Abstracts

AB-2379-76
Effects of Clofibrate and Sulfinpyrazone on Platelet Survival Time in Coronary Artery Disease — Steele P (Denver VA Hospital, Denver, Colorado 80220), Battock D, Genton E — Circulation 52:473-476 (Sep) 1975*

Platelet survival time was measured (autologous labeling with chromium) in 68 men with coronary artery disease (CAD). Survival was shortened slightly (3.2 ± 0.04 days; mean ± SEM) as compared to normal (3.7 ± 0.04 days; N = 18; P < 0.001), and 60% had shortened survival (< 3.3 days). Thirty-seven had hyperlipoproteinemia (36 with Type IV and one with Type III) and platelet survival was shortened (3.1 ± 0.10 days) and significantly different from survival of men with normal lipoproteins (3.3 ± 0.12 days; P < 0.05). Twenty-two with shortened platelet survival and CAD received either clofibrate or sulfinpyrazone. Clofibrate prolonged platelet survival (2.6 ± 0.09 to 3.4 ± 0.14 days; P < 0.001) and ten of 12 had prolongation of survival. Sulfinpyrazone increased survival (2.8 ± 0.12 to 3.6 ± 0.21; P < 0.001) and nine of ten had prolongation of platelet survival. Clofibrate lowered serum cholesterol and triglyceride but alteration in lipids did not correlate with alteration of survival. Sulfinpyrazone did not alter lipids. Data suggest that survival is shortened in CAD and that clofibrate and sulfinpyrazone alter survival. Platelet suppressant agents may prove beneficial in reducing the extent and complications of atherosclerotic arterial injury.

AB-2380-76
The Role of Sulfinpyrazone in the Prevention of Arteriovenous Shunt Thrombosis — Kaegi A, Pineo GF (St. Joseph's Hospital, Hamilton, Ontario L8N 1Y4, Canada), Shimizu A, Trivedi H, Hirsh J, Gent M — Circulation 52:497-499 (Sep) 1975*

The effect of sulfinpyrazone on the incidence of thrombosis of arteriovenous shunts was investigated in a double-blind crossover study in 45 patients on chronic hemodialysis requiring withdrawal from the study of only one patient. This crossover study strengthens the findings in the previous week of starting the drug. The side effects were minimal, requiring withdrawal from the study of only one patient. This crossover study strengthens the findings in the previous report that sulfinpyrazone is of value in the prevention of thrombosis.

AB-2381-76
Cerebral Blood Flow in Dementia — Hachinski VC (Graham MacLachlan Stroke Unit, Sunnybrook Hospital, University of Toronto Clinic, Toronto, Ontario M4N 3M5, Canada), Iliff LD, Zilhka E, Du Boulay GH, McAllister VL, Marshall J, Russell RWR, Symon L — Arch Neurol 32:632-637 (Sep) 1975*

Twenty-four patients of comparable age, blood pressure, and degree of dementia were classified by an "Ischemic Score" based on clinical features into "multi-infarct" and "primary degenerative" dementia. Regional cerebral blood flow (CBF) was measured by the intracarotid 133 xenon method. Both groups showed a decreased proportion of rapidly clearing brain tissue (largely gray matter). Cerebral blood flow per 100 gm brain per minute was normal in the primary degenerative group but low in the multi-infarct group. This suggests the blood flow is adequate for metabolic needs of the brain in patients with primary degenerative dementia but inadequate for those with multi-infarct dementia. There was no correlation between degree of dementia and CBF in the primary degenerative group but an inverse relationship existed in the multi-infarct group. Reactivity of blood vessels to reduction of arterial carbon dioxide pressure was normal in both groups.

AB-2383-76
Pure Motor Hemiplegia Due to Pyramidal Infarction — Chokroverty S (PO Box 127, Hines, Illinois 60141), Rubino FA, Haller C — Arch Neurol 32:647-648 (Sep) 1975*

A 77-year-old man suddenly had left hemiplegia without sensory impairment, visual or speech difficulties, loss of con-
ABSTRACTS

Isciculousness, or ataxia. He died one month later of pulmonary embolism, and a cystic infarction in the right medullary pyramid was the only lesion in the corticospinal system.

AB-2384-76

Experimental cerebral vasospasm was studied in cat and monkey models. In the cat, the basilar artery was exposed by a transclival approach and spasm induced by the application of blood to the vessel. In the monkey, spasm was produced by injecting blood into the subarachnoid space. Vessel size was determined in the cat by direct observation and, in the monkey, by cerebral angiography. Several agents known to alter the synthesis and degradation of cyclic adenosine monophosphate (AMP) were used to modify the vasospasm produced. Isoproterenol (Norisodrine) and aminophylline were effective in reversing cerebral vasospasm when applied topically and when administered parenterally. It is suggested that manipulation of the cyclic AMP pathways may be an effective method of controlling cerebral vasospasm.

AB-2385-76
Ligation of the Vertebral (Unilateral or Bilateral) or Basilar Artery in the Treatment of Large Intracranial Aneurysms — Drake CG (Division of Neurosurgery, The University of Western Ontario, London, Ontario, Canada) — J Neurosurg 43:255-274 (Sep) 1975*

The author reports the use of vertebral artery ligation, unilateral and bilateral, for the treatment of large vertebro-basilar aneurysms in 14 patients with one delayed death. Extracranial ligation was carried out unilaterally with a Selverstone clamp in three patients. In two, where the aneurysm filled only from one vertebral artery, there was extensive thrombosis within the sac and dramatic clinical improvement after decompression. Extracranial ligation was done bilaterally in three patients, temporarily in two. A 14-year-old boy is well after five years but the bilateral vertebro-basilar aneurysm did not undergo extensive thrombosis until both vertebral arteries were occluded at their intracranial entrance above collateral flow. In two others, the clamp had to be reopened on the second artery. In one patient, death from delayed thrombosis of a huge aneurysm and pontine infarction might have been prevented with anticoagulants. In the other, the aneurysm ruptured again fatally 18 months later.

Unilateral intracranial occlusion of a vertebral artery was done in eight cases, with no morbidity and complete or nearly complete thrombosis in all but one aneurysm. Seven patients had excellent or good results while one showed little recovery from an existing medullary syndrome.

Occlusion of the basilar artery was done in seven cases. In five it was used deliberately as the only treatment, but in two it was forced when an aneurysm burst during dissection.

Only two of the patients in the first group and one of the second group have made complete recoveries.

The results of vertebral artery occlusion are encouraging and the technique deserves further consideration. Extensive collateral circulation enhances the safety of cervical vertebral artery occlusion but can be of a degree to make the occlusion ineffective. For intracranial occlusion knowledge of the size and distribution of each vertebral artery is essential. Occlusion of the basilar artery is dangerous, although it seems to be effective in producing extensive thrombosis in the aneurysm. It should probably be done under anesthesia only when the artery fills spontaneously from the carotid circulation. Otherwise, even when reasonable posterior communicating arteries are demonstrated, it is best to test occlusion under local anesthesia.

AB-2386-76
Therapeutic Percutaneous Embolization for Extra-Axial Vascular Lesions of the Head, Neck, and Spine — Hilal SK (Neurological Institute, New York, New York 10032), Michelsen JW — J Neurosurg 43:275-287 (Sep) 1975*

Therapeutic percutaneous embolization of extra-axial vascular tumors and arteriovenous malformations was performed 41 times in 27 patients. Twenty-one patients (78%) had a clinically favorable result. In 11 of these patients, the procedure was preoperative and caused a dramatic reduction of surgical blood loss. In the remaining ten patients with a favorable result, therapeutic embolization alone resulted in a significant clinical amelioration documented by a detailed follow-up varying from two to five years. In patients with uncontrollable epistaxis, the procedure was life-saving. The guidelines and instrumentation for a safe and effective technique are presented, based on the authors' experience with more than 100 cases of vascular lesions of the brain and spinal cord. A low-viscosity silicone polymer was developed by the authors and used clinically as an intravascular adhesive for the embolization of vascular tumors.

AB-2387-76

Cerebral blood flow, electrical activity, and neurological function were studied in rabbits subjected to either 15 minutes of oligemia (20 mmHg cerebral perfusion pressure) or complete cerebral ischemia produced by cisterna magna infusion. During oligemia, flow was reduced from 68.4 ± 4.2 ml/100 gm/min to 26.3 ± 4.4 (P < 0.01), and during ischemia animals had no proved flow. By five minutes after oligemia or ischemia significant symmetrical hyperemia occurred and there was no evidence of the no-reflow phenomenon. The electroencephalogram became isoelectric significantly later and returned significantly sooner in oligemia than in ischemia. Oligemic animals had earlier and
better return of neurological function than their ischemic counterparts, although postinsult hypocapnia improved functional recovery in both groups. These experiments do not support the concept that oligemia is a more severe insult than complete ischemia. In intracranial hypertension produced by this model, the no-reflow phenomenon does not occur.

**AB-2388-76**

Experimental Cerebral Oligemia and Ischemia Produced by Intracranial Hypertension. Part 2: Brain Morphology — Marshall LF, Graham DI, Durity F, Lounsbury R, Welsh F, Langfitt TW (Division of Neurosurgery, Hospital of the University of Pennsylvania, Philadelphia, Pennsylvania 19104) — *J Neurosurg* 43:318-322 (Sep) 1975*

The authors studied the morphological sequelae of 15 minutes of cerebral oligemia (20 torr cerebral perfusion pressure) and complete cerebral ischemia produced by raised intracranial pressure in rabbits. Ischemic cell change was present in five of seven ischemic animals; it was most extensive in the striatum and hippocampus, with only a few ischemic nerve cells in the thalamus and neocortex. The brains of control and oligemic animals were normal. These results indicate the following: (1) ischemia is a more severe insult than oligemia; (2) compression ischemia results in a pattern of damage that differs from that produced by other types of ischemia; and (3) the method used to reduce cerebral perfusion pressure is an important factor in determining the pattern and extent of brain damage produced.

**AB-2389-76**

Experimental Cerebral Oligemia and Ischemia Produced by Intracranial Hypertension. Part 3: Brain Energy Metabolism — Marshall LF, Welsh F, Durity F, Lounsbury R, Graham DI, Langfitt TW (Division of Neurosurgery, Hospital of the University of Pennsylvania, Philadelphia, Pennsylvania 19104) — *J Neurosurg* 43:323-328 (Sep) 1975*

The authors studied the effect on cortical metabolites of intracranial hypertension produced by the infusion of mock CSF into the cisterna magna in rabbits subjected to 15 minutes of cerebral oligemia (20 torr) or 15 minutes of complete ischemia. In both groups high-energy metabolites were exhausted within the first five minutes of the insult. Significant recovery of the high-energy intermediates occurred within 15 minutes of reperfusion, well before return of EEG activity. Continued reperfusion, during which electrical activity and function were returning, brought only moderate improvement in energy metabolites. In contrast, severe lactic acidosis persisted at least 15 minutes after insult, but was reduced by the time EEG activity returned. At no time were there striking differences in metabolites between the oligemic and ischemic groups. These results indicate that recovery in general, and the significantly earlier recovery of oligemic as compared to ischemic animals, cannot be explained on the basis of energy supply. Whether the persistence of lactic acidosis is an important factor limiting return of function requires further study.

**AB-2390-76**

Treatment of Internal Carotid Bifurcation Aneurysms by Direct Surgery — Sengupta RP (Regional Neurosurgical Center, Newcastle upon Tyne, England), Lassman LP, de Moraes AA, Garvan N — *J Neurosurg* 43:343-351 (Sep) 1975*

Nine cases of aneurysm at the bifurcation of the internal carotid artery are described. All patients were submitted to direct intracranial surgery and the neck of the sac in eight cases was occluded by spring clip. There was no mortality and only one poor result. From an analysis of these cases and a review of the literature, some characteristics of these aneurysms and their management are described.

**AB-2391-76**

Thermography in the Management of Carotid-Cavernous Fistulas — Galera R (Department of Neurosurgery, Vargas Medical School, Central University of Venezuela, Caracas, Venezuela), Martinez A — *J Neurosurg* 43:352-356 (Sep) 1975*

The authors report their experiences with thermography as a new tool to assess the diagnosis and postoperative control of patients with carotid-cavernous fistulas (CCF). A zone of increased temperature on the homolateral orbital region is described in cases of CCF. A supraorbital "cool" area, as seen in patients with carotid stenosis or occlusion, is observed when surgery with the Jaeger-Hamby technique has been successful. Thermograms obtained in five patients are presented and the pathophysiology of these findings is discussed.

**AB-2392-76**

Treatment of Vertebraljugular Fistula by Balloon Occlusion. Case Report — Goodman SJ (Division of Neurosurgery, Harbor General Hospital, Torrance, California 90509), Hasso A, Kirkpatrick D — *J Neurosurg* 43:362-367 (Sep) 1975*

The authors report the successful treatment of a posttraumatic vertebraljugular fistula by a combination of vascular trapping and intraluminal balloon occlusion.

**AB-2393-76**

An Approach to Contrast Enhancement in Computed Tomography of the Brain — Kramer RA (Department of Radiology, Palo Alto Medical Clinic, Palo Alto, California 94301), Janetos GP, Peristein G — *Radiology* 116:641-647 (Sep) 1975*

A total of 450 brain examinations were performed using computed tomography before and after intravenous infusion of methylglucamine diatrizoate 30%. In 110 cases involving a documented intracranial lesion, the scans were analyzed to determine the degree and usefulness of contrast enhancement. Enhancement was achieved in a wide variety of neoplastic and non-neoplastic lesions and was found to be of considerable help in detection of abnormality as well as in defining tumor morphology.
AB-2394-76
Relapsing Juvenile Chronic Subdural Hematoma in Adult Life — Yang WC, Tabaddor K, Batnizky S, Valsamis MP, Schechter MM (Department of Radiology, Albert Einstein College of Medicine, Bronx, New York 10461) — Radiology 116:649–654 (Sep) 1975*

Two cases of relapsing juvenile chronic subdural hematoma with late relapse in adult life are presented and the literature reviewed. Both patients contracted subdural hematoma early in life; its persistence resulted in characteristic skull deformities. The patients led an asymptomatic life until a second head trauma caused rebleeding into the old hematoma sac with recurring symptoms and signs. The source of rebleeding is the outer subdural membrane. Radiographic features vary, depending on the location and size of the subdural hematoma. The significance of localized thickening of the cranium is stressed in refining the differential diagnosis.

AB-2395-76
The Lateral Angiogram in the Differentiation of Extracerebral Hematomas — Winter TQ (Editorial Office, Department of Radiology, 380-M, University of California School of Medicine, San Francisco, California 94143), Glickman MG — Radiology 116:661–665 (Sep) 1975*

The pathophysiology of epidural hematomas is considerably different from that of subdural hematomas. Epidural hematomas are well-localized intracranial masses under high pressure, whereas subdural hematomas are more widespread collections of blood under lower pressure. The underlying small cortical vessels are normal in both acute and chronic subdural hematomas but are severely distorted in epidural hematomas. The appearance of these vessels, seen best in the lateral projection, can help differentiate the various types of extracerebral hematomas.

AB-2396-76
Intimal and Medial Calcifications of the Carotid Siphon and Cerebrovascular Disease — Scotti G, De Grandi C (Clinic morphological criteria. Signs of cerebrovascular disease in the territory of the internal carotid artery were seen in 35.1% of the intimal group and 37.2% of the medial group. These findings suggest that the two types of calcification do not have different prognostic values as theorized previously.

AB-2397-76
Reliability of Gallium Brain Scanning in the Detection and Differentiation of Central Nervous System Lesions — Waxman AD (Nuclear Medicine Section, Los Angeles County/USC Medical Center, Los Angeles, California), Siemsen JK, Lee GC, Wolfstein RS, Moser L — Radiology 116:675–678 (Sep) 1975*

Both ⁹⁹ᵐTc-pertechnetate and ⁶⁷Ga-citrate brain scans were performed in 93 patients with cerebral neoplasms and in 70 others with cerebral infarction or hemorrhage. Tumor detection was clearly better with ⁶⁷Ga (96%) than with ⁹⁹ᵐTc (85%). Cerebral infarctions consistently either failed to concentrate ⁶⁷Ga (67%) or revealed a much lower concentration than the ⁹⁹ᵐTc study (27%). In 6% of the infarction patients, gallium and technetium scans were equivalent.

AB-2398-76

Sensory neuro-opthalmic abnormalities due to cerebral lupus, with involvement of visual pathways posterior to the optic chiasm, occurred in 12 patients with systemic lupus erythematosus. Five underwent detailed evaluation because of an hallucination, four for visual loss, and three for both. Hallucinations were either unformed (e.g., bright lights, straight lines) or highly formed (e.g., faces), in which case they were invariably recognized by the patient as inappropriate. In no instance did they occur in association with delirium, confusion, or use of hallucinogenic drugs. Patients with loss of vision had scotomas, homonymous field defects, and cortical blindness. These features indicate disease in the posterior cerebral artery circulation, a localization often supported by ancillary neurologic findings, vocal cord paralysis, diminished gag reflex. Thus, various visual dysfunctions may occur in systemic lupus erythematosus due to cerebral vasculitis. At times they may be the most prominent and disabling feature of the disorder.

AB-2399-76

A new method of ocular pneumoplethysmography, when combined with simultaneous carotid compression, provides a means of assessing the adequacy of collateral blood flow to the ipsilateral cerebral hemisphere. This noninvasive, atraumatic technique has proved valuable in evaluating patients for carotid resection, ligation, or endarterectomy.

AB-2400-76
Retinal Artery Emboli. Indications for Angiography and Carotid Endarterectomy — Tompkins WC, Vander Molen RL, Yacoubian HD, Connolly JE (Department of Surgery, University of California, Irvine, California 92664) — Arch Surg 110:1075–1078 (Sep) 1975*

Six patients with ocular symptoms were referred by the Eye Service to the Vascular Service because of the presence...
of cholesterol emboli on funduscopic examination of the retinal arteries. None of the six patients had classic intermittent retinal or cerebral ischemic attacks. Four-vessel aortic arch arteriogram was suggested and significant ipsilateral carotid disease was found in all patients. Four patients underwent carotid endarterectomy, with removal of ulcerated plaques from the carotid bifurcation. Two patients had occlusion of the ipsilateral internal carotid artery and therefore were not operative candidates. The presence of retinal cholesterol emboli is an indication for extracranial arteriography. When ipsilateral ulcerative disease is found, carotid endarterectomy is indicated regardless of the symptoms.

AB-2402-76

The Effects of ATP on Platelets: Evidence Against the Central Role of Released ADP in Primary Aggregation — Macfarlane DE (Thrombosis Research Center, Temple Hospital, Philadelphia, Pennsylvania 19140), Mills DCB — Blood 46:309-320 (Sep) 1975*

The influence of freshly purified ATP on the effects of aggregating agents on human platelets was studied. ATP inhibited aggregation induced by ADP competitively (K_i = 20 \mu M) and immediately without need for prior incubation. ATP had no effect on primary aggregation induced by adrenaline, thrombin, vasopressin, or 5-hydroxytryptamine (5HT). ATP inhibited the shape change and the consumption of metabolic ATP induced by ADP but did not inhibit these effects when induced by thrombin, vasopressin, or 5HT. ATP counteracted the inhibition by ADP of PGE_2-stimulated cyclic AMP production in platelets but did not reduce inhibition by adrenaline. It is concluded that adrenaline, thrombin, 5HT, and vasopressin each can induce primary aggregation of human platelets by a mechanism independent of extracellular ADP.

AB-2402-76

Endothelial Injury Induced by Thrombin or Thrombi — Lough J (Department of Pathology, McGill University, Hamilton, Ontario, Canada), Moore S — Lab Invest 33:130-135 (Aug) 1975*

A variety of blood constituents was injected into an isolated segment of rabbit aorta to determine which elements might be involved in early endothelial injury. Test materials consisted of platelet-rich plasma (PRP) alone; PRP plus adenosine diphosphate (ADP); PRP plus tendon extract; PRP plus thrombin; ultrasonicated PRP alone; platelet-poor plasma alone; and thrombin in saline. Each experimental mixture was left in the aorta for 15 minutes, followed by reflow for 20 minutes. The vessel was then fixed by glutaraldehyde perfusion. Thick sections of the entire circumference of the aorta were taken for phase contrast microscopy and representative areas were selected for electron microscopy. In control experiments and with sonicated PRP and PRP plus tendon extract, the endothelium was normal. With PRP alone, platelet-poor plasma alone and with PRP plus ADP there were occasional subendothelial vesicles. When PRP plus thrombin and platelet-poor plasma plus thrombin were injected separately to form a thrombus or when thrombin in saline was used, there was extensive subendothelial vesiculation with focal ulceration and adherence of thrombus to endothelium. Severe injury was associated with the presence of thrombin initiating the polymerization of fibrinogen to fibrin. Electron micrographs demonstrate the earliest lesion as a disruption of the superficial fibrillary elastica with separation of overlying endothelium.

AB-2403-76


Among 1,459 autopsied patients with cancer, 12 had multifocal infarcts of the brain that appeared to be caused by intravascular coagulation. Most of these patients were women with leukemia or lymphoma, and all had a clinical course in which neurologic signs and symptoms were prominent. All had evidence of generalized brain disease (delirium and stupor or coma), and several also had focal brain disease (focal seizures, hemiparesis). All patients had laboratory evidence of coagulation abnormalities, although these were often not severe when neurologic symptoms began. Pathologically, there were multifocal hemorrhagic or ischemic infarcts in the distribution of several cerebral vessels, without a systemic source for cerebral emboli. Fibrin thrombi were identified in cerebral vessels and in vessels of several other organs. The clinical findings fit the pathologic picture, and in most instances the correct diagnosis might have been made earlier had it been considered.

AB-2404-76

Effect of Hypertonic Solutions on the Blood-Brain Barrier — Pollay M (Division of Neurosurgery, University of New Mexico School of Medicine, Albuquerque, New Mexico 87131) — Neurology 25:852-856 (Sep) 1975*

The effect of hypertonic urea and saline on the blood-brain barrier of the dog was quantitatively measured by the indicator diffusion technique. Urea appeared to stimulate glucose transport into the brain, while the diffusionary loss of fructose was enhanced. Hypertonic saline affected the diffusionary loss of the test sugars in a similar manner, but had no effect on glucose transport. The blood-brain barrier alterations were not reversible, but did decrease somewhat with time.

AB-2405-76

Predicting the Outcome of Stroke: Acute Stage After Cerebral Infarction — Oxbury JM (Oxford University Department of Clinical Neurology, Churchill Hospital, Oxford OX3 7LJ, England), Greenhall RCD, Grainger KMR — Br Med J 3:125-127 (Jul 19) 1975*

On admission to hospital during the acute phase of a stroke presumed due to ischemic infarction in one cerebral hemisphere 93 patients were examined to determine the fac-
ABSTRACTS

AB-2406-76
Barbiturate Attenuation of the Clinical Course and Pathologic Lesions in a Primate Stroke Model — Moseley JI, Laurent JP, Molinari GF (National Institutes of Health, Building 36, Room 4A03, Bethesda, Maryland 20014) — Neurology 25:870–874 (Sep) 1975*

To evaluate the potential for clinical application, the reputed protective action of barbiturates in cerebral ischemia was tested in a controlled study after segmental middle cerebral artery occlusion in primates. Surviving treated animals promptly recovered consciousness, locomotion, and feeding behavior despite persistent hemiplegia, while control animals ran an indolent course, with slow recovery of poor quality. Cerebral lesions in treated animals were confined to the deep hemispheric structures, while control specimens showed larger deep lesions confluent with extensive areas of cortical infarction. These results are less dramatic than those reported by others, but the protective effect observed in fields of collateral circulation deserves further exploration as an adjunct to medical and surgical management.

AB-2407-76
Continuous Vertical Pendular Eye Movements After Brain-Stem Hemorrhage — Lawrence WH (Department of Neurology, George Washington University Medical Center, Washington, D.C. 20037), Lightfoote WE — Neurology 25:896–898 (Sep) 1975*

Electro-oculographic studies are reported in a 33-year-old man with bilateral horizontal gaze palsies and continuous pendular eye movements in the vertical plane secondary to hemorrhage from a pontine arteriovenous malformation. The effects of pharmacologic and physiologic stimuli on the movements are described.

AB-2408-76
A Case of Primary Cerebral Venous Thrombosis — Brookfield DSK (Alder Hay Children’s Hospital, Liverpool, England) — Postgrad Med J 50:767–768 (Dec) 1974*

A case of primary cerebral thrombophlebitis is described in a young man, who had a thrombotic diathesis. The patient initially presented with a right phlegmasia alba dolens which was treated with anticoagulants, surgery and thrombolytic therapy. More than two years later he had a further phlegmasia and what was clinically thought to be a meningitis. Despite anticoagulation he died from a progressive cerebral venous thrombosis.

AB-2409-76

A case of pseudoxanthoma elasticum presenting with the rare complication of subarachnoid hemorrhage is described.

AB-2410-76

The effects of changes in systemic blood pressure upon external carotid branches of the baboon have been measured by cerebral angiography. They have been shown to have an autoregulatory type of response down to a blood pressure of about 60 mm Hg, below which they constrict.

AB-2411-76

Angiography under experimental conditions shows that Urografin has a vasodilator action of about 8% upon the basal cerebral arteries of the baboon. This action is not seen within the first four seconds of the angiogram and the dilator effect of a single injection has passed off completely 15 minutes later. Three successive injections within seven minutes showed little evidence of cumulative vasodilatation. The vasodilator action of three successive angiograms disappeared 22 to 29 minutes later. Because of wide variations in the degree of vasodilatation shown by individual baboons, it may be necessary to use each baboon as its own control in subsequent work.

AB-2412-76

Superselective arteriography and superselective embolization is the future of a part of neuroradiology. After the first realization in the territory of the external carotid artery, it was logical to extend it to the territory of the internal carotid artery.

The technique of the balloon-catheter of Serbinenko is described and problems of embolization in the internal carotid artery are discussed.

AB-2413-76
Orbital Phlebography in the Diagnosis of Painful Ophthalmoplegia — Julien J (Service de Neurologie, Hôpital St. André, Bordeaux, France), Riemens V, Vallat

*Authors’ abstract.
Three cases of painful ophthalmoplegia have been described in which symptoms suggest a tumor of the orbit justifying neuroradiological assessment. Phlebography in each case revealed stenosis of the superior ophthalmic vein in its third portion, and non-opacification of the cavernous sinus. Hirtz incidences revealed contralateral cavernous sinus opacification and venous drainage through the coronary sinus. These neuroradiological findings helped to differentiate this syndrome from other affections which have similar signs and symptoms.

**AB-2414-76**


The rete, a vascular system between the extracerebral and intracerebral arteries of certain animals, may have a variety of functions in different species. The calibers of the vessels of the rete and its arteries of supply have been measured under different conditions of blood pressure and Paco₂. It has been shown that the rete and its afferent arteries behave in an autoregulatory fashion down to a blood pressure of 60 mm Hg. They also dilate with a rise in Paco₂. It has also been found that some parts of the system dilate even when the blood pressure drops lower than 60 mm Hg. It is suggested that this autoregulatory capacity of extradural vessels limits the requirement for CSF spaces to change with blood pressure changes. A general rule has been sought which would link the known facts about cerebral autoregulation and the possession of extracranial to intracranial anastomoses with the bodily shape and posture of the particular animal.

**AB-2415-76**

A New Method of Autotomography With Cerebral Angiography (Angioautotomography) — Shimizu H (Department of Neurosurgery and Radiology, Kanō Teishin Hospital, Tokyo, Japan), Satō O, Kobayashi M — *Neuroradiology* 9:203-208 (Aug 29) 1975*

A new method of autotomography for cerebral angiography, accomplished by means of a simple and handy device, has made it possible to take arbitrary tomographic planes of angiograms which result in clear-cut views of the tomogram. The principle of the device is described, the method of use explained and representative films, produced by this new method, are demonstrated.

**AB-2416-76**


Under usual technical conditions, it is possible, in a great percentage of cases, to visualize angiographically the afferent radiculospinal artery feeding the anterior cervical spinal axis, coming from the vertebral arteries. The level of its emergence is varied, predominating at C5–C6. This radiculospinal artery can be directly affected by a spondylotic lesion at the foraminal level and is one of the causes of the ischemic syndrome observed in the cervical myelopathies resulting from this process.

**AB-2417-76**

Cerebral Angiography in a Small County Hospital — Raskind R (Department of Neurosurgery, Kern General Hospital, Bakersfield, California 93305), Hance DB, Schmalhorst WR, Wilder DW, Roberts DL — *Angiology* 26:444-449 (Jun) 1975

Over a two-year period, 227 patients underwent cerebral angiography in a 332-bed county-supported teaching hospital in a community of 190,000. Radiologists performed transfemoral catheterization and selective artery injection. Less than 1% of the patients had permanent complications, and none died. Thirty-six percent of the angiograms were normal. Seventy-nine patients (35%) were clinically felt to have subdural hematomas; angiography was positive in only 32.

The authors felt that the use of angiography in this manner is valuable especially in cases of head trauma, and that the study can aid in the identification of nonsurgical lesions, thereby sparing patients needless intracranial surgery.

**AB-2418-76**

Analysis of the Effect of 5-Hydroxykynurenamine, a Serotonin Metabolite, on Isolated Cerebral Arteries, Aortas and Atria — Toda N (Department of Pharmacology, Faculty of Medicine, Kyoto University, Kyoto 606, Japan) — *J Pharmacol Exp Ther* 193:385-392, 1975

5-Hydroxykynurenamine (5-HK), a serotonin metabolite, is a vasoactive substance which produces vascular contraction in dog and human cerebral arteries via serotonin receptors. The contractile effect of serotonin on cerebral arteries and rabbit aortas is specifically inhibited by 5-HK. It also causes an increased contraction rate in isolated rabbit atria by liberating catecholamines.

**AB-2419-76**

A Small Arterial Substitute: Expanded Microporous Polytetrafluoroethylene: Patency Versus Porosity — Campbell CD (Department of Surgery, University of Pittsburgh School of Medicine, Pittsburgh, Pennsylvania 15261), Goldfarb D, Roe R — *Ann Surg* 182:138-143 (Aug) 1975

Expanded microporous polytetrafluoroethylene arterial grafts, 4 mm in diameter, were placed in the femoral and carotid arteries of dogs. When these dogs were later killed, patency, tissue ingrowth, and neointimization were observed and categorized with regard to wall thickness, density, and pore size of the graft material. Pore size was the important determinant. With pores of 22 μ or less, 88% of 51 grafts...
remained patent. With pores larger than 34 μ, only 53% remained patent. Patent grafts showed ingrowth of tissue through the pores, capillary growth, and formation of a neointima. With larger pores, too much tissue ingrowth occurred, predisposing to occlusion. Grafts in four dogs were patent ten months after insertion. The graft material was easy to handle and to suture.

AB-2420-76
Improved Brain Scan Specificity Utilizing 99mTe-Pertechnetate and 99mTc(Sn)-Diphosphonate — Fischer KC, McKusick KA (Department of Radiology, Division of Nuclear Medicine, Massachusetts General Hospital, Boston, Massachusetts 02114), Pendergrass HP, Potsaid MS — J Nucl Med 16:705–708, 1975

Brain scans were performed on 36 patients, both with 99mTc-pertechnetate and with 99mTc(Sn)-diphosphonate. 99mTc(Sn)-diphosphonate demonstrated 15 of 22 cerebral infarcts better than did 99mTc-pertechnetate, demonstrated three cerebral infarcts less well, and demonstrated three cerebral infarcts equally well.

Results were reversed for 12 primary and metastatic tumors of brain. 99mTc-pertechnetate demonstrated 11 of them better than did 99mTc(Sn)-diphosphonate, while one was demonstrated equally well by both. There were no meningiomas in the series.

The authors suggest using this dual method to differentiate tumors from infarcts.

AB-2421-76
Effects of Premature Atrial and Ventricular Contractions on Opacity Pulse Wave Propagation — Heck AF (Department of Neurology, University of Maryland School of Medicine, Baltimore, Maryland 21201), Price TR — Angiology 26:415–419 (May) 1975

The interval between the R-wave of the ECG and the corresponding opacity pulse wave in the face or upper extremity was accurately measured. Distal to stenosed arteries, propagation is delayed. After premature atrial or ventricular contraction, propagation of the opacity wave is prolonged. The premature contraction must be at least 30% premature in order for this to occur. The beat after the compensatory pause is associated with an increase in the rapidity of propagation.

AB-2422-76
Age Related Changes of the Middle Cerebral Artery and a Comparison With the Radial and Coronary Artery — Bouissou H, Emery MC (The Children’s Hospital, Western Bank, Sheffield 10, England), Sorbara R — Angiology 26:257–268 (Mar) 1975

Middle cerebral, coronary, and radial arteries were taken at routine autopsy and were studied histologically with reference to intimal thickness, degree of splitting of the internal elastic lamina, and degree of fibrosis of the media. The findings were then organized by age of the subjects. The middle cerebral was found to age less quickly than and in a different way from the radial and coronary arteries. In the middle cerebral artery, intimal thickening was less marked and more focal. The internal elastic lamina demonstrated notching at all ages but never developed severe splitting. The elastica of the coronary artery, by contrast, was largely destroyed by age 50. Fibrosis of the media, however, increased at about the same rate in all three arteries. Except for this medial fibrosis, changes in the middle cerebral at age 60 resembled those found in the radial at age 40 and in the coronary at age 20 to 30. These data suggest that atheroma formation is delayed in the middle cerebral artery, and the authors conclude that before age 55, most cerebrovascular accidents are embolic, while after 55 embolism and thrombosis are equally common.

AB-2423-76

Cerebral cortical vessels of cats and monkeys were observed in situ during induced cardiac arrest and resuscitation with mechanical ventricular assistance (MVA). Results were the same for both species of animals. Cerebral blood flow stopped immediately. In two to three minutes, there was sludging of red cells, and in five to ten minutes there was clump formation. During resuscitation, blood pressure was maintained between 70 and 100 mm Hg. Blood flow rapidly returned, gradually breaking up red cell clumps and opening small vessels. Some scattered vessels remained obstructed. In spite of immediately successful resuscitation, all the animals became hypotensive within hours and died, most within 24 hours, and the last after three days. Cardiac arrest durations of 7.5 minutes and ten minutes before resuscitation did not differ significantly.

These data were compared with those reported when manual cardiac massage was used, where failure of blood flow was seen in more vessels. This difference was related to the better cardiac output with MVA. Reflow was directly related to the arterial pressure. While manual resuscitation failed after five minutes of cardiac arrest, MVA allowed temporary resuscitation after ten minutes.

AB-2424-76
Intravitreal Hemorrhage Associated With Rapid Increase in Intracranial Pressure (Person’s Syndrome) — Khan SG, Frenkel M (Department of Ophthalmology, University of Illinois Eye and Ear Infirmary, Chicago, Illinois 60612) — Am J Ophthalmol 80:37–43 (Jul) 1975

Three cases of intravitreal hemorrhage with subarachnoid hemorrhage are presented with a case of intravitreal hemorrhage after strangulation. Vision returned in two, and there was a fibrous reaction in the vitreous of the other two. The intravitreal hemorrhage was felt to be related to the rapidity of the increase in intracranial pressure, with compression of the central retinal vein and its Anastomotic channels in the choroid, rather than to any communication between the vitreous and the subarachnoid space.
AB-2425-76
Effect of a New Vasodilator (Flunarizine) on the Cerebral Circulation (of Cats) — Toyoda M (Department of Neurology, School of Medicine, Keio University, Tokyo, Japan), Takagi S, Seki T, Takeoka T, Gotoh F — J Neurol Sci 25:371-375 (Jul) 1975

Flunarizine, a new pipеразин derivative, is a vasodilator. Its effect on the cerebral oxygen and carbon dioxide tension and cerebral blood flow of cats was determined, and oxygen tension was compared with that obtained after papaverine hydrochloride administration. Flunarizine was concluded to be as potent a cerebral vasodilator as papaverine.

AB-2426-76

Aneurysms at the junction of the ophthalmic artery with the internal carotid artery are often large but, according to the authors, rarely rupture. In the case reported, sudden monocular visual loss was followed in 36 hours by death. A 45-year-old black man experienced sudden visual loss in the left eye upon arising in the morning. Within several hours, he had left retro-orbital pain exacerbated by eye movement. The left visual field disclosed a 20° island of vision temporally and superiorly, and the left eye could see hand motion at two feet. Retrobulbar neuritis was suspected. Lumbar puncture revealed pink spinal fluid. Several hours later, he had respiratory arrest. At autopsy, there was a 14-mm ruptured saccular aneurysm at the junction of left ophthalmic and carotid arteries.

AB-2427-76
B-Mode Sonography as a Screening Procedure for Asymptomatic Carotid Bruits — Anderson RD (Department of Diagnostic Radiology, University of Alabama Medical Center, Birmingham, Alabama 35233), Powell DF, Vitek JJ — Am J Roentgenol Rad Ther Nucl Med 124:281-286 (Jun) 1975

With a 5 mHz transducer, B-mode sonography was performed on 65 carotid arteries of 37 patients undergoing cerebral arteriography. Carotids that were 50% stenosed were correctly demonstrated by sonography 72% of the time, missed 6% of the time, and falsely diagnosed 9% of the time. Thirteen percent of the carotids could not be visualized adequately by sonography. The presence of ulceration could not be determined.

AB-2428-76

The authors feel this is the first case report of aneurysm formation caused by radiation. A 56-year-old man was treated with 3,000 rads bilaterally for an infiltrating squamous-cell carcinoma of the left tonsil, before left combined mandibular resection and radical neck dissection. Four years later, with no evidence of tumor recurrence, he had painful pulsatile masses bilaterally, demonstrated angiographically to be carotid aneurysms. These were treated by resection and vein-graft replacement. Radiation changes were demonstrated microscopically. There was no evidence of atherosclerosis.

AB-2429-76
Congenital Absence of Bilateral Vertebral Arteries With Occipital-Basilar Anastomosis — Tsai FY (Department of Radiology, Albany Medical Center Hospital, Albany, New York 12208), Mahon J, Woodruff JV, Roach JF — Am J Roentgenol Rad Ther Nucl Med 124:281-286 (Jun) 1975

A 36-year-old man had a cerebral infarct in the territory of the left posterior cerebral artery. At age 14, he had had a transient left homonymous hemianopia and seizures. Transfemoral carotid and cerebral arteriograms demonstrated bilateral absence of vertebral arteries and revealed an anastomosis between the basilar artery and a large dilated occipital branch of the left external carotid artery. The authors conclude that this anomaly developed at the gestational age of 32 to 36 days.

AB-2430-76

Computerized transaxial tomography and CSF spectrophotometry were used together to verify the presence of cerebral hematomas after 13 strokes with atypical clinical presentations. Isotope scan demonstrated none of these hematomas, and angiography missed four out of five. Visible CSF xanthochromia was present after 46% of the 13 hemorrhages. It is felt that CSF spectrophotometry performed at a time interval of 24 hours to seven days after the onset of symptoms might reveal a hemorrhagic component in nearly all cases of intracerebral hemorrhage and therefore might be used to complement the CT scan in difficult diagnostic situations.

AB-2431-76
Glycerol in Cerebral Oedema — Guisado R (University of California Nephrology Service, VA Hospital, San Francisco, California 94121), Arieff AI — Lancet 2:183 (Jul 26) 1975

Discussing a paper by Gilsanz et al. (Lancet 1:1048, 1975), in which it is suggested that intravenous glycerol is preferable to dexamethasone after acute cerebral infarction, the authors felt that the two patient groups studied were not evenly matched before treatment began and were scored subjectively. They point out that the dose of glycerol given was osmotically insufficient to cause movement of water out of the brain, and that impairment of the blood-brain barrier would interfere with the brain-dehydrating effect of a
ABSTRACTS

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AB-2432-76
Mammary-Vertebral Microsurgical Anastomosis — Osgood CP (Department of Neurosurgery, Oakland Veterans Hospital, University of Pittsburgh School of Medicine, Pittsburgh, Pennsylvania 15240), Dujovny M, Weir VK, Stasiak T — J Surg Res 18:531-538 (May) 1975

Three groups of dogs underwent vascular surgery. The first group was left with only the left vertebral artery supplying the brain after all other brachiocephalic and subclavian branches were ligated and divided bilaterally. Fifty percent of these dogs died, although all had regained consciousness postoperatively. All were ataxic and showed reduced activity. Collateral shunting away from the vertebral system into the neck and forelimbs developed and may have been related to the delayed mortality.

The second group underwent left mammary-left vertebral anastomosis, and then had their brachiocephalic and subclavian arteries occluded. All initially regained consciousness and most could stand and walk, but 66% died in the second week. The neurologic status of the survivors was worse than that of the first group; 84% of the anastomoses remained patent.

The third group underwent left mammary-left common carotid anastomosis, followed by brachiocephalic and subclavian system occlusion. They had no mortality and very little morbidity. One hundred percent of the anastomoses remained patent, as proved by angiography one month later.

AB-2433-76
Nicotine-Induced Relaxation in Isolated Canine Cerebral Arteries — Toda N (Department of Pharmacology, Faculty of Medicine, Kyoto University, Kyoto 606, Japan) — J Pharmacol Exp Ther 193:376-384, 1975

Isolated strips of canine cerebral arteries were constricted with prostaglandin F2a. Nicotine in concentrations from 5 × 10⁻⁶ M to 10⁻⁴ M caused transient relaxation. Nicotine-induced relaxation was not influenced by atropine, physostigmine, ouabain, tetrodotoxin, aminophylline, or sotalol (10⁻⁵ M). Relaxation was attenuated by hexamethonium, removal of Ca++. The addition of K+ to the bathing medium (5 × 10⁻⁵ M). Tetrodotoxin abolished the response to transmural stimulation and the nicotine-induced relaxation was not influenced by atropine, physostigmine, ouabain, tetrodotoxin, aminophylline, or sotalol (10⁻⁵ M). Tetrodotoxin abolished the response to transmural stimulation and the nicotine-induced relaxation was not influenced by atropine, physostigmine, ouabain, tetrodotoxin, aminophylline, or sotalol.

A specific action on nicotinic receptors is strongly suggested to account for both the nicotine-induced relaxation of the contracted cerebral artery strips and the nicotine-induced contraction of the mesenteric artery strips. Neither beta adrenergic nor cholinergic mechanisms nor an electrogenic Na+ pump mechanism seemed to be implicated.

AB-2434-76
Effort Headache With Cerebral Infarction — Seelinger DF (Department of Neurology, University of New Mexico School of Medicine, Albuquerque, New Mexico 87131), Coin GC, Carlow TJ — Headache 15:142-145 (Jul) 1975

A 26-year-old man ran one and one-half miles in 12 minutes at an altitude of 5,000 feet. Twenty minutes later, after drinking three or four beers, he had disturbances in his right visual field, clumsiness of his left arm, and nausea, followed by a left-sided headache. On examination, he demonstrated a homonymous right upper quadrantic field defect, and an EMI scan showed a left inferomedial occipital lobe infarction. He had no history of migraine, and no known stroke risk factors were present. The authors implicate a combination of factors: altitude, alcohol intake, possible hypoglycemia, and, most importantly, unaccustomed effort and lack of physical training.

AB-2435-76
Acute Subarachnoid Hemorrhage — Chynn KY (Radiology Department, St. Luke's Hospital Center, New York, New York 10025) — JAMA 233:55-56 (Jul 7) 1975

Following the ingestion of amphetamine, a 19-year-old girl had an acute subarachnoid hemorrhage, clinically indistinguishable from ruptured berry aneurysm or arteriovenous malformation. Arteriography on the day of admission revealed a striking “beaded” appearance, with alternating vasodilatation and vasoconstriction involving the insular and opercular branches of the left middle cerebral artery. These changes were transient and radiographically suggested the possibility of a vasculitis as the underlying pathophysiologic mechanism.

AB-2436-76

Thirty-two patients suspected of having cerebrovascular lesions were examined by computer assisted axial tomography. Fifteen had areas of decreased absorption, diagnosed as cerebral infarction. Seven had areas of increased absorption, diagnosed as hemorrhage. Seven had more or less irregular areas of increased and decreased absorption, diagnosed as hemorrhagic infarction. Two cases had areas of increased absorption filling the ventricular system, thought to represent blood. Some areas of increased absorption could represent compressed brain tissue. Several infarcts a number of years old were visualized.

AB-2437-76
Intracranial Arteriovenous Malformations and Headache — Waltimo O (Department of Neurology, University of Helsinki, Helsinki 29, Finland), Hokkanen E, Pirskanen R — Headache 15:133-135 (Jul) 1975
Previous studies of patients with intracranial arteriovenous malformations have shown that approximately 5% to 20% have migraine.

Twenty-nine men and 19 women with radiographically proved AVMs were studied clinically. Fifteen (31.2%) had migraine, 23 (48%) had only tension headache, and 10 (20.8%) were headache-free. The frequency of migraine in this study of AVM was 58% in women and 14% in men. The frequency of tension headache was similar to that of the general population. Migraine was more common with small AVMs, with occipital AVMs, and with AVMs that had bled. Thermography was asymmetric in 56%. The AVM was on the warmer side in three-fourths of the patients. In 17 of the 18 cases of unilateral headache, the AVM was on the side of the headache.

AB-2438-76

In this study of 105 patients with cerebral infarction who had 121 scans, it was noted that CT was often falsely negative for nonhemorrhagic infarction if done in the first two days, but that angiography was usually abnormal. From three to seven days after infarction, both were usually abnormal and after eight days CT was abnormal more often than angiography. CT performed before considering the use of anticoagulants would likely exclude large hemorrhagic infarcts but might miss petechial hemorrhagic infarctions, which may give a false-negative scan. Correlation of CT with angiography in the case of hemorrhage into infarctions strongly suggests that an original embolus had fragmented and had passed distally, allowing blood to re-enter the artery and to escape through damaged capillaries.

AB-2439-76
Pathogenesis of Vascular Headache of the Migrainous Type: The Role of Impaired Central Inhibition — Appenzeller O (Department of Neurology, The University of New Mexico School of Medicine, Albuquerque, New Mexico 87131) — Headache 15:177-179 (Oct) 1975

Migraineurs have abnormalities in the metabolism of 5-HT. This compound is postulated to be a central inhibitory neurotransmitter. Defective central inhibition would allow increase in the firing activity of raphe neurones. This phenomenon may be genetically determined since migraineurs are deficient in B-type MAO and this might reduce 5-HT turnover and accelerate the firing rate of the raphe neurones. This firing allows periodic uncontrolled hypothalamic discharges and can account for the aura and autonomic activity, which may further be complicated by altered levels of vasoactive substances both centrally and peripherally. These alterations may result in the changes in blood vessel caliber.

AB-2440-76
Severe Headache After Carotid Endarterectomy — Leviton A (Departments of Neurology and Surgery, Beth Israel Hospital and Harvard Medical School, Boston, Massachusetts), Caplan L, Salzman E — Headache 15:207-210 (Oct 1975)

A 61-year-old woman had TIAs and was found to have an occlusion of the left common carotid artery and stenosis of the right internal carotid artery. Three days after a right carotid endarterectomy, she had intermittent bifrontal pounding headaches. Two weeks later she had classic migraine with transient left leg numbness spreading to the left arm and face, tinnitus, and scotomata in the left visual field. Right retrograde brachial arteriogram was normal. The disorder was self-limited. During her teens and 20s, she had mild headaches during menstruation, but not classic migraine.

The authors postulate disordered autoregulation of regional cerebral blood flow as the cause of the headache and suggest two mechanisms: reactive hyperemia caused by removing the arterial obstruction, and interference with the autonomic reflex arc caused by damage to the carotid artery, the cervical sympathetic, and carotid sinus nerves.

AB-2441-76
Brain Scan in Cerebrovascular “Moyamoya” Disease — Mori H (Department of Nuclear Medicine, Kanazawa University School of Medicine, Kanazawa, Japan), Maeda T, Suzuki Y, Hisada K, Inoue M, Kadoya S — Am J Roentgenol Rad Ther Nucl Med 124:583-589 (Aug 1975)

Two of six patients with cerebral “moyamoya” disease had abnormal brain scans, both suggesting infarction. One scan returned to normal 40 days later. The abnormal scans were in two patients age 19 months and 16 years. The four normal brain scans were obtained in adults. Ischemic symptoms are common in children with this disease, while subarachnoid hemorrhage is more common in adults. Mural thrombi have been implicated in children, and therefore it is suggested that embolic infarction would explain the radionuclide uptake noted.

AB-2442-76

Brain damage from open-heart surgery is due at least in part to air embolism, to microembolization of cerebral blood vessels with platelet aggregates, fibrin strands, leukocytes, and protein precipitates, and to inadequate cerebral perfusion, which may occur despite high flow rates from the oxygenation. Severe or sudden systemic hypotension during bypass, and especially at the onset of bypass, can cause inadequate perfusion. Ultrasonic monitoring of blood flow can now warn of gas embolism. Small-pore filters can be used to reduce the number of microemboli. A modified EEG, using a single pair of parietal electrodes, can monitor cerebral function.

The incidence of brain damage from open-heart surgery in 538 patients was reduced from an expected 19.2% to 7.4% by
the introduction of prophylactic measures derived from these principles.

**AB-2443-76**


A discussion of the regulation of intracranial pressure is followed by instructions for anesthesia in patients with increased intracranial pressure. The use of premedicants capable of causing respiratory depression or alteration in consciousness is discouraged. Halothane and other volatile anesthetic agents increase intracranial pressure. Neuroleptanesthesia, consisting of nitrous oxide, a short-acting narcotic, and a tranquilizer, produces a slight fall in intracranial pressure. The danger of further increase in intracranial pressure and of hyperkalemia with the use of succinylcholine is mentioned. Induction and maintenance of anesthesia, and the special problems of brain stem compression, the sitting position, air embolism, subarachnoid hemorrhage, spinal surgery, and anesthesia for neurological procedures are discussed.

**AB-2444-76**

The Effects of Glycerol on Cerebral Ultrastructure Following Experimentally Induced Cerebral Ischemia — Dodson RF (Department of Neurology, Baylor College of Medicine, Houston, Texas 77025), Tagashira Y, Wai-Fong Chu L — J Neurol Sci 26:235–244 (Oct) 1975

The right middle cerebral arteries of squirrel monkeys were reversibly occluded for one-half, one, two, three or four hours and then the brains were examined by electron microscopy three days or one week later. It has been shown previously that consistent mild tissue change occurs after one-half hour of occlusion and severe alteration after three or four hours. In this experiment, the monkeys were given daily IV bolus injections of 10% glycerol in saline in a dosage of 0.08 to 0.8 gm per kilogram. The glycerol-treated group showed appreciably less tissue damage. There were less intracellular edema and less disruption of the membranes of mitochondria, endoplasmic reticulum, Golgi complex and plasmalemma.

**AB-2445-76**

The Electrocardiogram in Infratentorial Infarcts — Hindfelt B (Department of Neurology, University Hospital, S-221 85 Lund, Sweden) — J Neurol Sci 26:251–257 (Oct) 1975

This is a retrospective study of 69 patients with clinical evidence of infratentorial infarcts. The EKG was recorded within 24 hours after the stroke and 70% were abnormal, consisting of benign arrhythmias, conduction disturbances, and ST-T changes. The findings agree with the corresponding data found for supratentorial infarcts. Location of the brain stem lesion was not related to the type of EKG abnormality. The authors conclude that the changes are a reflection of the same atheromatous disease affecting the heart and the brain stem and that brain stem infarcts do not cause EKG changes.

**AB-2446-76**

Headache in Small Vessel Disease of the Brain: A Study of Patients With Systemic Lupus Erythematosus — Atkinson RA, Appenzeller O (Department of Neurology, University of New Mexico School of Medicine, Albuquerque, New Mexico 87131) — Headache 15:198–201 (Oct) 1975

The records of 61 patients with systemic lupus erythematosus were reviewed to determine whether headache was an indication of CNS involvement. Forty-six percent of the patients had clinical evidence of CNS involvement. There was no significant difference in the incidence of headache with and without CNS lupus (46% versus 42%) or in the incidence of steroid therapy or renal disease. Vascular headache and muscular contraction headache were of equal occurrence in the two groups. Hypertension was more common in patients with CNS lupus. In a patient with systemic lupus, headache by itself was not an indication of CNS involvement and did not require a change in therapy. Lupus primarily affects small intracranial blood vessels, which are not known to have perivascular nerves. The authors feel that small vessel disease without inflammation does not cause headache.

**AB-2447-76**

Orthostatic Hypotension: Mechanisms and Management — Ibrahim MM, Tarazi RC, Dustan HP (Research Division, Cleveland Clinic Foundation, Cleveland, Ohio 44106) — Am Heart J 90:513–520 (Oct) 1975

Patients with orthostatic hypotension should be worked up systematically to rule out causes of alteration of consciousness and to identify potentially treatable forms. Response to Valsalva maneuver may demonstrate autonomic dysfunction, in which case decreased potency, bladder and bowel and sweating disturbances may be present. Hypovolemia, drug intake, Addison’s disease, pheochromocytoma, syphilis, porphyria, diabetes, and amyloid must be excluded. Neurological workup is required if a lesion near the medulla is suspected. Treatment is often symptomatic. Patients should be kept active and ambulatory if possible, and should be warned about rapid postural change and the dangers of standing still. Elastic stockings (up to the groin) are helpful. The head of the bed should be elevated at night. Tranquilizers and diuretics are contraindicated. Salt intake should be 20 to 30 gm per day. α-Fluorohydrocortisone (Florinef) should be begun at 0.1 mg per day. Oral sympathomimetics should be tried. It is possible that an MAO inhibitor combined with a tyramine-rich diet might be helpful. The patient should be evaluated on a weekly basis.

**AB-2448-76**

Correlation Between Regional Cerebral Blood Flow and EEG Frequency in the Contralateral Hemisphere in Acute Cerebral Infarction — Medel M, Lavy S (Department of Neurology, Hadassah University Hospital, Jerusalem, Israel), Portnoy Z, Sadan S, Carmon A — J Neurol Sci 26:21–27 (Sep) 1975

There is a significant correlation between EEG frequency and regional cerebral blood flow (rCBF) under normal conditions. This relationship was investigated in the uninjured
hemisphere of 22 patients with acute cerebral infarction. The EEG frequency remained normal in 16 patients and was variably slowed in six patients. Reduction of rCBF ranged from 6% to 80% and was present in all cases. There was no correlation between rCBF and EEG frequency, although both are known to be related to cerebral metabolic rate. It is concluded that both hemispheres are involved in hemodynamic alteration after stroke and both undergo metabolic changes.

**AB-2449-76**


The usefulness of internal carotid artery back pressure, electromagnetic measurement of internal carotid blood flow before and after arterectomy, and operative carotid arteriography was evaluated during 78 elective carotid endarterectomies. Internal carotid artery back pressure should be at least 60 to 70 mm Hg if collateral cerebral blood flow is to be adequate. After endarterectomy, cerebral blood flow does not increase significantly unless the stenosis is tighter than 95%, and the measurement therefore is felt to be of limited clinical value. Operative carotid arteriography disclosed errors in technique in 10% of the cases, requiring revision. It is suggested, therefore, that it should be used routinely.

**AB-2450-76**

Thyrocvical Vertebral Artery Anastomosis: An Experimental Evaluation — Raju S, Cibulski A, Holleman JH (Department of Surgery, University Medical Center, Jackson, Mississippi 39216) — J Surg Res 19:219–224 (Sep) 1975

In mongrel dogs, ten end-to-end thyrocervical-vertebral anastomoses were performed. After four to six months, nine out of the ten remained patent and functioning. The normal dog vertebral artery is capable of greatly increased blood flow if the carotids and the other vertebral artery are compressed; this technique can be used to test the adequacy of the anastomosis. The thyrocervical and the vertebral are of similar size and blood flow in humans, and this anastomosis may be useful in the treatment of proximal vertebral artery stenoses.

**AB-2451-76**


Untrained volunteers (200), in teams of two to seven, worked in a program to help 31 patients with dysphasia or dyspraxia caused by dominant-hemisphere strokes. Patients were matched to neighborhood volunteers with similar hobbies and interests. Clubs of patients and their families met once a week to participate in games involving numbers, shapes, symbols, speech, and manual skills. Volunteers helped restore confidence and dispel depression.

Improvement was assessed by family doctors, a speech therapist, and the volunteers. Thirty of the 31 patients were improved in confidence, happiness, and general attitude. Twenty-one patients improved in speech and understanding, 20 in reading, 16 in writing, and 27 in concentration. Even patients whose strokes had occurred seven and 11 years previously improved somewhat. Some patients were also receiving professional speech therapy and rehabilitation, and this program was designed to work with and supplement professional help.

**AB-2452-76**

Cortical Blindness in Cranial Arteritis — Chisholm JH (Moorefield Eye Hospital, City Road, London ECIV 2PD, England) — Br J Ophthal 59:332–333 (Jun) 1975

A case is reported of cortical blindness occurring in a 79-year-old man who had a two-week history of gait unsteadiness and mental and visual deterioration. His vision was light perception in each eye with normal pupil reactions. His erythrocyte sedimentation rate was 58 mm per hour. A visually revoked response was performed and was flat. Temporal artery biopsy revealed cranial arteritis. He died five days later in spite of treatment. Autopsy disclosed arteritic and thrombotic involvement of both vertebral arteries. There was no arteritis of the ophthalmic arteries or the ciliary arteries. The right occipital lobe had an old infarct, and the left had a recent and extensive softening resulting from his cranial arteritis.

**AB-2453-76**

Vascular Occlusions in the Eye From Cardiac Myxomas — Cogan DG (243 Charles Street, Boston, Massachusetts 02114), Wray SH — Am J Ophthalmol 80:396–403 (Sep) 1975

Two cases are presented in which vascular occlusion in the eye was due to cardiac myxoma. The first patient, a 17-year-old boy, had left retinal artery occlusion, aphasia, and right hemiparesis after several months of malaise, sweats, and weight loss. He had had several red spots on his hands. ESR was 31 mm per hour. Hemoglobin was 9.5%. Rheumatoid factor and repeat blood and marrow cultures were negative; there was no history of rheumatic fever. When he had a saddle embolus, iliac exploration revealed a myxoma, and it was removed from the heart.

The second patient, a woman age 20, had multifocal neurological disease over the course of a year and was thought to have multiple sclerosis. She had a transient third nerve palsy, paresthesias, diplopia, blackouts, a right internuclear ophthalmoplegia, and vascular occlusions in the retina. Cerebral arteriography showed multiple diffuse aneurysms. The diagnosis was made postmortem. The choroidal and ciliary vessels were involved.

Eight other cases from the literature are discussed. The left eye is more commonly involved as is the left hemisphere. Suspicion should be aroused whenever occlusive disease of the eye occurs with multifocal neurological disease.

**AB-2454-76**

Physiological Role of an Endoperoxide in Human Platelets: Hemostatic Defect Due to Platelet Cyclo-Oxygenase

The endoperoxide prostaglandin (PGG_2) is concluded to be necessary for normal hemostasis. It induces platelet aggregation as well as inducing the platelet-release reaction (release of ADP and serotonin). The aggregating effect can be inhibited by furosemide, while the release reaction and formation of PGG_2 is inhibited by indomethacin. The authors find that the aggregating effect of PGG_2 is due to the release of ADP, and that PGG_2 synthesis is needed for the triggering of the release reaction by collagen, ADP, epinephrine, and thrombin.

A human subject with a hematocrit defect was found to have a deficiency of the cyclo-oxidase that catalyzes formation of PGG_2 and had an abnormal release reaction corrected by added PGG_2. Platelet ADP was normal.

AB-2455-76

The effect of BL-3459 on platelet aggregation was measured in vitro and in vivo in dogs, rats, and rabbits, and the compound was found to be a potent inhibitor regardless of the aggregating substance used. BL-3459 is effective orally and has a long duration of action. It inhibits elevation of screen filtration pressure induced by hemorrhage, endotoxin, laser-induced thrombosis and electrical stimulation of the carotid artery. It has little effect on the bleeding time or on cardiac output. Cardiac rate and contractile force increase, while aortic blood pressure, peripheral resistance and stroke volume decrease. The drug has mild anti-serotonin activity.

AB-2456-76
Simultaneous Vasculitis in a Mother and Newborn Infant — Miller JJ III (Children's Hospital at Stanford, Department of Pediatrics, and Department of Medicine, Stanford University School of Medicine, Stanford, California), Fries JF — J Pediatr 87:443–445 (Sep) 1975

A 28-year-old white woman had “hypersensitivity angiitis,” characterized by nausea, fever, and myalgias at four and one-half months' gestation, followed by symmetrical polyarthritis. This was treated with aspirin and meprobamate. After parturition, she had painful nodules on her trunk and arms, and a biopsy of the overlying skin showed a perivascular infiltrate. The condition resolved spontaneously six months postpartum.

The male infant weighed 3,220 gm and looked healthy. On Day 5, he had livido reticularis and acrocyanosis, progressing soon to gangrene of his fingers and his upper lip. His white blood count rose to 45,000/mm^3 with 43% polys and 9% eosinophils. Clotting factors were normal. He was treated as for sepsis and increased clotting, with gentamicin, penicillin, heparin, prednisone and Dibenzyline, and by Day 25 the gangrene had stopped progressing. On Day 60, he had fever, cutaneous nodules and a cyanotic area on his cheek. He had EKG abnormalities and intermittent pulmonary infiltrates. Nodule biopsy was similar to his mother's. Prednisone, aspirin and phenoxylbenzamine hydrochloride were restarted and the prednisone and aspirin continued for a year. He lost eight fingers and the central third of his upper lip but is otherwise healthy now at age three.

The authors postulate that his “polyarteritis nodosa of infancy” and his mother's “hypersensitivity angiitis” were manifestations of the same immune-complex disease and due to viral infection. The same size of vessel, though not the same type, were involved in both, accounting for two different clinical pictures.

ITEMS OF INTEREST


Carotid Endarterectomy — Beven EG (Department of Vascular Surgery, The Cleveland Clinic Foundation, Cleveland, Ohio) — Surg Clin N Am 55:1111–1124 (Oct) 1975

Neurotransmitters and the Normal and Ischemic Cerebral Circulation — Zervas NT (Department of Neurosurgery, Beth Israel Hospital, Boston, Massachusetts 02215), Layvine MH, Negoro M — New Eng J Med 293:812–816 (Oct 16) 1975

Platelet Physiology and Abnormalities of Platelet Function. Part 1 — Weiss HJ (Department of Medicine, Roosevelt Hospital, New York, New York 10019) — New Eng J Med 293:531–541 (Sep 11) 1975

Platelet Physiology and Abnormalities of Platelet Function. Part 2 — Weiss HJ (Department of Medicine, Roosevelt Hospital, New York, New York 10019) — New Eng J Med 293:580–588 (Sep 18) 1975

The Internal Auditory Artery (Embryology, Anatomy, Angiography, Pathology) — Wende S, Nakayama N, Schwerdtfeger P (Department of Neuroradiology, Neurosurgical Clinic, University of Mainz, Mainz, West Germany) — J Neurol 210:21–31, 1975

Clinical Experience With the Intravenous Infusion of Iodinated Contrast Material as an Adjunct to Computed Tomography — Huckman MS (Department of Diagnostic Radiology, Rush Medical College, Chicago, Illinois 60612) — Surg Neurol 4:297–318 (Sep) 1975

Effect of Anesthetics and Oxygen Deprivation on Brain Blood Flow and Metabolism — Smith AL (Department of Anesthesia, University of California School of Medicine, San Francisco, California 94143) — Surg Clin N Am 55:819–836 (Aug) 1975
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