abstracts

AB-1889-75
Lipid Cerebrospinal Fluid in a Patient With Cerebral Hemorrhage — Younes F, Just R, Ranganath KA, Tourettafe WW (Neurology Service, VA Wadsworth Hospital Center, Los Angeles, California 90073) — Neurology 24:701-703 (July) 1974*

A 52-year-old man with a history of hypercholesterolemia was hospitalized because of the sudden onset of stupor and hemiplegia. The spinal fluid had a milky appearance and lipoprotein electrophoresis revealed increased lipid content. The presence of lipids in the cerebrospinal fluid in large amounts was assumed to be secondary to a cerebral hemorrhage that at autopsy was dissecting into the ventricular system. To our knowledge no such finding has been reported previously.

AB-1890-75

Light and electron microscopy and trypsin digestion were carried out on the retina of a 50-year-old woman with known hemoglobin SC disease. Retinal vascular occlusions were thought to be the initiating event in the histopathogenesis of her SC retinopathy. The occlusions occurred in the equatorial region of the retina, in the area where proliferative retinopathy subsequently developed. The distal portions of the retinal vessels were occluded. Fat emboli found in multiple retinal vessels were thought to be a terminal event and not to contribute to the development of the retinopathy. No fat was found in retinal blood vessels anterior to the erythrocyte-containing area (anterior to midway between the equator and ora serrata), showing that there was no blood flow through that anterior (distal) part of the retinal blood vessels.

AB-1891-75
Immunological Enhancement of Atherogenesis in Rabbits. Persistent Susceptibility to Atherogenic Diet Following Experimentally Induced Serum Sickness — Lamberson HV Jr, Fritz KE (Veterans Administration Hospital, Albany, New York 12208) — Arch Path 98:9-16 (July) 1974*

Persistent enhanced susceptibility to a brief exposure to atherogenic diet was demonstrated in rabbits following a single injection of a highly purified heterologous serum protein. Increased aortic sudanophilia in a pattern of highly focal, sharply delimited, intensely staining lesions throughout the aorta resulted, whether the diet was initiated two or four weeks after the immune insult. Microscopically, the lesions resulting from the combined regimen differed from those resulting from diet alone in their greater degree of proliferation of cells, deposition of lipid, disruption of elastic tissue, and medial involvement. Since immune complexes are key components of both this model and various human diseases, either overt or subclinical, it is suggested that perhaps even brief episodes of low levels of immune complexes, in the presence of elevated serum lipid levels, may play a role in human atherogenesis.

AB-1892-75
Angioendotheliomatosis of the Central Nervous System — Bots GThAM (Department of Neuropathology, Pathology Laboratory, University of Leyden, the Netherlands) — Acta Neuropath (Berlin) 28:73-78, 1974 (Springer-Verlag, publisher)*

A case of angioendotheliomatosis is described in which the neoplastic proliferation of the vascular endothelium was restricted to the central nervous system. Although the process resembled a malignant tumor, neoplastic growth did not occur outside the blood vessels. The process was accompanied by a chronic inflammatory reaction in and around the blood vessels.

AB-1893-75
Myonecrosis in Chronic Experimental Vasospasm — Alksne JF (Division of Neurological Surgery, University of California, San Diego, California 92110) — Surgery 76:1-7 (July) 1974*

The word “vasospasm” may be a misnomer: vasonecrosis is revealed by electron microscopy. Preventive measures based on this hypothesis may be more effective in controlling vasospasm than therapeutic measures applied after the damage has occurred.

AB-1894-75
Techniques of Ocular Pulse Analysis in Carotid Stenosis — Best M (New York Medical College, Center for Chronic Diseases, Bird S. Coler Hospital, Roosevelt Island, New York, New York 10017), Rogers R — Arch Ophthal 92:54-58 (July) 1974*

Two methods of wave form analysis were studied to compare their sensitivity and specificity in detecting the effect of unilateral common carotid artery stenosis on the ipsilateral ocular pulse in the rabbit. The first method, using standard graphic analytical techniques to detect alterations in pulse amplitude and area, was capable of detecting lesions that produced 50% or more stenosis of the carotid artery. In the second method, the ocular pulse was subjected to Fourier analysis which determined the first three harmonics. This method of analysis was capable of detecting as little as 20% stenosis of the carotid artery and was therefore the more sensitive of the two techniques of wave form analysis.

AB-1895-75
The Use of Anticoagulants in Bacterial Endocarditis — Kanis JA (Royal Infirmary of Edinburgh, Scotland) — Postgrad Med J 50:312-313 (May) 1974*

Early experience in the treatment of bacterial endocarditis with penicillin suggested that the addition of anticoagulants

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might improve results. This paper reports a patient with bacterial endocarditis who died from embolic cerebral damage after initiation of treatment with heparin. The evidence suggests that anticoagulants were responsible for her death and that bacterial endocarditis is a relative contraindication to anticoagulant therapy.

**AB-1896-75**


Giant cell (senile, temporal or cranial) arteritis occurs three times more frequently in women and the majority of patients are over 70 years of age. This series of 47 patients presented with visual symptoms and most also had a constitutional upset. The ocular signs were of ischemic papillopathy (in 80%), which was unilateral in 61% and bilateral in 17%; or central retinal artery occlusion (13%). The ESR was always elevated above 40 mm, and in 28% it was above 100 mm. The main ophthalmic differential diagnosis was to determine whether it was arteritic or atherosclerotic ischemic papillopathy in this age group, and principal differences are outlined. Following corticosteroid therapy, vision improved in 23%, remained unchanged in 64% and deteriorated in 13% of patients. Visual deterioration predominated in elderly women who received steroids late in the course of the disorder. Early steroid therapy is recommended in elderly patients with visual symptoms and significantly raised ESRs.

**AB-1897-75**

**Mural Platelet Microthrombi and Major Acute Lesions of Main Epicardial Arteries in Sudden Coronary Death** — Haarem JW (Ullevål Hospital, Krogstøtten, Oslo 1, Norway) — *Atherosclerosis* 19:529-541 (May-June) 1974*

The coronary arteries of 47 sudden coronary death patients and 34 control patients were examined postmortem in order to analyze pathogenetic factors of sudden coronary death.

Mural platelet microthrombi prevailed in patients who had died suddenly and unexpectedly of coronary disease, and more in those who had died some minutes after onset of symptoms than in those who had died instantly. It is suggested that reactive platelets might be of pathogenetic importance in sudden coronary death. Reactive platelets would form mural platelet microthrombi, and, as described in previous reports, platelet aggregates in the coronary vessels. Myocardial ischemia caused by occlusive platelet aggregates in intramyocardial vessels could result in sudden death.

In 32 sudden death patients the larger coronary arteries supplying the sinus- and atrioventricular nodes were examined for acute major lesions (thrombi, ruptures of necrotic plaques, occlusive intimal hemorrhages, and emboli). In 12 patients a major acute lesion upstream to one or both of the conduction nodes was observed. It was concluded that acute major lesions in the larger arteries supplying the sinus- or atrioventricular nodes could be a cause of sudden coronary death, but did not appear to predominate as a cause of sudden death.

**AB-1898-75**

**Effect of Nicotine on Human Blood Platelet Aggregation** — Brinson K (Department of Nuclear Medicine, Royal Marsden Hospital, Downs Road, Sutton, Surrey, Great Britain) — *Atherosclerosis* 20:137-140 (July-Aug) 1974*

Nicotine did not induce platelet aggregation nor potentiate ADP-induced aggregation in human citrated platelet-rich plasma. Nicotine reversed ADP-induced aggregation, the effect of nicotine was potentiated by isoprenaline and theophylline and inhibited by adrenaline. The effect of adrenaline was inhibited by phenolamine, the effect of isoprenaline was inhibited by propranolol.

**AB-1899-75**

**The Gross and Histologic Appearance and the Lipid Composition of Normal Intima and Lesions From Human Coronary Arteries and Aorta** — Panganamala RV, Geer JC (Department of Physiological Chemistry and Pathology, The Ohio State University, Columbus, Ohio 43210), Sharma HM, Cornwell DG — *Atherosclerosis* 20:93-104 (July-Aug) 1974*

Normal intima tissue and individual lesions from coronary arteries and aorta were obtained at autopsy and three plaques were obtained from carotid endarterectomies. Normal-appearing intima and lesions were analyzed individually for lipid content and composition. Lesions were classified histologically on the basis of localization of lipid in the intima and in the case of plaque lesions the presence of a fibromuscular cap or zone beneath the endothelium. The lipid composition of each histologic type was determined.

Normal intima tissue and individual lesions from coronary arteries and aorta did not differ in absolute or relative triglyceride content. The relative triglyceride content of lesions from both anatomic sites decreased with the development of atherosclerosis.

Intracellular lipid lesions and foam cell lesions had the same total and relative lipid composition. The absolute amount and the relative amount of cholesteryl ester increased when these lesions were compared with normal intima (perifibrous lipid).

Fibrous plaques were divided into a group containing the same amount of total lipid as normal tissue, a group containing the same amount of total lipid as foam cell fatty streaks, and a group containing much more total lipid than foam cell fatty streaks. The absolute amount and the relative amount of cholesteryl ester were increased when fibrous plaques were compared with normal intima but were not increased when fibrous plaques were compared with intracellular lipid lesions and foam cell lesions (fatty streaks). The relative amount of free cholesterol was increased when fibrous plaques were compared with both normal intima and foam cell lesions but not intracellular lipid lesions. We suggest that the formation of fibrous plaques does not correlate with either a progressive increment in total lipid or a progressive change in relative lipid composition.

**AB-1900-75**

**Proatlantal Intersegmental Artery** — Bloch S (Department of Radiology, Princess Nursing Home, Hillbrow,
ABSTRACTS

Johannesburg, Republic of South Africa), Danziger J — Neuroradiology 7:5-8, 1974*  
Persistent proatlantal intersegmental artery, a rare form of carotico basilar anastomosis, is described. The literature is reviewed.

AB-1901-75  
Clinical Angiographic Correlations in Amaurosis Fugax — Sandok BA† (Clinical Cerebrovascular Research Center, Mayo Clinic, Rochester, Minnesota 55901), Trautmann JC, Ramirez-Lassepas M, Sundt TM Jr, Houser OW — Amer J Ophthal 78:137-142 (July) 1974*

Of 1,080 patients studied by carotid angiography, 43 experienced unilateral amaurosis fugax. Of these 43 patients, 42 had significant occlusive disease of the ipsilateral common carotid or extracranial (or both) portion of the internal carotid artery; 12 (28%) had occlusion, and 30 (70%) had significant stenosis. Amaurosis fugax is a significant symptom of carotid occlusive disease affecting the extracranial portion of the carotid artery when it occurs in patients 50 years old or older in association with either transient or permanent cerebral symptoms or signs, carotid bruit, reduced retinal artery pressures, or retinal embolic signs. Embolization from an atheromatous plaque within this vessel is postulated as the pathophysiologic mechanism for amaurosis fugax in most of these patients.

AB-1902-75  
Occlusion of the Middle Cerebral Artery With the Formation of an Abnormal Arterial Collateral System — Moyamoya Type — 23 Months Later — Zülich KJ (Max-Planck-Institut für Hirnforschung, Abt. für Allgemeine Neurologie, D-5000 Köln 91 [Merheim] Ostheimerstr Str. 200, Federal Republic of Germany), Dressbach HA, Eschbach O — Neuroradiology 7:19-24, 1974*

The case of a 52-year-old white female is presented in whom the first carotid angiogram showed a stenosis of the carotid siphon and an occlusion of most branches of the Sylvian group. The lenticulostriate arteries were patent. Twenty-three months later the angiogram of the major arteries was similar with the exception of nonfilling of the anterior cerebral artery. Moreover, the lenticulostriate arteries were replaced by bundles of larger corkscrew-like (Moyamoya) arteries that run from the base into the centrum semiovale, where they connect with the parieto-occipital cortical supply. This case proves the acquired formation of such systems typical of Moyamoya disease and is discussed in detail.

AB-1903-75  
Angiography in Brain Death — Bradac GB (Neuroradiological Section of the Department of Radiology, Klinikum Steglitz, Free University of Berlin, Berlin, Germany), Simon RS — Neuroradiology 7:25-28, 1974*

The angiographic findings in patients with brain death are described. The authors believe that aortic arch angiography is the most suitable radiological technique in the diagnosis of brain death.

AB-1904-75  
Erosion of Cervical Vertebrae Caused by Elongated and Tortuous Vertebral Arteries — Hyppä, SE, Lassonen EM, Halonen V (The Roentgen Departments, Oulu University and Helsinki University, Finland) — Neuroradiology 7:49-51, 1974*

Erosions, caused by a vertebral artery loop, of the pedicles and vertebral bodies in the area of C3-C6 were found in nine patients, in a total of 12 intervertebral spaces. Two of the cases in which the changes seen in plain radiographs were considered bilateral were confirmed by angiography of the aortic arch. A tortuous vertebral artery sometimes produces symptoms provoked by nerve root compression. To keep this differential diagnosis in mind is at least equally important when a tumor enlarging the foramen is suspected.

AB-1905-75  
Artifactual Absence of the Vertebral Artery: A Previously Unrecorded Phenomenon of Axillary Catheterization — Moseley IF, Sondheimer FK (Department of Radiology, Mount Zion Hospital and Medical Center, San Francisco, California) — Neuroradiology 7:45-47, 1974*

Failure to visualize the vertebral artery on the side of the introduction of a catheter into the axillary artery is described. This is thought to represent a technical artifact, probably due to trauma during catheterization.

AB-1906-75  
Spontaneous Recanalization of Internal Carotid Artery Occlusions — Sindermann F (Sektion Neuroradiologie der Universität, D-7900 Ulm Steinhövelstr. 9, Federal Republic of Germany), Brügel R, Giedke H — Neuroradiology 7:53-56, 1974*

Three instances of spontaneous recanalization of internal carotid artery occlusion are presented. In the first, extensive extracranial and intracranial lesions including severe stenoses and prestenotic aneurysmatic dilatation were demonstrated by angiography. Gradual disappearance of these alterations was shown by control angiograms. In the second and third instances, complete or practically complete occlusions of the supraclinoid portion were found. Control angiograms showed complete recanalization which, in one of these cases, had occurred at least one year after the stroke.

AB-1907-75  
Occipital Dural Arteriovenous Malformations — Urdanibia JF (Section of Neuroradiology, National Social Security Department of Neurosurgery, Residencia Sanitaria La Paz, Madrid, Spain), Silvela J, Soto M — Neuroradiology 7:57-64, 1974*

The angiographic features of four occipital dural arteriovenous malformations are presented. Special attention is directed to their blood supply from cervical branches of the subclavian artery and to their venous drainage.

AB-1908-75  
The Internal Cerebral Vein: Normal and Pathological Variations in Position and Configuration — Wolfert SM (Department of Radiology, Tufts-New England Medical Center Hospital, Boston, Massachusetts), New PFJ, Barrett PJ — Neuroradiology 7:65-73, 1974*

The wide anatomical range of normal variations in the internal cerebral vein can cause difficulty in diagnostic evalu-
tion in some cases. Accordingly, a series of measurements of the position and configuration of the internal cerebral vein in the velum interpositum were derived as aids to diagnosis. The conditions considered were those causing ventricular enlargement without lateral dislocation of midline structures. The study reveals the usefulness of measurements in evaluating the configuration of the internal cerebral vein in certain conditions.

**AB-1909-75**
Radiographic Anatomy of Normal Cerebral Deep Medullary Veins: Criteria for Distinguishing Them from Their Abnormal Counterparts — Hooshmand I, Rosenbaum AE (Department of Radiology, Harvard Medical School, Boston, Massachusetts 02115), Stein RL — Neuroradiology 7:75-84, 1974*

The angiographic demonstration per se of cerebral deep medullary veins does not necessarily indicate abnormality. Their visualization, under normal conditions, depends on the selectivity of injection, the quality of radiographic imaging, and the quantity of contrast material injected. Normal deep medullary veins were recognized in the late venous phase of two-thirds of normal selective internal carotid angiographies; their location most often was adjacent to the atrium and posterior body of the lateral ventricle. Normal and abnormal deep medullary veins can be differentiated in terms of appearance-time, caliber, length and regional distribution.

**AB-1910-75**
Effects of Angiographic Contrast Media on Regional Cerebral Blood Flow and Haemodynamics in Man — Herschert H (Krankenhaus Nordwest, Neurologische Klinik, Steinbacher Hohl 2-26, D-6000 Frankfurt a.M. 90, Federal Republic of Germany), Gleim F, Schmidt H — Neuroradiology 7:95-103, 1974*

In 33 human subjects with a sound circulatory system regional cerebral blood flow changes, following intracarotid injection of sodium methylglucamine diatrizoate (Angiografin, Urografin 76%) during cerebral angiography, were investigated. Angiografin*, at the start of recording one and three minutes after intracarotid injection, caused an increase of rCBF of 15.7% and 7.8% respectively. Urografin*, three minutes after completion of intracarotid injection, brought about an increase of rCBF of 23%. Under the action of both x-ray radiopaque materials at the start of rCBF measurement, five and eight minutes after completed intracarotid injection, there no longer was a significant difference from the resting values. Changes in hemodynamics (blood pressure, pulse rate) during carotid cerebral angiography with sodium-methylglucamine diatrizoate (Angiografin, Urografin 76%) were not observed in this study.

**AB-1911-75**
Blood-Brain Barrier Dysfunction in Acute Arterial Hypertension Induced by Clamping of the Thoracic Aorta — Johansson B (Department of Neurology, Sahlgren Hospital, S-413 45 Göteborg, Sweden), Linder L-E — Acta Neurol Scand 50:360-365, 1974*

Acute experimental hypertension induced by clamping of the thoracic aorta resulted in blood-brain barrier dysfunc-

*Authors' abstract.

**AB-1912-75**
Regional Cerebral Blood Flow in Acute Experimental Hypertension — Johansson B (Department of Neurology, Sahlgren Hospital, S-413 45 Göteborg, Sweden) — Acta Neurol Scand 50:366-372, 1974*

II-ethanol and II-L-antipyrine, freely diffusible substances that distribute in brain in proportion to blood flow, were used to indicate regional flow differences in cats with metaraminol-induced acute hypertension. Areas with blood-brain barrier dysfunction as indicated with Evans blue or sodium fluorescein extravasation had higher flow than non-damaged areas suggesting a local failure of autoregulation. The results contradict the theory of vasospasm and ischemia as the cause of permeability changes in acute hypertension but are consistent with the hypothesis that the vessels are mechanically damaged by the high intraluminal pressure.

**AB-1913-75**
Balloon Catheterization and Occlusion of Major Cerebral Vessels — Serbinenko FA (N. N. Burdenko Institute for Scientific Research in Neurosurgery, USSR Academy of Medical Sciences, Moscow, USSR) — J Neurosurg 41:125-145 (Aug) 1974*

A balloon catheter technique for catheterization of human cerebral blood vessels is described. Temporary occlusion of different cerebral vessels was successfully accomplished in more than 300 cases, including investigations of collateral blood flow, intra-arterial pressure, brain temperature, the vital staining of tumors, and the introduction of chemical agents. Temporary occlusion of the internal carotid artery makes possible angiography of the external carotid, while occlusion of separate branches of the external carotid permits selective angiography of its functioning branches. The balloon catheter is valuable in investigating arteriovenous and carotid-cavernous fistulas. With the help of a detachable balloon it is possible to occlude the cavity of arterial aneurysms or the afferent vessels of arteriovenous aneurysms; it is also useful as a means to shut off the blood flow to arterial aneurysms and carotid-cavernous fistulas when access is difficult. A method for reconstruction of the cavernous part of the carotid artery in cases of carotid-cavernous fistulas is described.

**AB-1914-75**
Effect of Experimental Ischemia on Cerebral Water and Electrolytes — Shibata S, Hodge CP, Pappius HM (Montreal Neurological Institute, Montreal H3A 2B4, Quebec, Canada) — J Neurosurg 41:146-159 (Aug) 1974*

In dogs, while the middle cerebral artery (MCA) was clipped, an apparent ischemia was demonstrated with fluorescein angiography when the dye was injected through the lingual artery. Injection of fluorescein into the femoral artery or perfusion of carbon black particles through the heart demonstrated considerable collateral blood supply to the affected area. Water, sodium, and potassium content of cerebral tissues normally supplied by the occluded artery...
remained unchanged. At 48 hours after clipping, focal areas of infarction developed in 70% of the animals; edema could then be demonstrated in tissue surrounding the infarction. The collateral blood supply was compromised by subjecting the dogs with clipped MCA to hemorrhagic hypotension for one hour. Following restoration of the systemic blood pressure by infusion of the shed blood, an area of ischemia in the territory normally supplied by the clipped artery could be easily demarcated by fluorescein angiography through the femoral and lingual arteries and by carbon perfusion. The involved cerebral cortex tissue showed marked changes that started immediately after restoration of the blood pressure, and which consisted of a fall in percentage dry weight and potassium content and an increase in sodium content. These findings were clearly correlated with gross and histological evidence of massive necrosis and were interpreted as indicating cell death rather than tissue swelling. In the underlying white matter, moderate delayed changes in water and electrolyte content were compatible with the development of vasogenic edema.

*Authors' abstract.

ABSTRACTS

Intraocular and Optic Nerve Sheath Hemorrhage in Cases of Sudden Intracranial Hypertension — Muller PJ, Deck JHN (Department of Pathology, Toronto Western Hospital, Toronto, Ontario, Canada) — J Neurosurg 41:160-166 (Aug) 1974*

The eyes of 23 patients with sudden intracranial hypertension were studied at postmortem. Intraocular hemorrhage had occurred in 37% and optic nerve sheath hemorrhage in 87%. Expansion of the optic nerve sheath, particularly the fusiform retrolubar portion, was a consistent finding. The subdural space of the optic nerve sheath bore the brunt of the hemorrhage which sometimes communicated with perivascular intradural hemorrhages. Optic nerve sheath hemorrhage is shown to result from rupture of dural and bridging vessels of the optic nerve sheath; this we conclude is subsequent to optic nerve sheath dilatation caused by the transmission of intracranial pressure through the subarachnoid communication between the optic nerve sheath and the intracranial cavity. Intraocular hemorrhage is the result of retinal venous hypertension and rupture brought on by obstruction of both the central retinal vein and the retinchoroidal anastomosis.

Vitreous Hemorrhages and Sudden Increased Intracranial Pressure — Vanderlinden RG (Department of Neurosurgery, Toronto Western Hospital, Toronto, Ontario, Canada), Chisholm LD — J Neurosurg 41:167-176 (Aug) 1974*

Six cases of bilateral hemorrhage into the vitreous body related to intracranial hypertension are presented. Four were associated with ruptured cerebral aneurysms, and the others followed head injury. The onset of vitreous hemorrhage was delayed in all cases, and in five patients subhyaloid hemorrhages were present from 2 to 27 days prior to their extension into the vitreous. Visual acuity was greatly reduced. The ophthalmoscopic and slit lamp appearances of the vitreous are described. The hemorrhages usually cleared spontaneously within 24 months, and vision returned to normal. Surgical treatment to remove residual vitreous blood in selected cases is outlined.

Experimental Intracerebral Hematoma. Reduction of Oxygen Tension in Brain and Cerebrospinal Fluid — Sussman BJ (Division of Neurological Surgery, Howard University College of Medicine, Washington, D.C. 20001), Barber JB, Goald H — J Neurosurg 41:177-186 (Aug) 1974*

Intracerebral hematoma was simulated in 16 dogs. Oxygen tension was measured in the adjacent cerebral parenchyma, fourth ventricle, and cisternal subarachnoid space by both microelectrode and sampling techniques in the course of four different studies. Determinations of intracranial pressure and the pO2 and PCO2 of arterial blood and cerebrospinal fluid (CSF) were made. Reductions of oxygen tension were encountered uniformly, in both brain parenchyma and CSF, following the induction of intracerebral hematomas. There was an associated acidosis in the CSF compartment. The findings cannot be explained on the basis of increased intracranial pressure or reduced cerebral perfusion. The acidosis may be related to the metabolic effects of blood as well as tissue hypoxia. The changes suggest additional reasons for the evacuation of intracerebral hematomas in man.

Effect of Drugs on Experimental Brain Edema in Mice — Nelson SR (Department of Pharmacology, Kansas University Medical Center, Kansas City, Kansas 66103) — J Neurosurg 41:193-199 (Aug) 1974*

Cold-induced hemorrhagic infarcts in mice caused a spreading decrease in tissue specific gravity around the lesion; the decrease in tissue density represents an increase in edema fluid. The maximum decrease in density in most brain areas had occurred by six hours. This time period was used to evaluate the effect of nine drugs on brain edema. Two agents increased edema formation: hexamethonium and meraluride. Metaraminol, cortisone, hydrocortisone, acetazolamide, and dextran did not significantly alter edema formation. Only in the phenoxybenzamine- and urea-treated mice was brain edema less than in the control mice.

Complete His-Purkinje Block Produced by Carotid Sinus Massage. Report of a Case — Jonas EA, Kosowsky BD (St. Elizabeth's Hospital, Boston, Massachusetts 02135), Ramaswamy K — Circulation 50:192-197 (July) 1974*

A case of complete heart block (CHB), localized in the His-Purkinje system, induced by carotid sinus massage (CSM) is presented. A 63-year-old male with right bundle branch block and left anterior hemiblock was evaluated for recurrent syncope. Right or left CSM produced brief periods of CHB with presyncopal symptoms. His bundle (HB) studies during normal sinus rhythm revealed normal conduction times (A-H interval = 80 msec; H-V interval = 48 msec). Carotid sinus massage produced progressive slowing of the sinus rate, and complete heart block below the HB occurred whenever the sinus rate fell below 42 beats per minute. During atrial pacing at 70 beats per minute, CSM produced 2:1 block above the HB with an effective rate to
the HB of 35 and complete block below the HB. Atrial pacing at rates above 93 beats per minute resulted in 2:1 block below the HB. Administration of intravenous atropine produced an apparent junctional tachycardia with 2:1 block below the HB. Thus, complete heart block related to both bradycardia (phase 4) and tachycardia (phase 3) was demonstrated. The complete heart block induced by CSM was thought to be secondary to bradycardia-induced left posterior fascicular or intra-His block. However, the possibility of a direct vagal effect on ventricular conduction could not be ruled out.

AB-1920-75
Cerebral Blood Flow in Acute Hypertension — Dinsdale HB (Division of Neurology, 82 Barrie Street, Kingston, K7L 3J8, Canada), Robertson DM, Haas RA — Arch Neurol 31:80-87 (Aug) 1974*

Cerebral blood flow (CBF) was measured in rabbits subject to acute hypertension produced by angiotensin infusion. Hypertension led to cerebral hyperperfusion at the time of maximum systolic blood pressure (MSBP) with hypoperfusion five minutes post-MSBP. Focal cortical areas of greatly decreased flow were found at MSBP and up to 60 minutes post-MSBP. One to three loci were located centrally in arterial boundary zones, were confined to cortex, and were usually larger than the territory supplied by a single penetrating cortical arteriole. Angiotensin infused into carotid arteries had no direct effect on CBF. Passive vasodilation and intense vasoconstriction may coexist and breakdown of the blood-brain barrier may result from vasoconstriction rather than passive vasodilation. Locations of ischemic lesions in arterial boundary zones remain unexplained but may reflect an unusual degree of reactivity of vessels in those regions.

AB-1921-75
Multi-Infarct Dementia. A Cause of Mental Deterioration in the Elderly — Hachinski VC (Stroke Unit, Sunnybrook Hospital, University of Toronto, Toronto, Ontario M4N 3M5, Canada), Lassen NA, Marshall J — Lancet 2:207-210 (July 27) 1974*

The typical, insidious, slowly progressive dementia of old age (primary senile dementia) is not due to atherosclerosis. Most cases show Alzheimer-like degeneration of the brain at necropsy. There is no relationship between these parenchymal degenerative changes and arterial disease; hence the term "cerebral atherosclerosis" as applied to mental deterioration in the elderly is misleading and inaccurate.

When vascular disease is responsible for dementia it is through the occurrence of multiple small or large cerebral infarcts (multi-infarct dementia). The investigation and precise diagnosis of all cases of dementia allow a more accurate prognosis and more rational management of the significant number of cases in which dementia is due to treatable conditions.

AB-1922-75

Regional cerebral blood flow was measured by injection of 133Xenon into the internal carotid artery in 11 patients with cerebrovascular disease. All patients were studied under general anesthesia, first at normocapnia and then at hypocapnia. The 15-minute isotope clearance curves were analyzed by computer by two-compartmental analysis and regional changes in flow and the proportions of fast and slow clearing tissue obtained at two levels of arterial CO2 tension. Hypocapnia caused a fall in blood flow which was consistently accompanied by a decrease in the proportion of fast clearing tissue. Regional changes were not significantly different from the hemisphere mean changes. There was no correlation between changes in blood flow through gray matter and the proportion of fast clearing tissue on a hemisphere mean basis, but on regional analysis the data from 10 out of the 11 patients showed that in areas where blood flow through gray matter changed most the proportion of fast clearing tissue changed least and vice versa. A hypothesis has been proposed to explain this phenomenon.

AB-1923-75

In a study on the prognostic significance of catecholamine-linked ECG changes in 40 cases of subarachnoid hemorrhage, there were 16 men of mean age 41 years (range 13 to 56) and 24 women of mean age 42 years (range 11 to 65). There were six deaths, and five of these patients had consistently abnormal ECGs. Analysis of the abnormal components of ECGs revealed that the presence of either a pathological Q wave or a raised S-T segment indicated a poor prognosis. The two patients with pathological Q waves both died, and the three patients with raised S-T segments all developed cerebral arterial spasm, one of whom died. A high incidence of peaked P waves, short P-R intervals, a long Q-Tc, and tall U waves occurred in the ECGs of six patients who died, the 15 patients with cerebral arterial spasm, and the seven patients who were later to develop cerebral arterial spasm. Three of the latter eventually died, in contrast with the single death in the 22 patients who did not develop cerebral arterial spasm and had a low incidence of P wave peaking, short P-R intervals, a long Q-Tc, and tall U waves. Various combinations of these four ECG changes, in addition to peaking of the T wave, indicated a bad prognosis irrespective of the type of treatment. The criteria for prognosis on the rate of catecholamines in causing the ECG abnormalities are discussed.

AB-1924-75
Pulmonary Edema and Hemorrhage as a Consequence of Systemic Vasocostriction — Chen Hl, Chai CY (Department of Biophysics and Kohlberg Memorial Medical Research Laboratory, National Defense Medical Center, and Department of Medical Research, Veterans General Hospital, Taipei, Taiwan, Republic of China) — Amer J Physiol 227:144-151 (July) 1974*

In anesthetized rats, intravenous injection of epinephrine, norepinephrine, angiotensin, and vasopressin produced

*Authors' abstract.
pulmonary edema and hemorrhage (PEH) similar to those induced by cerebral compression. The degree of PEH was correlated with the extent of pulmonary venous hypertension. Vagotomy did not affect the PEH subsequent to cerebral compression, but augmented the severity of PEH following the vasoconstrictive agents. Systemic injection of autacoids, i.e., histamine or bradykinin, did not produce PEH, but serotonin evoked moderate hypertension and PEH. Local administration of the vasoconstrictors of autacoids into the lesser circulation of the heart-lung preparation did not evoke discernible lung changes. Sympatholytic agents such as hexamethonium, pentolinium, reserpine, phentolamine, and phenoxbenzamine that could eliminate or diminish the vasomotor action completely prevented the PEH by cerebral compression. Phenoxbenzamine also effectively prevented the PEH induced by catecholamines. It exerted only partial protection against PEH induced by angiotensin, but had no effect on that induced by vasopressin. These data suggest that generalized but not pulmonary vasoconstriction is important for the genesis of PEH.

AB-1925-75

Carotid artery imaging by a noninvasive technic is available with the use of a sharply focusing Doppler probe linked electronically to a position-sensing arm for picture recording. With this technic the configuration and flow patterns through the carotid bifurcation can be accurately determined for screening patients who are prone to transient ischemic attacks and strokes.

AB-1926-75
Long-Term Results of Carotid Artery Surgery for Cerebrovascular Insufficiency — Chung WB (Department of Surgery, Vancouver General Hospital, Vancouver 9, British Columbia) — Amer J Surg 128:262-268 (Aug) 1974*

The objective of carotid artery surgery is mainly prophylaxis. To achieve acceptable results in morbidity and mortality, care must be taken in patient selection, operative technic, and anesthesia. In long-term follow-up study, the quantity of life is no better than the natural history of the disease, but the quality of life is improved.

AB-1927-75
Venous Thrombosis in Infants and Children — Scotti LN, Goldman RL, Hardman DR, Heinz ER (Department of Radiology, Presbyterian-University Hospital, University of Pittsburgh School of Medicine, Pittsburgh, Pennsylvania) — Radiology 112:393-399 (Aug) 1974*

Venous thrombosis presents with a wide spectrum of clinical manifestations, including seizures, subarachnoid hemorrhage, acute neurologic deficit, pseudo-tumor cerebri, and cerebrovascular accidents. Eight cases are presented; only three patients had predisposing illnesses. Radiographic venous abnormalities include an occluded sinus; visualization of enlarged or prominent collateral venous pathways; delayed venous emptying, both regional and general; reversal of normal venous flow; and abnormal cortical veins. Diagnosis can be made by analysis of the venous phase of the cerebral angiogram, particularly with use of subtraction techniques. Jugular venography is sometimes necessary.

AB-1928-75
End-to-Side Anastomosis of Superficial Temporal Artery to Middle Cerebral Artery Branch in the Dog — Crowell RM (Neurosurgical Service, Massachusetts General Hospital, Boston, Massachusetts 02114), Yasargil MG — Neurochirurgia 16:73-77 (May) 1973 (Georg Thieme Verlag, publisher)*

Extracranial-intracranial arterial shunting procedures may augment collateral blood supply to the brain. Evaluation of the effect of such shunting procedures on the course of occlusive cerebrovascular disease has been impaired by the absence of a suitable experimental model. The present report describes the technique of end-to-side anastomosis of superficial temporal artery to middle cerebral branch artery in the dog. Technical maneuvers which have made this procedure feasible are described. The method avoids manipulation (or sacrifice) of lenticulostriate vessels. A 63.6% patency rate was achieved (7 of 11 animals). This experimental model is useful in the evaluation of extracranial-intracranial shunting procedures in the treatment of cerebrovascular disease.

AB-1929-75
Maintenance of the Blood Brain Barrier During Profound Hyperventilation — Martin G (Wellington Hospital, Riddiford Street, Newtown, Wellington 2, Australia) — Neurochirurgia 16:78-79 (May) 1973 (Georg Thieme Verlag, publisher)*

Profound and prolonged hyperventilation has been found not to impair the blood brain barrier and alternative mechanisms of neuronal dysfunction during hyperventilation are suggested.

AB-1930-75
Transient Monocular Amaurosis Due to a Contralateral Cerebral Vascular Malformation — Kosary IZ (Neurosurgical and Ophthalmological Departments, The Chaim Sheba Medical Centre, Tel-Hashomer, Israel), Treister G, Tadmor R — Neurochirurgia 16:127-130 (July) 1973 (Georg Thieme Verlag, publisher)*

A case of recurrent transient monocular blindness is presented, in which an arteriovenous fistula was demonstrated in the opposite cerebral hemisphere. An explanation of the hemodynamic mechanisms is given on the basis of arteriographic findings. Removal of the fistula resulted in cessation of the attacks.

AB-1931-75

The authors report on their first experimental results in...
ABSTRACTS

AB-1932-75
Primary Supratentorial Intracerebral Haematoma Due to Capillary Vascular Malformations (Telangiectasia and Venous Hamartoma Proved in 9 Surgical Cases) — Sindou M (Hôpital Neurologique, 59 boulevard Pinel, 69003 Lyon, France), Peflerkorn J, Fischer G — Neurochirurgia 17:84-90 (May) 1974 (Georg Thieme Verlag, publisher)*

In a personal series of 100 cases treated surgically for spontaneous intracranial supratentorial hematomas, in which the hematomas were not due to hypertension or obvious angiographic lesions, the authors found the causes to be due in 9% to capillary telangiectasia.

In this series these nine malformations were found on histopathology to be due to one venous hamartoma, seven telangiectasiae, and one mixed hamartoma. The diagnosis of these malformations is difficult. In the final analysis it is the youthful age and the neurological picture which point toward the possible diagnosis. These lesions, in view of their nature, are not visible on angiography except under those circumstances where an early draining vein can be seen.

At operation it is frequently difficult to distinguish these telangiectasiae from small petechial hemorrhages, or areas where small clots have formed, since all tend to be situated in the wall of the hematoma. It is thought to be important to take biopsies from many areas.

AB-1933-75
Extreme Tortuosity of the Internal Carotid Artery Associated With Disturbances of Cerebral Blood Supply and Paresis of the Hypoglossal Nerve — Mauersberger W (Neurochirurgische Klinik des Klinikums Westend der Freien Universität, Berlin, Germany) — Neurochirurgia 17:91-95 (May) 1974 (Georg Thieme Verlag, publisher)*

A case is reported of a man who had acute headache, vertigo, a pulse-synchronous roaring, a paresis of the hypoglossus nerve and a paresis of the right arm while working with the upper part of his body bent forward.

The performed arteriographies showed a kinking of the right carotid artery, just before its entrance into the base of the skull. The origin and the clinical importance of those anomalies and the appearance of a paresis of the hypoglossus nerve in this case are discussed.

AB-1934-75
Effect of Digitalis on Carotid Sinus Baroreceptor Activity — Quest JA (Bureau of Drugs, Division of Cardio-Renal Drug Products, Food and Drug Administration, Rockville, Maryland 20852), Gillis RA — Circulation Research 35:247-255 (Aug) 1974*

The effect of intracarotid injections of ouabain (25 μg) or acetylstrophanthin (1.56 μg) on feline carotid sinus baroreceptors was evaluated using an isolated perfused carotid sinus preparation. The effects of the drugs on baroreceptor activity were determined by monitoring carotid sinus nerve activity and systemic arterial blood pressure. Administration of either drug to the isolated carotid sinus region altered the relationship between the change in carotid sinus pressure and the fall in systemic arterial blood pressure. Raising the carotid sinus pressure produced a greater depressor response when digitalis was present (p < 0.05) than when digitalis was absent. These observations indicate that digitalis preparations can directly alter the sensitivity of baroreceptors and produce significant changes in carotid sinus nerve activity and cardiovascular function.

AB-1935-75
Release of Adenosine From Ischemic Brain. Effect on Cerebral Vascular Resistance and Incorporation into Cerebral Adenine Nucleotides — Berne RM (Department of Physiology, University of Virginia School of Medicine, Charlottesville, Virginia 22901), Rubio R, Curnish RR — Circulation Research 35:262-272 (Aug) 1974*

A threefold increase in tissue adenosine levels was produced by ischemia in the dog and the rat brain within one minute; adenosine levels increased further with longer periods of ischemia. Inosine and hypoxanthine were also increased by ischemia but to different degrees. The nucleotides and hypoxanthine appeared in cerebrospinal fluid during ischemia in the dog brain, and incubation of adenosine in normal cerebrospinal fluid failed to show the presence of degradative enzymes. Intra-arterially administered adenosine in the dog and the cat produced little or no increase in cerebral blood flow or the diameter of pial arterioles, respectively, when it was given in amounts that reduced arterial blood pressure. However, when it was applied topically to exposed pial arterioles of the cat, adenosine induced dilation that was roughly proportional to the dose used. When U-C-adenosine was infused into the internal carotid arteries of the dog, no radioactivity was detectable in the cerebrospinal fluid and practically none appeared in the brain tissue. When labeled adenosine was added to dog cerebrospinal fluid, only a few counts appeared in the cerebral venous blood, whereas cerebral tissue was heavily labeled with 64% to 87% of the radioactivity in the form of adenosine nucleotides. In the rat, after intravenous injection of labeled adenosine, the counts per gram of heart were 20- to 30-fold greater than those per gram of brain. These observations indicate that intra-arterially administered adenosine probably fails to cross the blood-brain barrier rapidly enough to influence cerebral blood flow but that it can be released from the ischemic brain into the cerebrospinal fluid and be reincorporated from the cerebrospinal fluid into brain nucleotides. Hence, adenosine...
ABSTRACTS

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AB-1936-75
Angiography of Pontine Hemorrhage — Moscow NP, Margolis MT (Department of Radiology, University of California School of Medicine, San Francisco, California) — Neuroradiology 7:125-127, 1974*

The differentiation between cerebellar and pontine hemorrhage is important for prognostic and therapeutic reasons. Yet this distinction is often difficult to make on clinical grounds alone. Pontine hemorrhage can be located accurately by means of angiography.

AB-1937-75
Meningeal Branch of the Posterior Cerebral Artery — Weinstein M, Stein R, Pollock J, Stucker TB, Newton TH (Department of Radiology, University of California, San Francisco, California 94143), Hoyt WF — Neuroradiology 7:129-131, 1974*

A meningeal branch of the posterior cerebral artery was visualized in three patients. This artery, not previously identified by angiography, supplies the medial aspect of the tenia torium and the posterior segment of the falx cerebri.

AB-1938-75
Unilateral Retinocephalic Vascular Malformations — Théron J, Newton TH (Department of Radiology, University of California, San Francisco, California 94143), Hoyt WF — Neuroradiology 7:185-196, 1974*

Unilateral vascular malformations in the retina, brain, and parts of the face, described clinically by Bonnet, Dechaume, and Blanc (1937) and by Wyburn-Mason (1943), comprise a rare but clinically distinct disorder. A total of 22 cases of retinocephalic vascular malformations have been documented angiographically or at necropsy. This study records clinical and roentgenographic features in three additional patients and reviews the findings in all 25 cases.

AB-1939-75
Carotid Angiography After Experimental Head Injury in the Rat — Ekclund L (Department of Diagnostic Radiology and Brain Research Laboratory, University Hospital, S-221 85 Lund, Sweden), Nilsson B, Pontén U — Neuroradiology 7:209-214, 1974*

Carotid angiography was performed in 11 anesthetized and artificially respired rats before and after infliction of a reproducible but variable occipital head injury. Arterial narrowing of the intracervical and extracervical arteries and slowing of the circulation occurred after trauma and correlated with the impact velocity. Maximal changes were seen within a minute but tended to decrease over 20 to 50 minutes. Possible causative factors for the arterial narrowing were basal subarachnoid hemorrhage, which was an almost constant finding, stretching of the basal vessels due to extreme movement of the cranial spine and sympathetic discharge from the brain stem at the moment of impact. The arterial narrowing possibly explains profound ischemic changes in the brain tissue energy metabolism found in other studies after injury with the same method.

AB-1940-75
Internal Carotid Origins of the Middle Meningeal Artery. The Ophthalmic-Middle Meningeal and Stapedial-Middle Meningeal Arteries — McLennan JE, Rosenbaum AE (Department of Radiology, Harvard Medical School, Boston, Massachusetts 02115), Haughton VM — Neuroradiology 7:265-275, 1974*

The variations and interrelationships between the middle meningeal artery and the ophthalmic and internal carotid arteries are discussed in terms of embryogenesis, roentgen-anatomical correlation and pathological significance. The pathological conditions cited include arterial occlusive disease, regional neoplasms and extradural hematomata. When the ophthalmic artery connection with the middle meningeal artery results in a large meningeal vessel, it is best called the ophthalmic-middle meningeal artery as opposed to the conventional middle meningeal artery. A less frequent variation in the middle meningeal artery origin is one in which this vessel arises from the petrosal portion of the internal carotid artery; this seems best named the stapedial-middle meningeal artery and occurs infrequently when compared with the ophthalmic middle meningeal artery.

AB-1941-75
A New Case of Moyamoya Disease Associated With Several Intracavernous Aneurysms — Debrun G (Département de Neuroradiologie, Hôpital Henri Mondor, F-94010 Créteil, France), Lacour P — Neuroradiology 7:277-282, 1974 (Springer-Verlag, publisher)*

The authors report a case of bilateral stenosis of the supraclinoid carotid arteries in a young man. These stenoses are associated with poor cerebral vasculization, a pseudoangiomatous appearance of the base of the brain and intracavernous aneurysms of the internal carotid arteries. The similarity of the left and right carotid arteriograms obtained at a one-year interval refutes the possibility of arterial spasm due to subarachnoid hemorrhage. The evolution of the patient’s condition with hemiparetic attacks which regressed, the young age of the patient and the aspect of collateral intracranial vasculization led the authors to decide upon a diagnosis of Moyamoya disease as described by Japanese workers, using this term to define an angiographic syndrome rather than a particular clinical anatomical entity. The simultaneous existence of several aneurysms favors the congenital origin of the lesions observed.

AB-1942-75
A Pathomorphological Analysis of So-Called “Spontaneous Occlusion of the Circle of Willis” (Cerebrovascular “Moyamoya” Disease) — Hosoda Y (Department of Pathology, Keio University School of Medicine, Tokyo, Japan) — Brain and Nerve 26:471-481 (Apr) 1974*

A pathomorphological study was made on six autopsy cases which had abnormal cerebrovascular network and occlusion around the circle of Willis especially of the terminal portion of the internal carotid artery. In the terminal portion of the internal carotid artery, marked luminal narrowing occurred by the intimal thickening. Intimal thickening consists of fibrous connective tissue with or without lipid deposition. In general, internal elastic lamina is preserved. In the anterior and middle cerebral artery, stenosis or

*Authors’ abstract.
obstruction due to edematous fibrous thickening of intima were observed. Internal elastic membrane showed marked concentric undulation. The media of the affected arteries was frequently thinned where the severe intimal fibrous thickening was observed.

Numerous dilated blood vessels in the leptomeninges and/or branches of perforating arteries distributing in the basal ganglia may correspond to the abnormal vascular network demonstrated on the cerebral angiogram.

No definite evidence of the congenital origin of the lesion was obtained, whereas several recent changes were recognized at the site of occlusion.

Besides the fibrous thickening of the intima, mural thrombosis may play a part at least in the progression of the stenosis. The causal genesis, however, still remains obscure.

Within the cases which are clinically diagnosed as this disease, various lesions of different etiology may be involved.

ABSTRACTS

AB-1943-75
Experimental Study on the Genesis of Acute Brain Swelling; Neural Control of the Cerebro-Vascular Tone — Matsumoto K (Department of Neurological Surgery, Okayama University Medical School, Okayama, Japan) — Brain and Nerve 26:541-552 (May) 1974*

The acute brain swelling is believed to be caused by the decrease of cerebrovascular tone. For this decrease of the cerebrovascular tone, metabolic factor and/or neural factor may be involved and there are many different opinions as to the relative relationship and the superiority between the two factors, but no definite conclusion has been established yet.

In order to study the degree of involvement by the neural factor in relation to cerebrovascular tone, using 33 dogs, the author placed a needle stereotaxically into the brainstem and hypothalamus and made electrical stimulation and destruction by electrical coagulator. Furthermore the changes in CBF, ICP, BP and EEG by 10% CO₂ inhalation were continuously observed before and after the destruction.

CBF was measured by the double thermistor and ICP by the extradural balloon method.

The results were:

(1) Response of cerebral blood vessels to CO₂ inhalation should be evaluated on the basis of CBF increase as well as cerebral vasodilation in reaction to the CO₂ inhalation. Only when both of them have disappeared should CO₂ response be judged negative.

(2) Even by the destruction of brainstem and hypothalamus, the CO₂ response of the cerebral blood vessels did not disappear even though there were some cases showing a decreasing tendency of the reaction. Therefore, it is believed that the effect of CO₂ on the cerebral blood vessels through the neural mechanism does not play an important role.

(3) Since autoregulation disappeared after the brainstem destruction, it was made clear that neural mechanism in some way is related to autoregulation.

(4) When autoregulation had disappeared after the severe hypoxia or brainstem destruction, in some cases CO₂ response was still positive. Therefore, the disappearance of autoregulation and that of CO₂ response are probably different in nature.

(5) By insertion of a needle into the brainstem and hypothalamus to stimulate or destruct, CBF and ICP increased independently of the BP change and by this, the presence of neural mechanism in the brainstem and hypothalamus, directly influencing the cerebrovascular tone was proved. However, these reactions were transient in nature and none of them developed into acute brain swelling.

AB-1944-75

Arterial fibroplastic lesions involving the extracranial internal carotid and vertebral arteries were encountered among 15 women ranging in age from 21 to 79. Concomitant renal artery dysplasia was noted in five patients, including three with associated lesions involving the celiac or superior mesenteric vessels. Multiple intracranial aneurysms were found in seven patients. Rupture of these aneurysms with subarachnoid hemorrhage occurred in four patients and was the cause of death in three. Cerebral ischemic symptoms in certain instances may result from extracranial cerebrovascular fibrodysplasia. Considerable caution was used in selection of patients for surgery. Graduated intraluminal dilation of the internal carotid artery was performed on five occasions in this series. The pathogenesis of this disease is unknown. Hormonal influences and traction-stretch stresses to the vascular wall are implicated in the evolution of fibroplastic carotid and vertebral artery lesions.

AB-1945-75

Biochemical and fibrinolytic factors that may affect atherogenesis were evaluated in 1,077 subjects. Eight hundred thirty-six (78%) of them, of mean age 60.1 years, were found free of symptoms of atherosclerosis, while 241 (22%) of mean age 63.7 years had definite signs and symptoms of atherosclerosis.

There was a significant depression of the fibrinolytic activity in the atherosclerotic group, and fibrinogen, glucose, cholesterol, and triglyceride levels were also increased. An age-matched comparison was carried out to eliminate the effect of difference between the two groups. The changes in the tested parameters remained significant, but, in addition, coagulation as measured by the activated partial thromboplastin time was significantly prolonged in the age-matched atherosclerotic group.

The results suggest that depressed endogenous fibrinolytic activity and other biochemical changes may be factors in atherogenesis.

AB-1946-75
Transient Alteration of the Blood-Brain Barrier; Effect of Hypertonic Solutions Administered Via Carotid Artery Injection — Studer RK, Welch DM, Siegel BA (510 South Kingshighway Boulevard, St. Louis, Missouri 63110) — Exp Neurol 44:266-273 (Aug) 1974*
Transient increases in the permeability of the blood-brain barrier were observed after the intracarotid administration of hypertonic solutions in rats. The alterations were similar to those described by other investigators, but occurred after less severe cerebral vascular insults. More subtle changes in permeability were identified using sodium-22, than with conventional techniques employing labeled proteins.

**AB-1947-75**

The Turnover of Cholesterol in Human Atherosclerotic Arteries — Jagannathan SN, Connor WE, Baker WH, Bhattacharyya AK (Clinical Research Center, and the Departments of Internal Medicine and Surgery, University of Iowa College of Medicine, Iowa City, Iowa 52242) — J Clin Invest 54:366-377 (Aug) 1974*

These data indicate a definite, though slow, exchange of cholesterol between the plasma and severely atherosclerotic human arteries. Within the atheroma, there are multiple pools of cholesterol, each turning over differently and more slowly than the cholesterol of most other tissues, such as the skeletal muscle. The estimates of influx rate and turnover time of atheroma cholesterol suggest the possibility that this cholesterol is mobilizable, an indication of potential regression of atheromatous lesions in man.

**AB-1948-75**


Apparently healthy men from 30 through 69 years of age, drawn from a random sample of participants in the Tecumseh epidemiological study, were examined under standard conditions in order to determine fasting levels of serum lipid, serum insulin, and blood glucose. Each man ingested 75 gm of glucose, and blood specimens were obtained at 30-minute intervals over a two-hour period for determination of concentrations of blood glucose and serum insulin.

Mean serum triglyceride values were highest in the 40- to 49-year age group, but high values were frequent among individuals in each decade age group. Twenty-seven percent of the 202 men had serum triglyceride concentrations of 200 mg/100 ml or higher.

Chemical diabetes was detected in 7% of all participants. The prevalence increased from 2% among men 30 to 39 years to 11% among the 60- to 69-year-old men. A high proportion of diabetics had abnormal insulin responses as well as impaired glucose tolerance.

**AB-1949-75**

Nonspecificity of Gallium Accumulation: Gallium-67 Concentration in Cerebral Infarction — Reba RC, Poulose KP (Department of Nuclear Medicine, Washington Hospital Center, Washington, D.C. 20010) — Radiology 112:639-641 (Sept) 1974*

Carrier-free gallium-67 citrate has been useful in the detection of a wide variety of soft-tissue malignancies such as lymphomas and carcinomas. This radionuclide was investigated to determine its usefulness in differentiating intracerebral tumor from stroke. A study was done on 12 stroke patients and gallium-67 was found to be nonspecific in its ability to differentiate cerebral infarction from cerebral tumor.

**AB-1950-75**

The Scintigraphic Features of the Occipital Sinus — Go RT (Department of Radiology, Section of Nuclear Medicine, University of Iowa, Iowa City, Iowa), Suzuki Y, Schapiro RL, Christie JH — Radiology 112:635-638 (Sept) 1974*

The occipital sinus could be identified in 190 (76%) of 250 brain scans. A midline single sinus was observed in 163 cases (66%), a double sinus in 17 (7%), and a laterally deviated sinus in 10 (4%). The relative width of the sinus as well as its course and intensity of activity are discussed. Correct diagnosis of posterior fossa lesions requires appreciation of the variability of appearance of the occipital sinus on brain scans. The value of posterior stereoscanning is emphasized.

**AB-1951-75**

Radiation Dose to Eye Lens and Gonads During Transfemoral Cerebral Angiography — Quisling RG, Seegert JF, Gabrielsen TO (Department of Radiology, Neuro-radiology Section, University of Michigan Medical Center, Ann Arbor, Michigan 48104), Kanelitsas C — Radiology 112:715-717 (Sept) 1974*

Ninety-two randomly selected patients undergoing transfemoral cerebral angiography were studied to determine eye lens and gonadal radiation exposures. The mean individual lens exposure was 12.4 rads with a range of 0.5 to 35.5 rads. The mean gonadal exposure was below 0.004 rad for all but one patient. The right eye received a mean dose 28% greater than the left in 82% of cases. The mean lens exposure increased proportionately to the mean number of vessels studied and to the number of films exposed, while the relative contribution of fluoroscopy time was considerably less pronounced. Proper collimation during filming of extracranial studies and lateral projections of intracranial studies, particularly in vertebral angiography, can significantly reduce lens exposure.

**AB-1952-75**


In a series of patients given hydroxychloroquine sulphate by mouth before and after major surgery the incidence of deep venous thrombosis in the legs, as assessed by iodine-125-tagged fibrinogen scanning and venography, was reduced to 5% compared with an incidence of 16% in a similar untreated group of patients.

**AB-1953-75**

Short-Term Prognosis in Cerebrovascular Accidents. Inefficiency of Early Use of a Vasodilator — Viala JJ, Bourrat Ch, Site M (Pavillon N bis, Hôpital Edouard-Herriot, Place d'Arsonval, F 69374 Lyon Cedex 2, France) — Lyon Méd 231:815-819, 1974*

The short-term evolution (eight days) of 150 cerebrovascular accidents showed the gravity of prognosis.
one-third of the patients died, one-third of the patients were being fed intravenously and one-third of the patients could be fed orally. The most important factor of prognosis was the degree of deterioration of consciousness. The use of a vasodilator, prescribed at random, did not improve evolution.

AB-1954-75
Cerebral Infarction: Evolution of Histopathological Changes After Occlusion of a Middle Cerebral Artery in Primates — Garcia JH (Departments of Pathology and Neurology, University of Maryland School of Medicine, Baltimore, Maryland 21201), Kamijyo Y — J Neuropath Exp Neurol 33:408-421 (July) 1974

The right middle cerebral artery of each of 12 squirrel monkeys was occluded 4 mm distal to the bifurcation of the internal carotid artery. The animals were killed at intervals from two and one-half hours to 16 days after the occlusion and coronal sections of the damaged brains were studied. Cellular changes in the neurons, neuropil, and astrocytes were apparent after two and one-half hours. The temporal and anatomical variations in response to the occlusion are discussed.

AB-1955-75
Spontaneous Cerebellar Hematomas — Hollin SA (Department of Neurological Surgery, The Mount Sinai Hospital, New York, New York 10029), Decker RE, Gross SW — Mt Sinai J Med 41:396-406 (May-June) 1974

Excluding cerebellar hematomas associated with hypertension, aneurysms, blood dyscrasias or large (>2 cm) arteriovenous malformations (AVM), the authors report seven patients with “spontaneous” cerebellar hematomas, five of whom were eventually found to have a small AVM. The clinical picture may resemble that of subarachnoid hemorrhage and subsequently had been studied by angiography. Three such patients are presented in whom the identification of the source of bleeding in multiple intracranial aneurysms — Sengupta RP, Lassman LF (Department of Neurological Surgery, Newcastle University Hospitals, Newcastle General Hospital, Newcastle upon Tyne, NE4 6BE, England) — Vase Surg 8:177-183 (May-June) 1974

In patients with subarachnoid hemorrhage and more than one intracranial aneurysm the site of bleeding is sometimes difficult to determine despite angiography, electroencephalography, brain scanning, and pneumoencephalography. Three such patients are presented in whom the initial symptoms gave the best clue to localization of the bleeding site.

AB-1956-75
The Urinary Catecholamine and Plasma Cortisol Levels in Patients With Subarachnoid Haemorrhage — Neil-Dwyer G, Cruickshank J, Stott A, Brice J (Wessex Neurological Centre, Southampton General Hospital, Shirley, Southampton SO9 4XY, and Scarborough Hospital, Scarborough, Yorks, Great Britain) — J Neurol Sci 22:375-382 (July) 1974

Urinary catecholamine (normetanephrine and metanephrine) output and plasma cortisol levels were analyzed in 37 nonhypertensive patients who had a subarachnoid hemorrhage and subsequently had been studied by angiography. Although all the patients had above normal catecholamine and cortisol measurements during the two weeks of observation, an association between high levels of these factors and the patients’ decreased state of consciousness was noted. Also a positive correlation was found between increased catecholamine and cortisol levels and the development of cerebrovascular spasm, even if the initial angiogram did not show spasm.

AB-1957-75
Neurally Evoked Changes of Regional Oxygen Tension and Their Relationship to Regional Electrical Activities and Blood Flow in Rabbit Cerebellum — Fujita Y, Iwama M, Inoue T (Department of Physiology, Nippon Medical School, 1-1-5, Sendagi, Bunkyo-ku, Tokyo, Japan) — Brain Res 74:185-199 (July 12) 1974

Polarographical methods were used to measure oxygen tension in regions of rabbit cerebellum in response to stimulation of the sciatic or vagal nerves, the posterior hypothalamus, or in the region of the fastigial nuclei. Transient (two to six seconds), rhythmic increases in oxygen tension were observed and seemed to be caused by variations in regional blood flow, measured by thermocouple. The rhythmic vascular changes occurred only in gray matter. These rhythmic cerebellar vascular changes did not seem to be the result of variations in blood pressure, vertebral blood flow, or regional electrical activity. The authors suggest that these changes were mediated by vasomotor nerves supplying the cerebellar vessels.

AB-1958-75

Three weeks after a 12-hour episode of transient right hemiparesis in a 38-year-old normotensive man, angiography revealed a defect in the wall of his left internal carotid artery, which at surgery proved to be a region of focal fibromuscular hyperplasia with a subintimal hematoma and thrombosis. No atheroma were found. Renal arteriograms were normal.

AB-1959-75
Identification of the Source of Bleeding in Multiple Intracranial Aneurysms — Sengupta RP, Lassman LF (Department of Neurological Surgery, Newcastle University Hospitals, Newcastle General Hospital, Newcastle upon Tyne, NE4 6BE, England) — Vase Surg 8:177-183 (May-June) 1974

In patients with subarachnoid hemorrhage and more than one intracranial aneurysm the site of bleeding is sometimes difficult to determine despite angiography, electroencephalography, brain scanning, and pneumoencephalography. Three such patients are presented in whom the initial symptoms gave the best clue to localization of the bleeding site.

AB-1960-75

Of the first 500 patients studied with computerized transaxial tomography (EMI scan) at the Mayo Clinic, 114 had neuro-ophthalmological abnormalities, including 45 with homonymous hemianopia and 31 with papilledema. Case reports of several patients with neuro-ophthalmological findings are presented, including those with eventual diagnoses of hemangioma, meningiomas, abscess, astrocytoma, and infarction of various regions of the central nervous system.

AB-1961-75
Vascular Permeability to Protein and Vasogenic
Oedema in Experimental Concussive Injuries to the Canine Spinal Cord — Griffiths IR, Miller R (Department of Veterinary Surgery, University of Glasgow Veterinary School, Bearsden, Glasgow, Great Britain) — J Neurol Sci 22:291-304 (July) 1974

After laminectomies to expose the T-12 and T-13 segments of the spinal cords of dogs (with dura intact), injuries were produced by given weights being dropped certain distances (expressed as gram-centimeter force, GCF) onto the exposed region. Vascular permeability was detected by the injection of Evans-blue labeled albumin (EBA) or fluorescein-labeled albumin (FLA) prior to or at various intervals after the spinal cord injury. The dye was allowed to circulate from five minutes to six hours before the animal was killed. Immediately after a 500 GCF injury leakage of the EBA was found in the central, intermedio-lateral, and dorsal gray matter. Most affected were veins and venules. In the outer white matter the EBA was in the vessel wall and only rarely spread into the neuropil. The EBA reached the pia matter in about six hours. Less extensive leakage was found in cord segments caudal or rostral to the site of trauma. The leakage decreased rapidly after trauma and was minimal by six hours post injury. Injury by 200 GCF produced a similar but less severe pattern of leakage.

AB-1962-75

A 70-year-old woman with polycythemia vera developed disseminated intravascular coagulopathy. Because of the ineffectiveness of heparin therapy for this patient, aspirin therapy was begun with excellent results. However, when gastrointestinal bleeding became apparent, aspirin was stopped and dipyridamole was started; the latter drug also stopped and dipyridamole was started; the latter drug also stopped and dipyridamole was started; the latter drug also

AB-1963-75
Stroke Following Chiropractic Manipulation of the Spine — Miller RG (Department of Neurology, University of California School of Medicine, San Francisco, California 94143), Burton R — JAMA 229:189-190 (July 8) 1974

Two patients, a 52-year-old woman and a 35-year-old man, developed symptoms of vertebrobasilar arterial insufficiency during chiropractic neck manipulation. Further manipulations produced persistent signs and symptoms of neurological lesions in the regions supplied by the vertebrobasilar circulation. The authors suggest that especially patients with severe cervical spondylosis or with symptoms of cerebrovascular insufficiency should avoid such chiropractic treatments.

AB-1964-75
Herpes Zoster Ophthalmicus and Delayed Contralateral Hemiparesis: Relationship of the Syndrome to Central Nervous System Granulomatous Angiitis — Gilbert GJ (Suite D, Plaza Fifth Avenue Building, St. Petersburg, Florida 33713) — JAMA 229:302-304 (July 15) 1974

A 73-year-old man had an episode of amaurosis fugax, followed in a few days by paresthesias and weakness of his left hand and evidence of herpes zoster ophthalmicus of his right eye. A systolic bruit was auscultated over his right eye. His serum varicella-complement fixation titer increased to 1:256. An EEG showed bursts of right temporal lobe delta activity. He initially responded favorably to steroid therapy, but because of a fluctuating clinical course, prednisone was stopped and bilateral carotid angiography was performed. Severe segmental narrowing of the right carotid siphon was demonstrated. He was started on anticoagulant therapy after which he gradually improved. The right carotid bruit disappeared. Other cases of herpes zoster ophthalmicus associated with contralateral hemiparesis have been reported. Some reported cases of granulomatous angiitis were likely caused by the varicella virus also.

AB-1965-75
Effect of Antihypertensive Treatment on Stroke Recurrence — Hypertensive Stroke Cooperative Study Group (S. W. Hoobler, Hypertension Unit, Department of Internal Medicine, University of Michigan Medical Center, Ann Arbor, Michigan 48104) — JAMA 229:409-418 (July 22) 1974

The effect of antihypertensive therapy was studied in 452 hypertensive patients with previous strokes or TIA's. Recumbent blood pressures ranged from 140 to 220 mm Hg systolic and 90 to 115 mm Hg diastolic with an average BP of 167/100 mm Hg. Half the patients received placebo. The mean follow-up period was three years. In contrast to some previous similar studies the treated group did not have a significantly decreased incidence of recurrent strokes. Because 80% of the patients in this study were black, as compared to predominantly white populations in other studies, the authors suggest that some of the contrasting findings in this study may result from differences in race or body habitus. (There were fewer overweight persons in this study as compared to previous surveys also.) Since antihypertensive therapy did reduce the incidence of congestive heart failure in the group studied, but did not increase the risk of stroke, such treatment is recommended even for patients with moderately increased blood pressures.

AB-1966-75

The effect of pregnancy on intracerebral aneurysms and arteriovenous malformations was reviewed in a retrospective study of 146 patients. Pregnancy greatly increased the risk of subarachnoid hemorrhage in patients with AVMs; the greatest risk in these women occurred during periods of changing cardiac output status, e.g., early in pregnancy and during labor and delivery. Caesarean delivery plus subsequent sterilization is suggested for these patients. The adverse effect of pregnancy in patients with aneurysms is less clear-cut, but modified normal delivery methods are suggested. A hormonal rather than a cardiovascular factor may be involved in the increased risk of SAH in pregnant women with aneurysms.

AB-1967-75
Hemiplegic Migraine: Cerebrospinal Fluid Abnormalities — (letter to the Editor) — Kremenitzer M,
A 16-year-old boy had three episodes of severe headache accompanied by neurological symptoms of transient hemiparesis and dysphasia. Examination of his CSF revealed pleocytosis, including a specimen taken during his first attack. A transient meningeal inflammation with cerebral edema may occur in “hemiplegic” migraine.

After a closed head injury six days earlier, an 18-year-old man had a generalized convulsion followed by right hemiparesis and mutism. A left carotid angiogram revealed a slight left-to-right shift of midline vessels and a relatively avascular region in the left frontoparietal region. Despite treatment with anticonvulsants, dexamethasone, and fluid restriction, he continued to have seizures, progressing to status epilepticus. At necropsy a large thrombosed cortical vein was found over the left middle frontal gyrus; cortical thrombophlebitis had apparently spread over most of the left hemisphere and also to the superior sagittal sinus. No extracerebral collection of blood was found.

**ITEMS OF INTEREST**


**Autonomic Nervous System and Benign Essential Hypertension in Man. II. Circulatory and Hormonal Responses to Upright Posture** — Cuche J-L, Kuchel O (Clinical Research Institute of Montreal, Montreal, Quebec, Canada H2W 1R7), Boucher R, Ménard E, Genest J — *Circulation Research* 35:290-297 (Aug) 1974


**Effects of Anesthetics on Cerebral, Renal, and Splanchnic Circulations: Recent Developments** — Larson CP Jr (Department of Anesthesia, Stanford University, Palo Alto, California), Mazze RI, Cooperman LH, Wollman H — *Anesthesiology* 41:169-181 (Aug) 1974 (review article)

**The Reduction of Infarct Size — An Idea Whose Time (For Testing) Has Come** (Editorial) — Braunwald E (Department of Medicine, Peter Bent Brigham Hospital, Boston, Massachusetts 02115), Maroko PR — *Circulation* 50:206-209 (Aug) 1974

Discusses myocardial ischemia and infarction.

**Appraisal of Antihypertensive Drug Therapy** is discussed by Herbert Chasis, M.D. (Homer W. Smith Laboratory for the Study of Hypertensive and Renal Diseases, Department of Medicine, New York University Medical Center, New York, New York 10016), who reviews four completed prospective studies of drug-treated and controlled hypertensive patients and concludes that population screening for hypertension for the purpose of instituted drug therapy is premature because the value of hypertensive drug treatment for the general hypertensive population has not been established. (*Circulation* 50:4-8 [July] 1974.)

E. D. Freis, M.D. (Veterans Administration Hospital, Washington, D.C. 20422) writes a rebuttal to the above appraisal and concludes that the results of the various trials indicate that if blood pressure is controlled the progression of cardiovascular disease is reduced. (*Circulation* 50:9-10 [July] 1974.)
Abstracts

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