Abstracts

AB-408-72
The Use of Clonidine (Catapres) in the Treatment of Hypertension—Mathew JT, Parker ML (Department of Social and Preventive Medicine, Monash University, Monash Medical School, Alfred Hospital, Prahran, Vic. 3181, Australia)—Med J Aust 2:1120-1122 (Nov 27) 1971*

Clonidine is a potent hypotensive agent which is effective in the control of moderate and severe hypertension in patients with essential, malignant and renovascular hypertension. It appears to be free from serious toxicity, and does not produce marked postural hypotension, although it does cause a relatively high incidence of dry mouth and somnolence. Two patients conceived while taking clonidine, and one of these continued the drug throughout the pregnancy. Both babies were apparently normal. The hypotensive action of clonidine is potentiated by thiazide diuretics, furosemide and methyldopa.

AB-409-72
Pseudoxanthoma Elasticum. Association With Bilateral Carotid Rete Mirabile and Unilateral Carotid-Cavernous Sinus Fistula—Rios-Montenegro EN, Behrens MM, Hoyt WF (Department of Ophthalmology, University of California School of Medicine, San Francisco, California 94122)—Arch Neurol 26:151-155 (Feb) 1972*

Pseudoxanthoma elasticum in a 20-year-old man was complicated by right-sided proptosis, conjunctival vascular dilation, and subretinal bleeding from preexisting angioid streaks. Angiography showed multiple anomalies of major systemic arteries, including bilateral carotid rete mirabile and right carotid-cavernous sinus fistula. Electrothrombosis of the right cavernous sinus obliterated the fistula, restored cerebral perfusion by the right carotid system, and promoted prompt resolution of the presenting signs.

*Authors’ abstract.
†These abstracts were assembled for publication by the Neurological Information Network of the National Institutes of Neurological Diseases and Stroke through Contract Number PH-43-66-933 with Dr. Robert Siekert, Head, Abstract Section, Mayo Clinic, Rochester, Minnesota.

For the convenience of the reader in requesting reprints, an address has been included in each abstract.

AB-410-72
Inhibition of Platelet Aggregation by Lysolecithin—Besterman EMM (St. Mary's Hospital, London, W2, England), Gillett MPT—Atherosclerosis 14: 323-330 (Nov-Dec) 1971*

The effects of purified phospholipids on platelet aggregation initiated by ADP, adrenaline and collagen have been studied. The only phospholipid to have a consistent effect was lysolecithin. Lysolecithin inhibited the second phase of both ADP and adrenaline-induced aggregation, and abolished the aggregation response caused by collagen. The inhibition was dose-dependent on the lysolecithin concentration and did not alter the initial aggregation response of platelets to ADP or adrenaline.

The possible mechanism and significance of this inhibition, and its relevance to the problem of arterial disease, is discussed.

AB-411-72
Experimental Atherosclerosis in Normal and Subdiabetic Rabbits. Part 2. Long-Term Studies—Volk BW (Isaac Albert Research Institute of the Kingsbrook Jewish Medical Center, Brooklyn, New York 11203), Wellman KF—Atherosclerosis 14:331-339 (Nov-Dec) 1971*

In continuation of a previous short-term study† 23 normal and 17 subdiabetic rabbits were given a diet containing 1% cholesterol fed for periods from 6 to 12 months. Subdiabetes was induced by small doses of alloxan alone or by appropriate, sequentially administered injections of cortisone and alloxan. The blood lipid values continued to be elevated but major differences between normal and subdiabetic animals were no longer apparent. All rabbits showed aortic atherosclerosis, and more than 80% of all animals displayed alterations in the myocardium and in the coronary artery system. The lesions included foam and mononuclear cell collections, lipid inclusions, myocardiolysis, infarct scars and atherosclerosis involving arteries and arterioles. Only distal coronary but not aortic atherosclerosis was significantly more severe and more extensive in subdiabetic rabbits. Advanced lesions were frequent in both the large coronary arteries and in the aortas.


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**AB-412-72**

**Experimental Atherosclerosis in the Young Bovine**—Wiggers KD, Jacobson NL (Department of Animal Science, Iowa State University, Ames, Iowa 50010), Getty R—*Atherosclerosis* 14:379-389 (Nov-Dec) 1971*

Eight male and eight female calves were fed various diets for 24 weeks, starting at four days of age. Addition of cholesterol to a diet composed principally of whole milk and fed by nipple caused a marked increase in plasma cholesterol; similar supplementation of a relatively low-fat diet composed primarily of grain had no appreciable effect.

Cholesterol storage in the liver was higher in calves fed milk and cholesterol than in those fed grain and cholesterol. Gross aortic sudanophilia was extensive in calves fed milk and cholesterol, less in those fed milk with no supplemental cholesterol and virtually absent in those fed a limited-milk and grain diet either with or without cholesterol. Aortic lipid was confined to the intimas, and cholesterol was coextensive with the lipid. Vascular alterations (calcium deposition, intimal thickening, disruption and duplication of the internal elastic membrane, and alteration of cell types) were observed in aortas from calves in all treatment groups. These changes were more extensive in calves fed milk and cholesterol, but they occurred even in calves fed a low-fat, low-cholesterol diet.

**AB-413-72**

**A Morphometric Method for Assessment of Atherosclerotic Lesion**—Al-Hashimi AS (Department of Pathology, University of Manchester, Manchester, England), Williams G—*Atherosclerosis* 14:401-409 (Nov-Dec) 1971

A simple method for quantitative and qualitative assessments of atheroma based on the application of a new measuring device is described.

It allows an atheromatous index to be calculated quickly and accurately. This method, when applied to 200 standard segments from 50 aortas, was shown to have a high reproducibility.

**AB-414-72**

**Sudden Coronary Death: The Occurrence of Platelet Aggregates in the Epicardial Arteries of Man**—Haerem JW (Department of Pathology, Ulleval Hospital, Oslo 1, Norway)—*Atherosclerosis* 14:417-432 (Nov-Dec) 1971*

This study was carried out in order to explore whether platelet aggregates in the human coronary circulation might play a role in the pathogenesis of sudden coronary death.

Eighty-one postmortem cases were selected and grouped according to mode of death and previous illnesses. Forty-seven patients had died suddenly and unexpectedly of coronary artery disease. Twenty-one patients had had chronic coronary disease, but had died of various non-cardiac diseases, and 13 patients had died without known coronary or cardiac disease.

The epicardial arteries were cross-sectioned and microscopically examined for platelet aggregates.

Platelet aggregates in the epicardial arteries were larger and more frequent in patients who had suddenly died of coronary disease than in patients with no coronary disease.

Arteries with recent thrombi of macroscopic as well as of microscopic size tended to contain many and large platelet aggregates. Arteries with extensive atherosclerotic stenosis tended to contain larger platelet aggregates than those with less extensive stenosis.

The overweight of platelet aggregates in patients who had suddenly died could partly be explained by a higher prevalence of arteries with acute thrombi and more extensive atherosclerotic stenosis in the coronary arteries of these patients.

Platelet aggregates may cause functional disturbances or tissue injury by impeding the microcirculation. In some instances of sudden coronary death, where acute lesions in the epicardial arteries are small or absent, platelet aggregates in the coronary circulation may play a role in the pathogenesis of the fatal event.

**AB-415-72**

**Fibrin-Degradation Products in Cerebral Malaria**—Reid HA (School of Tropical Medicine, Pembroke Place, Liverpool L3 5QA, England), Nkrumah FK—*Lancet* 1:218-220 (Jan 29) 1972*

The serum concentrations of fibrin-degradation products (F.D.P.) were estimated in 25 patients with falciparum malaria. Cerebral features were present in nine of the 17 Ghanaian children studied in Accra, and in one of eight adults observed in England. High levels of F.D.P. were found in all ten patients with cerebral malaria; in the 15 patients without cerebral symptoms, F.D.P. levels were usually normal.

**AB-416-72**

**Intravascular Coagulation in Falciparum Malaria**—Jaroonsvesama N (Siriraj Hospital, Mahidol University, Bangkok 7, Thailand)—*Lancet* 1:221-223 (Jan 29) 1972*

In 24 patients with acute falciparum malaria, the serum levels of fibrin-degradation products...
(F.D.P.) were studied. Eleven patients had cerebral malaria and in all of them serum-F.D.P. levels were greatly raised. In patients severely ill with jaundice or hyperpyrexia serum-F.D.P. concentrations were also raised. In patients with uncomplicated falciparum malaria, serum-F.D.P. levels were normal or only slightly raised. One patient with cerebral malaria died and necropsy showed widespread fibrin thrombi in the capillaries of the brain and other viscera. Intravascular coagulation appears to be an important intermediary mechanism in severe falciparum malaria.

**AB-417-72**

"Idiopathic" Thrombosis in the Vertebrobasilar Arterial System in Young Men—Graham DI (Institute of Neurological Sciences, Southern General Hospital, Glasgow S.W.1, England), Adams H—*Brit Med J* 1:26-28 (Jan) 1972*

Two young men died as a result of cerebellar infarction due to thrombosis in the vertebrobasilar arterial system in the absence of atheromatous stenosis, other identifiable intrinsic arterial disease, or embolism. In each case the swollen cerebellar infarct had produced tonsillar herniation and hydrocephalus.

**AB-418-72**

Embolic Stroke from Mural Thrombi, a Fatal Complication of Axillary Artery Catheterisation—Head RM (Department of Radiology, Ireland Army Hospital, Fort Knox, Kentucky), Robboy SJ—*Radiology* 102: 307 (Feb) 1972*

A case is presented in which axillary artery catheterization dislodged pre-existing mural thrombi and resulted in fatal embolic stroke. This mechanism of death may occur more frequently than is currently suspected, based on the number of reports of unexplained sudden deaths accompanying this procedure.

**AB-419-72**

Lipid Embolization to the Kidney and Brain After Lymphangiography—Moskowitz G (Department of Radiology, Harvard Medical School, Boston, Massachusetts), Chen P, Adams DF—*Radiology* 102:327-328 (Feb) 1972*

Radiographically visible embolization to the kidney and clinically apparent embolization to the brain developed after lymphangiography in a young patient with Hodgkin's disease. Postmortem evidence of extensive kidney and brain involvement with disease was found six months after lymphangiography. The precise mechanism of this rare complication of Ethiodol lymphangiography is still unexplained.

**AB-420-72**

Radionuclide Cerebral Angiography in a Case of Bilateral Carotid-Cavernous Fistula—Curl FD (Division of Nuclear Medicine, Georgetown University Hospital, Washington, D. C.), Harbert JC, Luesenhop AD, Di Chiyo G, Kam RF—*Radiology* 102:391-392 (Feb) 1972*

The advantages of intravenous cerebral radionuclide angiography and brain scanning for diagnosis and postoperative study of large intracranial vascular abnormalities are illustrated by an unusual case of bilateral post-traumatic carotid-cavernous fistula. These techniques are of particular value in the early postoperative period when carotid angiography may be technically difficult or hazardous.

**AB-421-72**

Percutaneous Catheterisation of the Femoral Artery in Infants, Using a Scalp Vein Needle—Guinto FC Jr (Department of Radiology, University of North Carolina School of Medicine, Chapel Hill, North Carolina 27514), Radcliffe WB—*Radiology* 102: 408 (Feb) 1972*

The authors describe a simple method of percutaneous femoral artery catheterization for cerebral angiography in children, using a 19-gauge disposable scalp vein needle.

**AB-422-72**

Ultrasonic Arteriography. A Noninvasive Method of Arterial Visualisation—Hokanson DE (Department of General Medical Research, V. A. Hospital, Seattle, Washington), Mozersky DJ, Sumner DS, McLeod FD Jr, Strandness DE Jr—*Radiology* 102:435-436 (Feb) 1972*

Images showing the internal dimensions of major blood vessels can be made transcutaneously by using an ultrasonic pulsed Doppler velocity detector to scan areas of blood flow. The plane of the scan can be oriented to produce either longitudinal or transverse cross-sectional views of the vessels.

**AB-423-72**

Circular Angiotomography—Tillitt R (Nassau County Medical Center, East Meadow, New York 11554), Deck MDF, Deonarine V, Potts DG—*Radiology* 102:436-438 (Feb) 1972*

A circular tomographical unit incorporating a film changer for cerebral angiography is described. The tomographical angle and speed of rotation of the tube may be varied. Since the motion is circular, the film changer need not be synchronized with the tube motion. The anatomy of the gyri and sulci and the capillary blush of the brain have been demonstrated in dogs, using tomographical sections.
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AB-424-72
Spontaneous Spinal Subdural Haematoma—Anagnostopoulos DI (Regional Centre for Neurology and Neurosurgery, Oldchurch Hospital, Romford, Essex, England), Gortvai P—Brit Med J 1:30 (Jan) 1972*

Spinal subdural haematoma is one of the rarer causes of acute spinal compression and is usually associated with injury or a bleeding diathesis (Stewart and Watkins, 1969).

A case is presented here in which the spinal subdural haematoma had no apparent cause. Operative removal of the haematoma alleviated the patient's serious plight.

AB-425-72

Sixty-four consecutive cases of ruptured posterior communicating aneurysms were investigated. Fifty-one cases were treated by abrupt ligation of the common carotid artery with no operative mortality and a small temporary operative morbidity.

AB-426-72
Non-Uniform Response of Regional Cerebral Blood Flow to Stimulation of Cervical Sympathetic Nerve—Yamaguchi T (Cerebrovascular Clinical Research Center, Mayo Clinic, Rochester, Minnesota 55901), Waltz AG—J Neurol Neurosurg Psychiat 34:602-606 (Oct) 1971*

Regional cerebral blood flow (CBF) was measured by an autoradiographical method in nine adult cats, using antipyrine-14C as a diffusible indicator. In seven of the cats, CBF measurements were made during stimulation of a cervical sympathetic trunk. Stimulation caused minor regional decreases of CBF in at least five of these seven cats. The decreases were non-uniform and occurred almost exclusively in cortical structures. Although constriction of cervical arteries probably accounts for some of the effects of sympathetic stimulation, the present study indicates that there is also an effect on cerebral regulatory arterioles. However, there is no convincing evidence that function of the autonomic nervous system is necessary for the normal regulation of the cerebral circulation.

*Authors' abstract.

AB-427-72
Vascular Responses to Acute Intracranial Hypertension—Hayreh SS (Department of Ophthalmology, University of Edinburgh, Chalmers Street, Edinburgh, EH3 9HA, England), Edwards J—J Neurol Neurosurg Psychiat 34:587-601 (Oct) 1971*

In 27 rhesus monkeys the cerebrospinal fluid pressure (CSFP) was raised by injections into the cisterna magna to about 40 to 50 mm Hg in steps of 5 mm Hg every five minutes. During the initial phase of the rise of the CSFP to about 15 mm Hg normal animals showed a significant fall in the systolic arterial blood pressure. With a further elevation of the CSFP the BP rose till the CSFP reached 30 to 40 mm Hg. If the CSFP were raised higher than that, a large number of the animals showed a significant fall in the BP. In animals which were shocked before the CSFP was raised there was no drop in the systolic BP during the initial phase. This study indicates that vascular decompensation occurs in the majority of animals when the CSFP goes higher than 30 to 40 mm Hg; there is a significant rise in the pulse rate, superior sagittal sinus pressure (SSP), and internal jugular vein pressure (JVP). The JVP was related to the SSP, indicating that the JVP most probably reflected the pressure changes in the intracranial venous sinuses. Four animals suddenly collapsed at the highest CSFP. In the remaining 23 animals, on a sudden lowering of the CSFP to zero from the highest level, 13 monkeys died in less than half an hour and four in about an hour, while six animals stood this elevation of the CSFP well, with a good recovery. This indicates that, once the vascular decompensation has set in, the prognosis is generally poor even after lowering the CSFP to normal. The drop of the CSFP to zero produced no significant change in the pulse rate but a significant fall in the BP. The SSP rose when its pre-lowering level was less than 7.5 mm Hg and fell when the level was at or above 7.5 mm Hg. The JVP showed a significant correlation with the variations in the SSP. The fundus examination at the end of the experiment revealed no abnormality.

AB-428-72
Response of Cerebrospinal Fluid Pressure to Hyperbaric Oxygenation—Hayakawa T (Department of Neurosurgery, Osaka University Medical School, Osaka, Japan), Kanai N, Kuroda R, Yamada R, Mogami H—J Neurol Neurosurg Psychiat 34:580-586 (Oct) 1971*

The response of cerebrospinal fluid pressure (CSFP) to hyperbaric oxygenation (OHP) was investigated in 13 patients with acute cerebral damage and in dogs with or without experimentally produced cerebral damage. To elucidate the
mechanism of the CSFP response, continuous measurements of carotid blood flow, arterial blood pressure, central venous pressure, and superior sagittal sinus pressure and CSFP were made before, during and after OHP. There was considerable variation in the response of CSFP to OHP in the patients, but three main patterns emerged; type I (nine cases), CSFP decreased at the beginning and rose again at the end of OHP, type II (two cases), CSFP fell with OHP and remained significantly lower than pretreatment level after it, and type III (two cases), CSFP showed little change with OHP. An animal without cerebral damage commonly showed a type I response to CSFP to OHP; the changes of CSFP at the beginning and end of OHP are mainly due to the changes of the cerebral blood flow. There may be two different actions of OHP on cerebral edema, one decreasing cerebral edema and another (mainly affecting the normal brain) producing cerebral edema. Information obtained from the response of CSFP to OHP may be useful in judging the severity and pathophysiological state of cerebral damage.

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AB-429-72
Disturbances of the Body Schema in Relation to Language Impairment and Hemispheric Locus of Lesion—Sauguet J (Centre Neurochirurgical Sainte-Anne, Paris, France), Benton AL, Hecaen H—/Neurol Neurosurg Psychiat 34:496-501 (Oct) 1971*

The relationship of disturbances of the body schema to hemispheric locus of lesion and sensory aphasic disorder was assessed by giving verbal and non-verbal tests of right-left orientation, finger recognition, and autotopagnosis to patients with unilateral cerebral disease. The study was restricted to right-handed patients who were free from general mental impairment or confusion. The tests were also given to a group of control patients whose performances defined the range of normal performance in each test. A significant proportion of patients with sensory aphasic disorder performed defectively on all the tests, non-verbal as well as verbal, the relative frequency of failure in this group ranging from 10 to 67% for the different tests. There were, however, a number of patients with sensory aphasic disorder who performed adequately on most of the tests. Defective performance on the part of non-aphasic patients with lesions of either the left or the right hemisphere was quite rare in the case of 19 of the 20 tests. The exceptional test was the task of imitating lateral movements from Head’s battery, on which both non-aphasic groups performed relatively poorly. The patients with lesions of the right hemisphere were significantly inferior to those with left hemisphere disease on this test. The findings are interpreted as indicating that sensory aphasic disorder is a necessary but not sufficient condition for the occurrence of some types of bilateral ‘body schema’ disturbance in patients with unilateral disease. It is postulated that the sufficient condition is a combination of aphasic disorder with somatosensory impairment. Bilateral impairment of the ‘body schema’ does not appear to have a differential relationship to hemispheric locus of lesion per se.

AB-430-72
Abnormal Brain Scans in Patients With Cerebral Arterial Spasm—Wilkins RH (Division of Neurosurgery, Duke University Medical Center, Durham, North Carolina), Wilkinson RH, Odom GL—/J Neurosurg 36:133-140 (Feb) 1972*

Six cases are presented to show that the intracranial arterial spasm accompanying subarachnoid hemorrhage can be associated with an abnormal brain scan beginning one to three weeks after the onset of the spasm. The scan abnormality gradually disappears over a few months, and is presumably due to cerebral infarction.

AB-431-72
A Tumor Shunt Syndrome. Transient Cerebral Ischemia Induced by a Large Thyroid Adenoma—Sugarbaker EV, Chretien PB (Surgery Branch, National Cancer Institute, Bethesda, Maryland 20014)—/Arch Surg 104:213-215 (Feb) 1972*

A 52-year-old man with an asymptomatic occlusion of the left internal carotid artery developed attacks of transient cerebral ischemia concomitant with the appearance and growth of a left thyroid adenoma. The symptoms resolved completely with excision of the tumor. Because of the unique profuse vascularity of the tumor and its large feeding artery, it is concluded that the tumor functioned as an arteriovenous shunt that decreased cerebral blood flow sufficiently to induce the attacks. Although this complex set of circumstances is unlikely to occur frequently, the case illustrates the importance of excluding the presence of other lesions which may contribute to decreased cerebral blood flow in patients with transient ischemic attacks and occlusion of the carotid arteries.

AB-432-72
Chronic Spontaneous Spinal Epidural Hematoma. Report of Two Cases—Boyd HR (Department of Neurosurgery, St. Joseph Hospital, Denver, Colorado), Pear BL—/J Neurosurg 36:239-242 (Feb) 1972*

Two cases of spontaneous chronic spinal epidural hematoma are reported. Epidural hematoma in the region of the spinal cord produces
dramatic signs of cord compression leading to early diagnosis and treatment, while epidural hemorrhage in the region of the cauda equina is insidious in its onset and tends to become chronic before definite treatment is undertaken.

**AB-433-72**

Evaluation of an Ultrasonic Device (Doppler) for the Diagnosis of Venous Air Embolism—Michenfelder JD (Department of Anesthesiology, Mayo Clinic, Rochester, Minnesota 55901), Miller RH, Gronert GA—*Anesthesiology* 36:164-167 (Feb) 1972*

While being operated on in the upright position, 69 patients were monitored with an ultrasonic device (Doppler) to detect venous air embolism. A right atrial catheter had been inserted previously. Air embolism was suspected or confirmed on 29 occasions in 22 patients. Twenty episodes were signaled by change in the Doppler sounds and confirmed by aspirating air bubbles from the atrium; only one patient developed clinical air embolism. Seven episodes suspected because of characteristic Doppler sound changes were not confirmed by aspirating air or by the development of clinical signs. Two episodes were signaled by the onset of a systolic murmur and confirmed by aspirating air from the atrium; neither was accompanied by changes in Doppler sounds. No patient had complications secondary to air embolism. It is concluded that air embolism is common during operations with the patients upright; that serious sequelae can be minimized by early diagnosis and prompt treatment; and that the Doppler device detects air embolism sensitively but imperfectly.

**AB-434-72**

Carotid Body Tumor (Chemodectoma). Clinicopathologic Analysis of Ninety Cases—Shamblin WR (Section of Publications, Mayo Clinic, Rochester, Minnesota 55901), ReMine WH, Sheps SG, Harrison EG Jr—*Amer J Surg* 122:732-739 (Dec) 1971*

Ninety carotid body tumors seen at Mayo Clinic are compared with 500 from the literature. Surgical mortality was 5.7%, usually related to carotid arterial damage. A classification is suggested for tumors: group 1, small, minimally attached; group 2, usually larger, moderate arterial attachment, removable; group 3, usually large, must be approached carefully. Vessel replacement should be considered.

**AB-435-72**


Catastrophic hemorrhage from carotid artery blowout may occur when the vessel becomes exposed from wound breakdown after radical head and neck surgery. A new technique for carotid artery protection by means of a trapezius muscle flap is described.

**AB-436-72**

Cerebral Tissue Lactate in Trimethaphan-Induced Hypotension—Locke GE, Yashon D (Room N-911, The Ohio State University Hospital, Columbus, Ohio 43210), Hunt WE—*Amer J Surg* 122:818-821 (Dec) 1971*

During trimethaphan-induced hypotension of 30 to 40 mm Hg the brain incurs a progressive marked oxygen debt as indicated by tissue accumulation of lactate. After 30 minutes of sustained hypotension, hypoxic levels of lactate are reached possibly indicating irreversibility.

**AB-437-72**

Subarachnoid Hemorrhage in Pregnancy—Robinson JL (Regional Neurosurgical Centre, Walton Hospital, Liverpool, England), Hall CJ, Sedzimir CB—*J Neurosurg* 36:27-33 (Jan) 1972*

A series of women who had spontaneous subarachnoid hemorrhage during pregnancy is reviewed. These patients are more likely than the average to have an angiographically demonstrable lesion, with arteriovenous anomalies and aneurysms occurring equally. The clinical features are evaluated so that an idea of the causative lesion can be gained at the bedside in the absence of specific neurological tests. When the known cardiovascular changes of pregnancy are correlated with the clinical features in these patients, it is found that subarachnoid hemorrhage from an arteriovenous anomaly or aneurysm in pregnancy is not related to the increased cardiac output. From these data, the preferred neurosurgical and obstetrical management is defined.

**AB-438-72**

The Effects of Prostaglandins E1, A1, and F2 on the Cerebral Circulation of Dogs and Monkeys—Denton IC Jr (Department of Neurosurgery, University of Tennessee, Memphis, Tennessee 38103), White RP, Robertson JT—*J Neurosurg* 36:34-42 (Jan) 1972*

Alterations in cerebrovascular tone caused by the intracarotid administration of prostaglandin E1, A1, and F2 were evaluated by means of a...
standard perfusion technique in dogs and monkeys. Only PGF_2_alpha evoked a selective increase in cerebrovascular tone. This effect was observed in both species and resembled the action of serotonin. On the other hand, prostaglandin E_2 selectively reduced cerebrovascular tone in dogs, but had no such specific action in the monkey. Prostaglandin A_2 lacked a specific influence on the cerebral circulation of either species. Since different prostaglandins produced specific and diametrically opposite effects on cerebral circulation, these substances may be useful in experimental studies of vasospasm, and may normally influence cerebrovascular tone.

**AB-439-72**

Experimental Evaluation of a Tissue Adhesive as an Agent for the Treatment of Aneurysms and Arteriovenous Anomalies—Zanetti PH (Division of Neurological Surgery, University of Pittsburgh, School of Medicine, Pittsburgh, Pennsylvania 15213), Sherman FE—*J Neurosurg* 36:72-79 (Jan) 1972*

Studies were performed on adult mongrel dogs to evaluate the possibility of occluding saccular aneurysms and arteriovenous (AV) anomalies with an intravascular injection of the tissue adhesive isobutyl-2-cyanoacrylate (IBC). Twelve normal canine renal arteries, four surgically constructed AV fistulas, and six surgically constructed vein pouch aneurysms were occluded by the injection of IBC through a fluoroscopically positioned intra-arterial catheter. The IBC was also directly injected into 25 surgically constructed vein pouch aneurysms. Angiography performed immediately after injection and up to three months following treatment revealed persistent occlusion of the renal arteries, arteriovenous fistulas, and aneurysms. Tissue reaction to the IBC was mild and confined to the intima in these experiments. Further investigation of this procedure for the treatment of aneurysms and arteriovenous anomalies by either a stereotoxic or selective catheterization technique is suggested.

**AB-440-72**

False Aneurysm After Carotid Endarterectomy—Ehrenfeld WK (Department of Surgery, University of California, San Francisco, California 94122), Hays RJ—*Arch Surg* 104:288-291 (Mar) 1972*

False aneurysm is an infrequent but serious complication of endarterectomy of the carotid bifurcation. From 1958 to 1971, a total of 898 endarterectomies on the carotid bifurcation were performed at the University of California, San Francisco, for atherosclerotic occlusive disease. During this period three false aneurysms developed, and another false aneurysm was treated following a primary operation at another hospital. All four patients, in two of whom local *Staphylococcus* infection was documented, were successfully reoperated upon by application of autogenous techniques. Blood flow to the internal carotid artery was preserved in each instance, and no new neurological deficits occurred. This experience plus review of previously reported cases of postoperative false aneurysm of the carotid artery point up the value of the use of autogenous tissue in their repair.

**AB-441-72**

Pulseless Arm After Brachial-Artery Catheterisation—Machleder HI (Department of Surgery, U.C.L.A. School of Medicine, Los Angeles, California 90024), Sweeney JP, Barker WF—*Lancer* 1:407-409 (Feb 19) 1972*

Absence or weakening of the radial pulse was found in 24% of 204 patients after brachial-artery catheterisation. In all patients surgically explored absence of the pulse was associated with a mechanical obstruction or thrombosis. Sixty-eight percent of the patients discharged from the hospital with no radial pulse did not regain the pulse in the follow-up period. Although symptom-free at rest, the patients showed considerable functional impairment on long-term follow-up examinations. All patients with absent pulses, or feeble pulses associated with ischemic symptoms, should undergo arterial exploration.

**AB-442-72**

An Ergot Preparation (Hydergine) for Relief of Symptoms of Cerebrovascular Insufficiency—Banen DM (Superintendent, Cushing Hospital, Framingham, Massachusetts 01701)—*J Amer Geriat Soc* 20:22-24 (Jun) 1972*

Seventy-eight geriatric patients with symptoms and signs of cerebrovascular insufficiency were treated with either Hydergine or a placebo in a randomized, double-blind manner for 12 weeks. Changes in the patients' condition were measured in three areas—attitude and behavior, cognitive and intellectual capacities, and clinical status (physical complaints). Analysis of the data revealed that Hydergine most significantly improved items pertaining to the patients' attitude and behavior. No untoward effects were observed.

**AB-443-72**

Cigarette Smoking and Arteriosclerosis Obliterans: An Epidemiologic Approach—Weiss NS (Department of Epidemiology, Harvard School of Public Health, Boston, Massachusetts 02115)—*Amer J Epidem* 95:17-25 (Jan) 1972*

Six hundred four cases of arteriosclerosis obliterans were selected from the office of a
ABSTRACTS

Boston vascular surgeon; other patients of the same surgeon with clinically normal peripheral arteries served as controls. In both sexes, cigarette smoking, as ascertained from a mail questionnaire, was found to be far more prevalent among cases than controls. Risk of developing the disease rose steeply with increasing amounts smoked and was lower in ex-smokers than current smokers. The etiological importance of smoking varied with the site and manifestation of disease, carrying the highest risk for aortoiliac occlusion with claudication. Cigarette smoking appeared to confer similar risks to both diabetics and nondiabetics.

Evidence is presented to support the claim that cigarette smoking is causally associated with arteriosclerosis obliterans. It is estimated that about 70% of the disease is related to the use of cigarettes, resulting both from the high proportion of smokers in the population and the high risk smoking appears to convey to them.

**AB-444-72**

Atherosclerosis in the Masai—Mann GV (Nutrition Division, Vanderbilt University School of Medicine, Nashville, Tennessee 37203), Speerly A, Gray M, Jarashow D—Amer J Epidem 95:26-37 (Jan) 1972*

The hearts and aortae of 50 Masai men were collected at autopsy. These pastoral people are exceptionally active and fit and they consume diets of milk and meat. The intake of animal fat exceeds that of American men. Measurements of the aorta showed extensive atherosclerosis with lipid infiltration and fibrous changes but very few complicated lesions. The coronary arteries showed intimal thickening by atherosclerosis which equaled that of old U. S. men. The Masai vessels enlarge with age to more than compensate for this disease. It is speculated that the Masai are protected from their atherosclerosis by physical fitness which causes their coronary vessels to be capacious.

**AB-445-72**

Corneal Indentation Pulse in Carotid Occlusive Disease—Nornes H (Department of Neurosurgery, Oslo University Hospital, Rikshospitalet, Oslo, Norway), Hørven I, Tønjum AM, Syrdalen P—Acta Neurol Scand 47:525-540, 1971*

A battery of screening tests, including dynamic tonometry, arm-to-retina fluorescein circulation time, and carotid-compression tonographical tests, were applied to a clinical material of surgically induced or idiopathic carotid artery obstruction. The following conclusions were drawn: 1. A marked stenosis or full occlusion following ICA clamping for intracranial aneurysms will yield results similar to those observed in spontaneous, unilateral ICA obstruction by the applied tests. 2. Dynamic tonometry offered positive results in 100% of unilateral and 83% of bilateral cases of spontaneous, symptom-yielding carotid obstruction; it is recommended as a valuable, easy and accurate method for the screening of carotid occlusive disease. 3. A slight ocular hypotension, which may be of diagnostic importance in some cases, is present on the symptomatic side in most cases of unilateral and bilateral carotid occlusive disease.

**AB-446-72**

The EEG in Cerebral Ischemic Lesions in Women Taking Oral Contraceptives—Kjaer M (Department of Clinical Neurophysiology, Kommunehospital, Århus, Denmark)—Acta Neurol Scand 47:608-618, 1971*

Electroencephalographical changes in women on oral contraception have previously been reported in a few patients free of symptoms, in patients with headache, and in only a very few patients with cerebrovascular insults. The present material consists of the EEG recordings in 33 women (average age 28 years) who received oral contraceptives and who had transitory cerebral ischemic attacks and/or cerebral arterial occlusions. The electroencephalographical abnormalities did not correlate to duration of contraception or occurrence of vasomotor headache. A good correlation between the severity and localization of the EEG changes and clinical findings, as well as the angiographically verified arterial occlusions, was shown. The EEG findings were of the same nature as in other patients with cerebrovascular insults, and no specific change for this group was found.

**AB-447-72**

Vertebrobasilar Occlusive Disease in Children. A Recognizable Clinical Entity—DeVivo DC (Department of Pediatrics, St. Louis Children's Hospital, St. Louis, Missouri 63110), Farrell FW Jr—Arch Neurol 26:278-281 (Mar) 1972*

A 10-year-old boy experienced many brief episodes of neurological dysfunction over an eight-month period culminating in a major deficit for which he was hospitalized. Transient features included diplopia, sense of dizziness, confusion, and language disturbances. Admission followed onset of a right sensorimotor disturbance associated with a right appendicular ataxia and anisocoria. Angiography demonstrated a total occlusion of left vertebral artery at two sites and segmental narrowing of the right vertebral artery at the level of the second cervical vertebra, with

*Authors' abstract.
attenuated flow of dye in the left posterior cerebral artery. Clinical and radiographical findings suggested repeated ischemic insults to the left thalamic area and upper midbrain, possibly from recurrent microembolization, and two of the six other reported cases of verteobasilar occlusive disease in children share similar findings suggesting a recognizable neurological entity.

**AB-448-72**

**Effects of Conjugated Estrogens on Spontaneous Atherosclerosis in Pigeons**—Hanash KA (Section of Publications, Mayo Clinic, Rochester, Minnesota 55901), Kotke BA, Greene LF, Titus JL—Arch Path 93:184-189 (Mar) 1972*

The administration of conjugated equine estrogens (Premarin) in high doses to mature white Carneau pigeons with spontaneous aortic atherosclerosis did not affect the size of the plaques but was associated with decreased lipid material (stainable with Sudan black B) and cholesterol clefs in the lesions. The findings suggest that continued development of the atherosclerotic lesions may have been prevented by therapy with conjugated estrogens.

**AB-449-72**

**Experimental Atherosclerosis in Rat and Rabbit Cardiac Allografts**—Laden AMK (Department of Pathology, St. Mary's Hospital Medical School, London W 2, England)—Arch Path 93:240-245 (Mar) 1972*

Atheroma-like lesions have been produced in the arteries of rat and rabbit heterotopic cardiac allografts, by adding fat or cholesterol to the diets. In the rat grafts, both monocytes and smooth muscle cells contained lipid. The intimal thickening in the coronary arteries of the rabbit grafts was very similar to the arterial changes observed in human organ transplants. Very little lipid could be demonstrated in the intimal lesions when the recipient animal had been fed a low-fat and low-cholesterol diet. I consider that the lipid content of graft arterial intimal thickening is directly related to the level of plasma lipid and does not originate from disrupted platelets.

**AB-450-72**

**Internal Auditory Artery Supply to the Petrous Bone**—Mazzone A (Department of Otolaryngology, University of Ferrara, Ferrara, Italy)—Ann Otol 81:13-21 (Feb) 1972*

When studied by arterial injections and thick sections, the internal auditory artery supplied many collateral branches to significant portions of petrous bone around the internal acoustic meatus and adjacent to the medial aspect of the inner ear. Clinical significance may possibly result from this osseous supply of the internal auditory artery.

**AB-451-72**

**Cochlear Blood Vessel Pattern in the Human Fetus and Postnatal Vascular Involution**—Johnsson L-G (Department of Otorhinolaryngology, University of Michigan Medical School, Ann Arbor, Michigan)—Ann Otol 81:22-40 (Feb) 1972*

Using the technique of microdissection and flat-surface specimens stained with osmium tetroxide, the cochlear blood vessels in human fetuses were compared with postnatal samples obtained at autopsy. The vessels of the venous drainage in scala tympani were less well developed in the entire fetal material than in other parts of the cochlea. There is a subtle involution of blood vessels even in the neonatal material; this loss of vessels increases with maturity and aging. Since other similar vascular involutions and atrophy have been observed in the fetal and adult retina, similar microangiopathy may occur in other body tissues if aging takes place.

**AB-452-72**

**Myocardial Lesions Following Experimental Intracranial Hemorrhage: Prevention With Propranolol**—Hunt D (Cardiac Department, Royal Melbourne Hospital, Parkville, Melbourne 3050, Australia), Gore I—Amer Heart J 83:232-236 (Feb) 1972

In 21 of 46 rats receiving intracranial injections of blood, focal myocardial lesions could be demonstrated when the rats were killed five days later. Pretreatment with propranolol, a beta-adrenergic blocking agent, resulted in myocardial lesions in only four of 22 rats receiving an intracranial injection of blood. The difference in these two groups was statistically significant (P < 0.025). The myocardial lesions consisted of mononuclear infiltrates without evidence of myocardial fiber degeneration or necrosis. Increased sympathetic stimulation following cerebrovascular accidents may produce both myocardial and electrocardiographical changes. Histological changes in the myocardium can be prevented by propranolol.

**AB-453-72**

**Prognosis in Cases of Intracranial Aneurysm After Incomplete Direct Operations**—Sato S (Division of Neurosurgery, Institute of Brain Diseases, Tohoku University School of Medicine, Sendai, Japan), Suzuki J—Acta Neurochir 24:245-252, 1971

In a series of 315 aneurysms treated by direct intracranial approach, 11 were found to be persistent on postoperative angiographical study. Postoperative angiography is necessary to determine the effectiveness of the clip or ligature. If the
ABSTRACTS

clip or ligature has narrowed the neck of the aneurysm, the aneurysm disappears spontaneously even if present at the time of postoperative angiography. If the clip has been placed on the body of the aneurysm or has slipped from the aneurysm, or if residual aneurysm is enlarging when visualized on follow-up angiography, re-operation must be considered.

AB-454-72

A case of fulminating purulent meningitis with secondary mycotic fusiform aneurysm of the distal calloso-marginal artery is presented. Signs of subarachnoid hemorrhage occurred on the tenth day of illness. Evacuation of hematoma and aneurysm was accomplished on the thirteenth day of the illness. Within nine months the patient had recovered fully and returned to her former teaching position. Theories of formation include infective microemboli to the vasa vaso; this is probably the most common cause for mycotic aneurysms since these aneurysms are usually saccular. A less probable cause of aneurysm is infected emboli lodging in the lumen of the artery; this is unlikely since the intima resists infection. However, emboli may lodge at the bifurcation of vessels, predominantly in the distribution of the middle cerebral artery. A third theory implicates an extravascular process such as purulent meningitis resulting in acute inflammation of cerebral vessels and subsequent aneurysm formation.

AB-455-72
Effects of Anti-Adhesive Agents on the Ultrastructure of Rabbit Blood Platelets In Vitro—Dougherty WJ (Anatomy Department, Medical University of South Carolina, Charleston, South Carolina 29401), Bischer HI—Thrombosis 26:378-388, 1971

Two anti-adhesive agents, substance “86” and BLR-743, were capable of inducing platelets to become spiny spheres. Vacuoles within the platelets also tended to enspherulate. Internal structures such as microtubules and mitochondria maintained their usual form. 5-Hydroxytryptamine granules were reduced in number and alpha granules expressed variable degrees of electron density suggesting variable degrees of extraction of materials from these granules. It is concluded that the anti-adhesive agents have their primary action on the plasma membrane and other membrane-bound structures of the blood platelet.

AB-456-72

Surgical experience with ten cases of carotid-choroidal aneurysms is presented. While it is desirable to safeguard the anterior choroidal artery, it is not always essential. In four cases it was necessary to occlude the anterior choroidal artery with transient postoperative symptoms developing in only one patient. These symptoms included transitory hemiparesis, hyperthermia and altered consciousness. In six cases in which the choroidal vessel was preserved, transitory symptoms consisting of speech disorder, hemiparesis, perspiration and ptysial occurred in one patient; this was believed to be secondary to spasm. The absence of devastating effects when the anterior choroidal vessel is sacrificed is explained by the rich collateral blood supply fed by such vessels as the internal carotid artery and the posterior cerebral artery.

AB-457-72
Cerebral Embolism Following Mitral Valvotomy—Geldof WChP (Department of Thoracic Surgery, University Hospital, Leiden, The Netherlands), Roos JP, Brom AG—Acta Cardiol 26:392-399, 1971

In a group of 186 patients undergoing mitral valvotomy, 18.8% had postoperative cerebral embolism when thrombi were demonstrated in the left atrium during surgery, and when the mitral valve was calcified, 15.7% of this group had cerebral emboli. Cerebral emboli occurred in only 2.4% when neither thrombi nor calcifications existed. The overall frequency of cerebral emboli in these 186 patients was 7.5%. In six of 28 patients with preoperative arterial emboli, atrial fibrillation could not be demonstrated. This study further emphasizes the value of preoperative anticoagulant medication, even in patients without a history of atrial fibrillation or arterial embolism.

AB-458-72
The Human Blood Platelets as a Molecular Mosaic. Its Role in Aggregation and Thrombus Formation—Mehrishi IN (Max-Planck-Institut für Biochemie, Munich, Germany)—Thrombosis 26:370-377, 1971

Four separate groups exist on the platelet: positively charged amino groups, sulphhydryl groups, phosphate groups, and alpha-carboxyl groups of N-acetyl-neuraminic acid. Models for the arrangement of these groups on the platelet surface are proposed—a square and hexagonal

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pattern are considered. Alteration in these groups by either pH change or enzymatic activity may make platelets more or less aggregable. ADP is known to initiate platelet aggregation and the ADP-fibrinogen-platelet reaction is believed to take place at the platelet surface. ADP is believed to be the primary initiator of a chain reaction to produce instability of the platelet ultrastructure. It is proposed that ADP receptor sites may correlate with the positively charged amino groups delineated in this study. This remains to be proved. The role of the sulphhydryl groups in forming disulphide bridges between platelets is also conceivable. Divalent cations (Ca++ and Mg+++) are also known to aggregate platelets, a physico-chemical process which may result from interaction between the surface phosphate groups. Alkaline phosphatase removes phosphate groups leading to altered net surface charge and favorable aggregation conditions. This phenomenon may explain increased thrombus formation under stress; in stressful situations catecholamines are released which in turn release alkaline phosphatase which removes platelet phosphate groups.

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AB-459-72
Interaction Between Chlortal Hydrate and Warfarin—
Report from the Boston Collaborative Drug Surveillance Program, Boston University Medical Center (400 Totten Pond Road, Waltham, Massachusetts 02154)—New Eng J Med 286:53-55 (Jan 13) 1972

Patients receiving chlortal hydrate required less warfarin during the induction phase of anticoagulation than those receiving no chlortal hydrate. Data were obtained from a comprehensive drug surveillance program to determine the interaction between the above two drugs. The results indicate significant interaction between chlortal hydrate and warfarin which is of clinical importance and should be considered when these drugs are administered.

AB-460-72

Fluorescein arterial injections enabled measurement of vascular caliber and regional transit time in the pial circulation of the rabbit and to assess changes in response to alterations in \( P_{\text{aoo}} \). An increase in transit time and vessel caliber occurred in intact animals when \( P_{\text{aoo}} \) was increased. There was no change in caliber of occluded vessels when a surface branch of the middle cerebral artery was occluded, but anastomotic branches enlarged markedly. Hypercapnia continued to produce vasodilation and more rapid transit times in the arteries surrounding the occluded artery, but in the territory of the occluded artery, reactivity to CO2 was lost resulting in reduced blood flow to certain areas.

AB-461-72
Vestibular Findings in Vertebro-Basilar Ischemia—
Barber HO (Sunnybrook Hospital, Toronto 315, Ontario, Canada), Dionne J—Ann Otol 80:805-812 (Dec) 1971

Dizziness alone in an aged individual does not make the diagnosis of vertebrobasilar ischemia. Addition of one of a group of symptoms such as transient numbness, diplopia, dysarthria, or bidirectional gaze nystagmus with eyes open strengthens the diagnosis considerably. Cranial nerve palsies, particular ocular nerve palsies, and positional nystagmus likewise greatly support brain stem ischemia. These conclusions followed investigation of 100 dizzy elderly patients with suggested or established vertebrobasilar insufficiency. Tests included calories, test for positional nystagmus, and observation for gaze nystagmus. A specific pattern of abnormality for brain stem ischemia was not observed, but when the entire examination was normal the ischemic disease was unlikely.

AB-462-72
Hyperbilirubinaemia In Acute Ischaemic Stroke—
Herishanu Y (Hadassah University Hospital, Jerusalem, Israel), Abramsky O, Lavy S—J Neurol Sci 14:417-420 (Dec) 1971

In 73 patients with acute ischemic cerebrovascular events, bilirubin values were elevated in 23 (31.5%). In only two patients of the 63 controls was the bilirubin abnormal. Other liver function tests were unchanged and the bilirubin returned to normal in several days. Reversal of polarity of the liver cell resulting from the acute brain lesion was suggested as the possible mechanism of hyperbilirubinemia. However, a specific lesion in the brain could not be incriminated to explain the above metabolic alteration, but the acute ischemic stroke may serve as a human model for studying other metabolic and visceral changes secondary to focal neurological dysfunction.

AB-463-72
Contralateral Focal Increase of Cerebral Blood Flow In Man During Arm Work—Olesen J (Bispebjerg Hospital, Copenhagen, Denmark)—Brain 94: 635-646, 1971

Regional cerebral blood flow was studied using the Xenon intra-arterial injection method. Ten patients with minor neurological symptoms and
normal arteriograms were studied in the resting state and during exercise with the contralateral hand. Blood pressure, heart rate, and respiration all increased. In nine of the patients there was a 54% increase in regional cerebral blood flow. The localization of the blood flow increase corresponded to the cortical representation of the hand. Focal changes were absent or diminished during work with the ipsilateral hand.

**AB-464-72**
The Electroretinogram During Terminal Anoxia in Humans—Wilkus RJ (EEG Laboratory, BB207, University Hospital AS-10, Seattle, Washington 98105), Chatrian GE, Lettich E—Electroenceph Clin Neurophysiol 31:537-546 (Dec) 1971

In five patients dying as a result of cerebral anoxia, persistent electroretinograms were noted in the presence of truly isoelectric EEGs. Summated ERGs were recorded until absent following termination of respiratory support and each deterioration followed a consistent pattern. The deterioration occurred over a period lasting up to 33 minutes. This further documents that neural elements of the human retina which give rise to the ERG are less sensitive to anoxia than is the cerebral cortex.

**AB-465-72**

Three cases of intracavernous saccular carotid aneurysm were studied at postmortem. It has been accepted that the cranial nerves lie on the lateral aspect of the aneurysmal wall. This study proved contrary to the usual concept. The aneurysms were saccular in shape and appeared from the region of the "bare area" of the carotid artery in the cavernous sinus between the third and fourth nerves superiorly and the sixth nerves inferiorly leaving the third, fourth, and sixth nerves on the medial wall of the aneurysm. Posteriorinferior and inferolateral to each aneurysm the fifth nerve was found. The aneurysm may develop in this area from a small branch of the internal carotid arising from the region of the "bare area." Anterior expansion of the aneurysm erodes the optic foramen and superior orbital fissure, while posterior expansion erodes the petrous temporal bone. Appropriate clinical symptoms are discussed.

**AB-466-72**
Oral Contraceptives and Thromboembolic Disease. Swedish Experience—Böttiger LE (Department of Medicine, Danderyds sjukhus, Danderyd, Sweden), Westerholm B—Acta Med Scand 190:455-463 (Nov) 1971

Four hundred cases of thromboembolic disease in women on oral contraceptives in Sweden were evaluated. The risk of a thromboembolic complication in users of oral contraceptives was 1:3,600 as compared with 1:23,000 in nonusers, and 1:340 during a normal pregnancy. The mortality risk is 0.9 patients per 100,000 users per year. The details of the 15 fatal cases are also presented. Although statistical evidence demonstrates a significant relationship between the use of oral contraceptives and thromboembolic disease, it must be emphasized that in the individual case one is unable to determine the etiology of the thromboembolic condition.

**AB-467-72**
La Phlébographie du Bulbe—Braun JP (Hospital Pasteur, F-68-Colmar, Strasbourg), Tournade A, Held N—Neurochir 17:515-523, 1971

An anatomical study of the bulbar veins was performed. Three systems of the medulla oblongata were described: an anterior group consisting of anteromesial bulbar vein, preolivary, and transversal anterior veins; the posterior group consisting of the posterior-mesial bulbar vein and posterolateral veins; and the lateral group consisting of lateral bulbar pontic veins, retro-olivary veins and satellite veins of the mixed nerve roots. The above systems can best be demonstrated radiographically using the subtraction technique to obscure underlying bony structures.

**AB-468-72**
Cerebral Infarction Due to Internal Carotid Artery Hypoplasia Precipitated by Head Injury—Calhoun CL (McHarry Medical College, Nashville, Tennessee)—Southern Med J 65:114-115 (Jan) 1972

A 31-year-old woman developed symptoms of transient cerebral ischemia about two weeks prior to admission. About one week later she sustained significant head trauma with transient loss of consciousness and subsequent left arm weakness and then left leg weakness. Carotid angiography revealed narrowing of the right internal carotid artery. This finding was confirmed at surgery. This was believed to represent congenital hypoplasia of the right internal carotid artery. A possible mechanism to explain the symptoms includes post-traumatic edema with relative hypoxemia in the hemisphere with marginal perfusion due to the hypoplastic internal carotid artery. Only 25 cases of unilateral carotid hypoplasia have been reported in the literature.

**AB-469-72**
Selective Vulnerability to Ischemia; Studies in Quantitative Enzyme Cytochemistry of Single Neurons and Neuropil—Eadie MJ (Royal Brisbane Hospital, Brisbane, Australia), Tyrer JH, Kukums JR—Brain 94:647-660, 1971

In brain stem ischemia vestibular symptoms occur more frequently than cochlear symptoms;
the Purkinje cells of the cerebellar cortex are more vulnerable to ischemia than neighboring granule cells; neither of these observations is explained by differences in blood supply implying a vulnerability based on selective metabolic requirements. Cytophotometric measurements of oxidative enzymes in the above regions were made on single neurons in rabbit and human brains. Oxidative enzyme activity differed little from cell to cell in the regions mentioned, indicating similar oxygen requirements per unit volume of these cells, but total enzyme content of the cell bodies of these neurons differed considerably from region to region. Therefore, the size of the neuron and differing surface-mass ratios of neurons seemed to determine the vulnerability to ischemia rather than peculiarities of metabolic pattern.

AB-470-72
Effect of Pyridinolcarbamate on Platelet Aggregation—Sano T, Yokoyama M (Kuakini Medical Research Institute, Honolulu, Hawaii 96817)—Amer J Med Sci 262:205-209 (Oct) 1971

Intravenous injection of adrenalin (1.0 µg/kg) into a rabbit enhanced ADP-induced platelet aggregation. Oral pretreatment with pyridinolcarbamate (25 mg/kg) prevented the adrenalin effect on platelet aggregation. ADP-induced platelet aggregation was not affected by pyridinolcarbamate alone. Pyridinolcarbamate did not appear to affect plasma or platelets per se but the platelet interaction with adrenalin might be affected by this new agent.

AB-471-72

Seven myxedematous patients were studied before and after three and six months of therapy with liothyronine to determine the effect of the anticoagulant warfarin in each of these states. Prothrombin times were measured before and three to 84 hours after 40 mg/M² of oral warfarin sodium. Myxedema resulted in a lower prothrombin time after warfarin than when the patient was euthyroid. Also in the myxedematous period it required a longer period of time to reach peak prothrombin response. Plasma half-life, plasma levels, and the calculated volume of distribution of warfarin did not differ when measured during the myxedematous period or after treatment. This may indicate myxedematous patients have decreased prothrombin responses to single doses of warfarin.

AB-472-72

Symptoms and signs of a transverse spinal cord lesion developed suddenly in a 67-year-old man. Dissecting aneurysm of the aorta was found to be the cause; microscopic examination of the aorta revealed atherosclerosis and abnormalities of the media.

AB-473-72

Normal systemic, ophthalmic, arterial, venous, and superior sagittal sinus pressures were measured in 27 Rhesus monkeys following cannulation. Each of these parameters was evaluated to determine the effect of acutely raising the intracranial pressure. The ophthalmic and systemic arterial pressures showed a close correlation. Ophthalmic systolic pressure is 71% of the systemic systolic pressure, and ophthalmic diastolic pressure is 87% of systemic diastolic pressure. Increased cerebrospinal fluid pressure (CSFP) to 30 to 40 mm Hg produced a rise in both ophthalmic artery pressure and systemic pressure, but further increases in CSFP produced a decrease in arterial pressures. Ophthalmic venous pressure and superior sagittal sinus pressure also correlated with each other and with increase in CSFP. Sudden intracranial decompression resulted in a rise in ophthalmic venous pressure and superior sagittal sinus pressure and a fall in arterial pressures.

AB-474-72

Ventriculatry and circulatory responses to hypoxia and baroreceptor function were studied before and after bilateral carotid endarterectomy in nine patients. Damage to the adjacent carotid body, its nerve and blood supply was meticulously avoided. Eight patients immediately postoperative had a lost or diminished ventriculatry and circulatory response to hypoxia, while 220 days after the operation seven of nine patients had these responses return toward the preoperative
control. The baroreceptor activity changed very little after the operation.

AB-475-72
Cerebral Millary Aneurysms in Hypertension—Fisher CM (Department of Neurology, Massachusetts General Hospital, Boston, Massachusetts 02114)—Amer J Path 66:313-330 (Feb) 1972*

The types of miliary cerebral aneurysms associated with hypertension were studied, using serial sections of blocks of brain tissue from hypertensive patients with a history of cerebral hemorrhage or lacunar infarcts or both. Four different structures were identified—three aneurysmal (saccular, lipohyalinotic and asymmetric fusiform) and one nonaneurysmal, the so-called bleeding globe. They probably account for all of the miliary cerebral aneurysms described during the past 100 years. The present survey is one of the most comprehensive yet undertaken.

AB-476-72
Serum-Cholesterol, Serum-Triglyceride and ABO Blood Groups in a Population of 50-Year-Old Danish Men and Women—Hagerup L (Medical Department C, Glostrup Hospital, 2600 Glostrup, Copenhagen, Denmark), Hansen PF, Skov F—Amer J Epidem 95:99-103 (Feb) 1972*

During a prevalence study of 50-year-old Danish men and women, one of the aspects examined was the relationship between ABO blood groups and serum-cholesterol and serum-triglyceride levels. Significant relationships were found between high cholesterol and triglyceride levels and group A blood in men, whereas those with group B blood presented lower levels. Similar relationships were found in women, particularly in those who had passed menopause. Furthermore, the relationship between rhesus-group and cholesterol levels in women was found to be highly significant.

AB-477-72
Postoperative Perforation of the Carotid Artery by the Hyoid Bone—McConnel CS Jr (Department of Otolaryngology, U. S. Naval Hospital, Philadelphia, Pennsylvania 19145), Marlowe FJ—Arch Otolaryng 95:282-283 (Mar) 1972*

A new and different cause of fatal carotid artery hemorrhage following head and neck surgery developed because the common carotid artery was punctured by a fistula-eroded greater cornu of the hyoid bone.

AB-478-72
Effect of Pharmaceutical Formulation on Gastrointestinal Bleeding from Aspirin Tablets—Leonards JR, Levy G (Department of Pharmaceutics, School of Pharmacy, State University of New York, Buffalo, New York 14214)—Arch Int Med 129:457-460 (Mar) 1972*

Gastrointestinal blood loss due to aspirin can be minimized by administering the drug as a dilute solution of acetylsalicylate. Bleeding can be prevented in normal subjects by adding sufficiently large amounts of antacids to the solution. These concepts have been applied to the formulation of very rapidly dissolving, highly buffered aspirin tablets. Daily oral administration of 2.6 gm of aspirin for seven days to 15 normal adult volunteers resulted in an average daily blood loss of 2.3 ml (in excess of the 0.4 ml control value) when a nationally distributed brand of aspirin tablets was used. An experimental tablet preparation caused only 0.7 ml daily blood loss, a reduction of 69%. Similar results were obtained with highly buffered chewable tablets. There was an inverse rank-order correlation between buffer capacity and blood loss in the series of tablet preparations tested.

AB-479-72
Effects of Nitrites on Arterial Collateral Vessels of Dogs—Iriuchijima J (Department of Physiology, Faculty of Medicine, University of Tokyo, Tokyo, Japan)—Jap Heart J 12:536-544 (Nov) 1971*

In dogs weighing about 10 kg anesthetized with pentobarbital, resistances of the collateral flow channels of the common carotid and femoral arteries were studied during occlusion of these arteries. When the common carotid artery was occluded, collateral resistance gradually decreased in about 30 sec, from initial collateral resistance (ICR) of 0.842 ± 0.165 mm Hg/ml/min (mean with SE from six dogs) to steady state collateral resistance (SCR) of 0.519 ± 0.111 (−39.4 ± 3.6%, significant at P < 0.001). Intravenous injection of a long-active nitrite, N-ethoxy-carbonyl-3-morpholinosydnonimine (SIN-10), at a dose of 1 mg/kg, diminished ICR (−37.5 ± 5.3%, n = 6, P < 0.001, 15 min after administration) but not SCR, thus ICR approached SCR. This effect was marked 5 to 60 min after the intravenous injection. ICR of the femoral artery was also decreased by SIN-10 (−48.7 ± 5.8%, n = 6, significant at P < 0.001). Nitroglycerin had a similar effect of dilating the collateral vessels for both arteries, though its effect was more evanescent in the time course and almost disappeared five minutes after injection. It is concluded that nitrites dilate almost the same collateral vasculature which would gradually open during arterial occlusion without nitrites.

*Authors' abstract.
Impaired Microvascular Filling After Focal Cerebral Ischemia in Monkeys—Crowell RM (Neurosurgical Service, Massachusetts General Hospital, Boston, Massachusetts 02114), Olsson Y—J Neurosurg 36:303-309 (Mar) 1972*

Impairment of microvascular filling was demonstrated in relation to focal cerebral ischemia in the monkey. Temporary or sustained middle cerebral artery (MCA) clipping was achieved with a microsurgical technique. Animals were sacrificed by perfusion with a carbon black suspension. Brains were fixed in formalin, and the extent of microvascular carbon filling was estimated grossly and microscopically. In most animals, MCA occlusion of two hours to seven days produced diminished filling in small vessels in the MCA territory of supply. The impairment of filling was most pronounced in the deep subcortical structures but also affected the cortex in some animals. Temporary and sustained occlusion of equal duration produced roughly equivalent areas of abnormal filling. The impairment of vascular filling tended to be more extensive with increasing duration of occlusion. Hypotension during MCA occlusion caused almost total nonfilling of the microvasculature in the entire MCA territory. Impaired filling of vascular channels may play a role in the pathogenesis of some clinical cerebrovascular diseases.

Cerebral Anaerobism During Experimental Incremental Oligemic Hypotension—Yashon D (Division of Neurological Surgery, Room N-911, The Ohio State University Hospitals, Columbus, Ohio 43210), Locke GE, Hunt WE—J Neurosurg 36:310-313 (Mar) 1972*

Thirty-seven dogs were studied to establish the level of mean arterial pressure (MAP) causing cerebral tissue lactate (CTL) accumulation as a result of anaerobic metabolism and to assess the extent of preservation of aerobic metabolism afforded by autoregulation during oligemia. Specimens were removed prior to oligemia and at 5, 30, and 60 minutes following hypotension created by blood withdrawal. In four control animals, CTL averaged 4.83 (range 3.26 to 7.07) mMol/kg. At 60 minutes after induction of oligemic hypotension, 13 animals with an MAP of 30 and 40 mm Hg showed concentrations of CTL between 16.56 and 20.89. At an MAP of 50 mm Hg six animals showed a CTL concentration between 4.39 and 15.88; at an MAP of 60 mm Hg eight animals showed a CTL between 3.76 and 14.93; and at an MAP of 70 mm Hg six animals had a CTL between 2.43 and 4.27. At five minutes, at all mean arterial pressures the cerebral tissue lactate varied between 2.07 and 5.50. By 30 minutes the elevations were similar to those at 60 minutes. CTL elevation was independent of pre-oligemic MAP. In the canine brain there is a uniform incremental elevation of CTL between an MAP of 20 to 50 mm Hg directly related to the time of hypotension; there is variable intolerance to MAP in the range of 50 to 70 when related to a time longer than five minutes.

Intracranial Arterial Narrowing and Spasm in Acute Head Injury—Suwanwela C (Section on Neurological Surgery, Department of Surgery, Chulalongkorn Hospital, Bangkok, Thailand), Suwanwela N—J Neurosurg 36:314-323 (Mar) 1972*

Arteriography in 350 patients with a moderate to severe head injury, including repeated studies in 40 patients, revealed narrowing of one or more of the intracranial arteries in 65 patients (18.6%). Narrowing of the intracranial portion of the internal carotid artery and the first part of the anterior and middle cerebral arteries was found in 18 patients and was believed to be responsible for the clinical symptoms in some. Narrowing of the branches of the cerebral arteries at the site of the cerebral contusion was seen in 33 patients and diffuse narrowing of the intracranial arteries in 12. In two additional patients with gunshot wounds of the brain, there was narrowing of the cerebral artery adjoining a torn vessel. The evidence suggests that vascular spasm is responsible for the narrowing in some patients, while contusion and hemorrhage in the arterial wall is the cause in others. Whatever the mechanism, the occurrence and significance of cerebral arterial narrowing in association with acute head injury needs to be emphasized.

Complications of 1,000 Brachial Arteriograms—Feild JR (Mid-South Neurological Clinic, 910 Madison Avenue, Suite 922, Memphis, Tennessee 38103), Lee L, McBurney RF—J Neurosurg 36:324-332 (Mar) 1972*

Of 1,000 patients who had 1,202 brachial and 1,099 carotid arteriograms between 1966 and 1970, 52 had mild and 15 severe complications. Cerebrovascular disease was most frequently encountered. There were 11 patients undergoing simultaneous carotid and brachial arteriography in whom complications could not be localized to an individual artery. Including this group the complication rate for brachial arteriograms was 3.99% and excluding this group the complication rate was 3.08%. There were 3.32% mild and
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0.60% severe complications of brachial arteriography and a mortality rate of 0.21%. A serious complication occurred at a rate of one per 152 brachial arteriograms. The complication rate of brachial arteriography with carotid vascular disease was 2.70% and 6.41% with basilar artery disease. The total complication rate of brachial arteriography in cerebrovascular disease was 12.17%. The most common local complication was a transient loss of the radial pulse. The most common cerebral complication was a transient motor deficit.

AB-484-72

A young man with a large sphenoid sinus mucocele developed hypopituitarism, headaches, and visual difficulties. Subsequently the lesion caused occlusion of both internal carotid arteries in the parasellar region. The headaches and visual difficulty improved after simple transoral drainage of the cyst.

AB-485-72

A case is presented in which kinking of the right internal carotid artery simulated an aneurysm in the neck. The patient was five years old. The lack of associated tortuosity of the internal carotid artery and the lateral projection of the kinking were unusual findings. When there are no associated neurological symptoms, conservative treatment of the kinked artery is recommended.

AB-486-72
Hydrocephalus and Congestive Heart Failure Caused by Intracranial Arteriovenous Malformations in Infants—Cronqvist S, Granholm L (Department of Neurosurgery A, University Hospital, 221 85 Lund, Sweden), Lundstrom N-R—J Neurosurg 36:249-254 (Mar) 1972*

Two infants with large intracranial arteriovenous (A-V) malformations associated with hydrocephalus and congestive heart failure responded favorably to operative treatment of the malformation. The fact that the hydrocephalus subsided suggests that raised venous pressure may be important in the production of hydrocephalus.

AB-487-72
Relationship Between Low-Density Lipoprotein in Aortic Intima and Serum-Lipid Levels—Smith EB (Department of Chemical Pathology, University of Aberdeen), Slater RS—Lancet 1:463-469 (Feb 26) 1972*

The availability of blood samples drawn from 21 patients during the week preceding death and aortic tissue taken at necropsy has made possible a direct study of the relationship between serum-lipid levels and the concentration of intact lipoprotein in the aortic intima. Lipoprotein in the intima was measured by a microimmunooassay method. In normal intima the concentration of intact lipoprotein was significantly correlated with serum-cholesterol; for every 100 mg per 100 ml increase in serum-cholesterol the lipoprotein cholesterol in the intima increased by 1.8 mg per 100 mg dry tissue, which represents an increment of nearly 50% in the total intimal cholesterol. In the patient with the lowest serum-cholesterol (55 mg per 100 ml) the intima contained 0.7 mg per 100 mg dry tissue of lipoprotein cholesterol and 3.8 mg residual (non-lipoprotein) cholesterol, whereas in the patient with the highest serum-cholesterol (426 mg per 100 ml) the intima contained 8.3 mg lipoprotein cholesterol and 4.3 mg residual cholesterol. In terms of the patients' own sera there was no significant correlation with serum-cholesterol when hypertensive cases were excluded. This suggests that a rather constant amount of whole plasma may be entering the intima, carrying a variable amount of lipoprotein, dependent on its cholesterol level; there was, however, a substantial increase in the two known hypertensives. In fatty streaks containing numerous fat-filled cells there was a 77% decrease in lipoprotein concentration. A comparison of lipoprotein and albumin was made, using the patients' own sera as the standards for both assays. In terms of microlitres of serum there was about seven times as much lipoprotein as albumin, which strongly suggests some form of preferential retention of the lipoprotein.

AB-488-72
Aneurysms of the Internal Carotid Artery in the Carotid Canal of the Petrous Temporal Bone—Anderson RD (Department of Radiology, Albert Einstein College of Medicine, Bronx, New York 10461), Liebeskind A, Schechter MM, Zingesser LH—Radiology 102:639-642 (Mar) 1972*

Aneurysms of the internal carotid artery in the carotid canal of the petrous temporal bone are relatively uncommon lesions. Those arising in the lateral portion of the carotid canal often present with the signs and symptoms of a glomus tumor. A review of the literature indicates that several such aneurysms have been biopsied prior to the
Superficial temporal arteriography is used to diagnose cranial arteritis and polymyalgia rheumatica. The angiographical course and configuration of the superficial temporal artery was defined by injecting 23 arteries in a postmortem group, reviewing 100 cerebral angiograms, and comparing 34 angiograms in patients with polymyalgia or cranial arteritis. This artery has a tortuous pattern but can follow a nontortuous course, simulating the meningeal artery system. It does not appear to show any atherosclerotic changes; thus any angiographical irregularity suggests disease. The artery can be seen in 88% of cerebral angiograms with the continuous filming, magnification technique.

Routine use of photographic subtraction in aortic arch or four-vessel studies can be valuable in uncovering unsuspected lesions and in cases in which clinical findings and unsubtracted radiographs are poorly correlated. Three cases are presented in which the correct diagnoses were made on subtraction prints but not on the unsubtracted radiographs. The technique is simple and can be used routinely in any radiology department.

Interaction of washed pig, rabbit, or human platelets with fibrinogen was studied during its transition to fibrin using photometric, isotopic, and electron microscopic techniques. Untreated fibrinogen and fully polymerized fibrin had no detectable effect on platelets. Fibrinogen, incubated with low concentrations of reptilase or thrombin, formed intermediate products which readily became associated with platelets and caused their aggregation. Neutralization of the thrombin did not prevent this interaction. In the absence of fibrinogen, reptilase did not affect platelets.

The interaction of polymerizing fibrin with platelets was accompanied by small losses of platelet constituents (serotonin, adenine nucleotides, platelet factor 4, and lactic dehydrogenase). This loss did not appear to be the result of the platelet release reaction. Inhibitors of the release reaction or of adenosine diphosphate (ADP)-induced aggregation did not prevent the interaction of platelets with polymerizing fibrin. Apyrase or prostaglandin E₁ (PGE₁) reduced the extent of platelet aggregation by polymerizing fibrin, but the amount of protein associated with platelets was slightly increased.

The interaction of polymerizing fibrin with platelets was completely inhibited by ethylenediaminetetraacetate (EDTA) or ethylene glycol bis (β-aminooethyl ether) N, N, N', N'-tetraacetic acid (EGTA).

Fibers formed in solutions of polymerizing fibrin were larger in the presence than in the absence of washed platelets, suggesting that platelets affect fibrin polymerization. The adherence of platelets to polymerizing fibrin may be responsible for the establishment of links between platelets and fibrin in hemostatic plugs and thrombi.
ABSTRACTS

age group. No such correlations could be found in cases of primary hyperlipoproteinemia without coronary heart disease.

Furthermore, a relation was observed between the age of manifestation of the coronary heart disease and proportion of sexes. Both sexes were present in equal number in type II between the age of 60 to 69 years, and in type IV from 70 years on; in the younger age group though the male sex clearly predominated. An age-dependent proportion of sexes could also be proved in patients with primary hyperlipoproteinemia without coronary heart disease. Here, however, the balance between the sexes was already reached 20 years earlier; the male sex again predominated in the younger group.

These results show the importance of hyperlipoproteinemia of types II and IV as factors of risk in the development of coronary heart disease.

AB-493-72

Carotid cavernous fistulae were treated by a new technique; the method—carotid artery was occluded at the level of the fistula by using a Fogarty catheter. Comparison is made between the advantage of available operative technique and the new method.

AB-494-72

The intracranial pressure of experimental animals (monkeys and cats) was increased by intracranial fluid injections. The cerebral blood volume seemed to be moderately decreased during periods of increased intracranial pressure.

AB-495-72

In some patients with cerebrovascular disease hexobendine acts as a specific cerebral vasodilator. In stroke patients with systemic hypertension this drug increases cerebral blood flow and is effective in both localized and diffuse intracranial vascular disease. Neither cerebral metabolism nor systemic cardiovascular hemodynamics seem to be affected by hexobendine. There is no evidence that vasodilating agents are harmful or beneficial in altering the natural history of cerebrovascular disease.

AB-496-72
Restoration of Autoregulation of Cerebral Blood Flow by Hypocapnia—Paulson OB (Department of Clinical Physiology, Bispebjerg Hospital, Copenhagen, Denmark), Olsen J, Christensen MS—Neurology 22:286-293 (Mar) 1972

Regional cerebral blood flow is normally independent of systemic blood pressure (autoregulated) and responsible to CO2, a vasodilator. In focal brain disease (i.e., tumor, ischemia) the normal vasomotor responses are focally lost. Nonfocal vasomotor changes have been observed in the diseased hemisphere in addition to the above focal changes and have been termed "dissociated vasoparalysis"—a widespread loss of autoregulation with preservation of reaction to Paco2 changes. In the present study, regional blood flow was measured in the nondiseased hemisphere in six patients with nonfocal dissociated vasoparalysis secondary to an isolated brain lesion—four patients with tumors and two with ischemic lesions. The results of the study revealed a similar phenomenon in the nondiseased hemisphere, indicating a generalized global alteration in vasomotor regulation secondary to a focal lesion. It is suggested that dissociated vasoparalysis may be a result of tissue acidosis, a point to be clarified later. It was also noted that during hypocapnia, autoregulation could be restored, a factor that may prevent cerebral edema and therefore be therapeutically significant.

AB-497-72

A 63-year-old woman with idiopathic thrombocytopenia had multiple episodes of transient monocular blindness secondary to retinal emboli. Platelet count and aggregability were abnormally increased. Both platelet aggregability and the transient ischemic episodes were abolished with 0.6 gm of aspirin every six hours. There was no alteration in platelet count. Aspirin may decrease platelet aggregation by inhibiting release of ADP by the platelets themselves or inhibiting collagen-induced aggregation.
ABSTRACTS

AB-498-72
Essential Hypertension: Renin and Aldosterone, Heart Attack and Stroke—Brunner HR, Laragh JH (Department of Medicine, College of Physicians and Surgeons, New York, New York 10032), Baer L, Newton MA, Goodwin FT, Krakoff LR, Bard RH, Bühlcr FR—New Eng J Med 286:441-449 (Mar 2) 1972

Aldosterone excretion and plasma renin activity were related to daily sodium excretion in 219 patients with essential hypertension. These values were compared to a set of normal values (normogram) drawn from 52 normal volunteers studied over the same continuous range of sodium balance. In 27% plasma renin was subnormal, in 57% normal, and in 16% elevated. In 59 patients with low renin levels no serious complications were observed, while in the normal or high renin patient groups, 11% and 14%, respectively, had heart attacks or strokes (all groups being observed over similar periods). The low renin group seems to be protected despite similar hypertension, similar left ventricular enlargement, and higher mean age. Plasma renin may be useful in patients with essential hypertension for identifying etiologies, determining prognosis and applying therapy.

AB-499-72
Erythrocyte Velocity and Fluorescein Transit Time Through the Cerebral Microcirculation in Experimental Polythemia—Rosenblum WI (Division of Neuro-pathology, Medical College of Virginia, Richmond, Virginia 23219)—J Neuropath Exp Neurol 31:126-131 (Jan) 1972

Retropertitoneal transfusions produced polycythemia in mice. The cerebral microcirculation was studied by microcinematography. An increase in blood viscosity was demonstrated. Erythrocyte velocities were not reduced but fluorescein transit time (plasma flow) from pial arterioles to pial venules was prolonged. This may be explained by an increase of the normal migration of RBCs toward the center of the vessel in hyperviscous states. This would result in RBCs taking a more direct route through the vessel while the plasma would be "skimmed" off into the side branches. Further study to distinguish between the movement of plasma and erythrocytes would aid in understanding the microcirculatory events of this disease.

AB-500-72
Reflections on the Mechanism and Significance of Arterial Hypertension Following Cerebral Arterial Occlusion—Moore WS (Veterans Administration Hospital, San Francisco, California 94121)—Am J Med 83:286-287 (Feb) 1972

The theories which have been proposed to explain the reflex increase in arterial blood pressure following acute cerebral arterial occlusion are discussed. These include release of a vasoactive substance from the ischemic brain, sympathetic reflex stimulus to the kidneys to release renin inducing a systemic hypertensive response, and a neurogenic reflex mediated by the sympathetic nervous system producing a hypertensive response. The significance of the hypertensive response to acute ischemic insults rests in the autoregulation of cerebral perfusion; the hypertension serves to augment cerebral perfusion via collateral circulation, thereby maintaining cerebrovascular homeostasis. Therefore, any attempt to lower blood pressure in the patient with a recent stroke may have an adverse effect on collateral circulation and result in a wider area of infarction.

AB-501-72
Cerebral Ischaemic Lesions and Oral Contraceptives—Kjaer M (Department of Neurology, Central Hospital, Viborg, Aarhus, Denmark), Oliverius BDF, Waarst A—Dan Med Bull 18:129-137 (Dec) 1971

Previous studies in women using oral contraceptives (OC) have revealed an increased incidence of thromboembolic disease including cerebral ischemia. The risk was increased in those taking medication with the higher estrogen content. The present study consists of 20 women admitted to a neurological department over a period of two years—all had used OCs for varying periods (few months to four years). None of the cases proved fatal. Eleven patients had transitory symptoms while in nine women the symptoms persisted for several weeks. Arteriography revealed arterial occlusion in eight of the latter nine patients. The symptoms were presumably due to cerebral vasospasms. Hypothetically, OCs increase platelet destruction releasing serotonin, which results in vascular contraction. Concurrent changes in coagulation induced by OCs may predispose to thrombosis in the area of serotonin-induced vasospasm. OC should be discontinued on the slightest suspicion of cerebral ischemia and other methods of contraception should be considered prior to prescribing OC.

AB-502-72
Cerebral Embolism Due to Non-Bacterial Thrombotic Endocarditis—Remillard GM (Montreal Neurological Institute, Montreal, Quebec, Canada), Carpenter S—Canad Med Assoc J 106:573-576 (Mar 4) 1972

A case of cerebral artery embolization secondary to nonbacterial thrombotic endocarditis (NBTE) is reported in an 18-year-old boy. At post mortem valvular vegetations of sterile
agglutinated blood platelets without inflammatory reaction were noted. This condition was previously thought to occur in association with chronic or terminal illness; subsequent studies have revealed the condition to develop in a wide variety of diseases (neoplastic, circulatory, infections, etc.). Embolization may be the first sign of illness. NBTE occurs more commonly on damaged valves but may develop on normal valve leaflets. When the valves are normal and embolization occurs in the fresh state, it may be difficult to determine the site of embolus source at postmortem examination. NBTE should always be considered when source of emboli is not obvious, particularly in nonatherosclerotic younger individuals.


Three parameters measured by a dynamic tonometer (electronic Schiitz tonometer) were evaluated in patients having varying degrees of carotid occlusion. Intraocular pressure differed by 1 to 2 scale readings when both eyes were measured in patients with significant differences in carotid blood flow. A close correlation also exists between corneal indentation pulse (CIP) amplitude and carotid blood flow, a significant reduction in CIP amplitude occurring when carotid occlusion exists. Various degrees of stenosis are also associated with a decrease in CIP amplitudes. The third parameter, relative crest time, is prolonged on the side of the significant carotid occlusive disease. The time to reach the peak of the corneal indentation pulse is expressed as a percent of the entire pulse during one cardiac cycle and is referred to as relative crest time. Therefore, a decrease in intraocular pressure and CIP amplitude with an increase in relative crest time have been demonstrated on the side responsible for symptoms in a group of patients with carotid occlusive disease.

AB-504-72 The Influence of Drugs Upon the Anticoagulant Activity of Heparin—Hodby ED, Hirsh J (Department of Laboratory Medicine, St. Joseph's Hospital, Hamilton, Ontario, Canada), Adeniyi-Jones C—Canad Med Assoc J 106:562-564 (Mar 4) 1972

Altering the pH of heparin solutions from 3.2 to 9.2 did not affect the ability of heparin to alter the partial thromboplastin time. Likewise there was no precipitation or loss of anticoagulant activity when ampicillin, cloxacillin, potassium chloride, hydrocortisone, isoprenaline, vitamin solutions (Beplex, etc.), cephalothin, lidocaine, tetracycline or penicillin G were added to the heparin solution in concentrations similar to those used in the clinical situation. Heparin did not affect the biological activity of the antibiotics tested. Heparin can be given intravenously diluted with either normal saline, 5% dextrose in water or dextrose saline solution without loss of anticoagulant activity.

AB-505-72 Chloral Hydrate and Oral Anticoagulants—Lancet 1:524 (Mar 4) 1972

Oral anticoagulants interact with other drugs by two basic mechanisms: displacement, by the other drug, of the anticoagulant from its binding site on plasma proteins, and alteration of the rate of anticoagulant metabolism by enzymes of the liver endoplasmic reticulum. Chloral hydrate reduced the anticoagulant effect of bishydroxycoumarin by displacement of the anticoagulant from its protein-binding site by the trichloracetic acid, a major metabolite of chloral hydrate. In one study this was associated with an enhanced anticoagulant effect since there was an increase in unbound drug. Significantly less warfarin is required during induction phase in those patients receiving continuous chloral hydrate.

AB-506-72 Anticoagulants in Pregnancy: A Review of Indications and Complications—Hirsh J (Department of Pathology, St. Joseph's Hospital, Hamilton, Ontario, Canada), Cade JF, Gallus AS—Amer Heart J 83:301-305 (Mar) 1972

Maternal indications for anticoagulant therapy are described and include venous thrombosis, pulmonary embolism and prosthetic heart valves. Fetal complications during anticoagulant treatment with vitamin K antagonists include hemorrhage, but according to animal studies this is related to the trauma of delivery. Human studies have shown oral anticoagulants may not increase the risk of fetal hemorrhage unless they are taken until term or in excessive doses. There is no evidence that there is an increase of uterine hemorrhage in mothers taking oral anticoagulants; sites of trauma (vaginal tears or episiotomies) may be expected to have increased bleeding. Therapeutically heparin is the favored anticoagulant, but the necessity of parenteral administration makes this therapy impractical. Oral anticoagulants should be avoided during the first trimester because of possible teratogenic effects and best be avoided during the last three weeks of gestation. At other times during pregnancy, oral anticoagulants probably carry little risk if carefully monitored to avoid overdosage.
Women with a history of thromboembolic disease involving the lower extremities is increased, do not increase the risk for women taking oral contraceptives. The large volume of prospective data fails to confirm earlier retrospective studies which have postulated an increased risk for women taking oral contraceptives. There was no correspondence between the dosage of estrogen and the incidence of disease. The incidence of thromboembolic disease is 2.2 cases per 1,000 women of childbearing age per year in a normal population sample; at all dosages of estrogen this incidence was no greater in the group taking oral contraceptives.

A new technique for evaluation of regional cerebral blood flow utilizing the gamma camera to monitor the passage of an intravenous bolus of $^{99m}$Tc-sodium pertechnetate has been studied in 210 patients with acute neurological deficits. Asymmetrical distribution of activity was observed in 57% of patients with ischemic strokes involving the internal carotid artery system and in 50% of all the patients with acute strokes. Abnormalities fell into two basic types: sustained decrease in activity in one cerebral hemisphere, and transient decrease in activity in the affected hemisphere with subsequent greater activity than the unaffected side. This latter abnormality was seen in 25% of the abnormal studies in patients with cerebrovascular disease and is the result of delayed transit time through the involved region of the brain. This technique is also of value in estimating the vascularity of cerebral neoplasms and helps to distinguish these lesions from the ischemic infarction.
ABSTRACTS

scan. A suitable solution would be to delay all scanning until two hours after the injection of the pertechnetate.

AB-512-72

Bifrontal Craniotomy for Anterior Communicating Artery Aneurysms—Pool JL (Department of Neurological Surgery, Columbia University College of Physicians and Surgeons, New York, New York 10032)—Neurosurg 36:212-220 (Feb) 1972

The past ten-year experience with surgical treatment of ruptured aneurysms of the anterior communicating artery in 60 patients is reported. The most favorable results were obtained in young patients with good and fair risk for whom the mortality was 2.8%. The overall mortality was 7% when four moribund grade 5 patients were excluded. The surgical technical aspects are discussed in detail.

AB-513-72

Clinical Equivalents of Cerebral Oxygen Consumption in Coma—Shalit MN (Department of Neurosurgery, Hadassah Medical Organization, Mayer de Rothschild Hadassah University Hospital, P.O.B. 499, Jerusalem, Israel), Beller AJ, Feinsod M—Neurology 22:155-160 (Feb) 1972

In a series of 24 comatose patients, the relationship of cerebral blood flow, cerebral oxygen consumption, and clinical status was explored. Cerebral oxygen consumption of 1 ml/100 gm/min was the lowest value at which signs of brain viability could still be detected. Further suppression of the oxygen consumption values resulted in accepted clinical criteria of brain death. With cerebral hemisphere damage, coma was at times reversible in the face of cerebral oxygen consumption values as low as 1.5 ml/100 gm/min; however, in brain stem damage with relatively high oxygen consumption values initially, patients usually gradually deteriorated, either remaining in a chronic vegetative state with consumption values of 1.3 to 2 ml/100 gm/min or eventually dying.

AB-514-72


Three cases are presented with reading inability but preserved ability to write secondary to angiographically demonstrated left occipital lobe lesions. There were varying degrees of extension beyond the confines of the occipital lobe. A complete explanation for the findings could not be provided by the disconnection nor the dysphasic theory of alexia; a third form of alexia is suggested which probably represents a more complex relationship between visual and language functions.

AB-515-72

Cerebral and Spinal Fluid Anaerobism During Circulatory Arrest—Yashon D (Division of Neurological Surgery, Ohio State University Hospitals, Columbus, Ohio 43210), Paulson G, Locke GE, Miller C, Hunt WE—Neurology 22:211-214 (Feb) 1972

During a period of circulatory arrest in dogs the relationship of cerebrospinal fluid and blood lactate to cerebral tissue lactate was investigated to determine the relative extent of anaerobism. In the brain the average lactate rise was 4.5 times the control; in the blood 3.75-fold over the control, and 1.5 times the control in the CSF. Spontaneous anaerobic metabolism in the circulatory system probably accounts for the 2.5-fold increase of blood lactate over CSF. After ten minutes of ischemia, brain lactate was found to accumulate at a 3:1 greater rate when compared to CSF lactate accumulation. Therefore, CSF lactate fails to typify cerebral tissue lactate and is not an absolute measure of cerebral viability.

AB-516-72

Intracranial Hemorrhage Associated With the Disulfiram-Alcohol Reaction—Guarnaschelli JJ (Department of Neurosurgery, Los Angeles County-University of Southern California Medical Center, Los Angeles, California 90033), Zapanta E, Pitts FW—Bull L A Neurol Soc 37:19-23 (Jan) 1972

A 50-year-old man ingested two ounces of vodka while undergoing Disulfiram treatment (0.25 gm/day). Within 30 minutes he had sudden onset of severe posterior occipital headache, nausea, and vomiting. On admission he was somnolent, had a left central facial paresis, left hemiparesis and bilateral plantar extensor responses. Lumbar puncture disclosed xanthochronic fluid and a right parietal-temporal mass was seen on angiographical study. At surgery 60 cc of hemorrhagic material was evacuated, but the patient failed to regain consciousness. Acetaldehyde accumulates during Disulfiram therapy and has the capability of causing release of norepinephrine with resultant hypertension. The mechanism responsible for the intracerebral hemorrhage in the present case is unknown.
AB-517-72
Non-Newtonian Behavior of Surface Layers of Human Plasma Protein Systems and a New Concept of the Initiation of Thrombosis—Copley AL (Department of Pharmacology, New York Medical College, New York, New York 10029)—Biorheology 8: 79-84 (Dec) 1971

A new technique for measurement of blood viscosity is described. A marked increase in viscosity was noted following addition of 0.4% fibrinogen to either 5% plasma or 0.25% albumin, but no viscosity alteration occurred with a similar addition to 90% plasma or 5% albumin. A new concept for the initiation of thrombosis is supported by these findings; this theory is based on the formation of polymolecular layers of fibrinogen and other plasma proteins leading to the obstruction of the affected blood vessel and consequently impairment of circulation. Protein aggregation occurs in two steps; protein adsorption to the surface wall followed by a growth process in which additional protein molecules adsorbs to the previously formed adsorption layers.

AB-518-72

The pressure-volume relationship was studied in enucleated cat eyes. Various measured volumes were injected into the eyes while perfusion pressure in the vascular bed was controlled by cannulating the ophthalmic artery. As the ophthalmic artery perfusion pressure was increased, the intraocular pressure changes, induced by injections of lactated Ringer's solution into the eye, were significantly reduced. A probable explanation includes rapid reduction of the intracocular vascular compartment through venous outflow channels at higher ophthalmic artery perfusion. Therefore, an inverse relationship exists between ocular rigidity and ophthalmic artery perfusion pressure.

ITEMS OF INTEREST

This article is a review of the intracranial circulation as it can be presented in the form of mathematical models.


This symposium contains some discussions of problems of coagulation and biomaterials.

Symposium on Factors in Childhood that Influence the Development of Atherosclerosis and Hypertension—Amer J Clin Nutr 25: 221-254 (Feb) 1972

Fundamentals of Clinical Cardiology, Platelets and Thrombogenesis—Current Concepts—Schnetzer GW III (Department of Internal Medicine, University of Michigan, Ann Arbor, Michigan)—Amer Heart J 83: 552-564 (Apr) 1972
Abstracts

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