Abstracts

AB-851-72

Cerebral infarction was produced in the gerbil by ligation of one common carotid artery. The mortality from the lesion was significantly reduced by the daily administration of dexamethasone in the first 48 hours after surgery.

AB-852-72
Intracranial Dural Arteriovenous Malformations—Houser OW (Department of Diagnostic Roentgenology, Mayo Clinic and Mayo Foundation, Rochester, Minnesota 55901), Baker HL Jr, Rhoton AL Jr, Okazaki H—Radiology 105:55-64 (Oct) 1972*

Twenty-eight patients with dural arteriovenous malformations, mostly located along the cranial base and in the occipitomastoid region, were studied angiographically. It was often possible to define a relationship between the clinical syndrome and the angiographical pattern of venous drainage. Intracranial hemorrhages occurred in those patients in whom the venous drainage of the arteriovenous malformation was limited to the pial veins, while the syndrome of a cavernous sinus fistula was present when retrograde venous drainage from the anomaly extended through the distensible ophthalmic veins. If the venous outflow was antegrade through the usual channels, the clinical syndrome reflected only the presence and volume of the arteriovenous shunt.

AB-853-72

The successful surgical management of a giant basilar artery aneurysm is reported. Subarachnoid hemorrhage and angiographical evidence of an aneurysmal mass were the chief diagnostic features. The aneurysm was resected under conditions of circulatory arrest produced by profound hypothermia and with the aid of extracorporeal circulation. The technique is reviewed, and it is suggested that the approach, virtually abandoned a decade ago, be reconsidered for selected cases.

*Authors' abstract.
†These abstracts were assembled for publication by the Neurological Information Network of the National Institute of Neurological Diseases and Stroke through contract number PH-43-66-933 with Dr. Robert Siekert, Head, Abstract Section, Mayo Clinic, Rochester, Minnesota 55901.

AB-854-72
Atlanta Community High Blood Pressure Program Methods of Community Hypertension Screening—Wilber JA (Cardiovascular Disease Control Service of the Georgia Department of Health, Atlanta, Georgia), Millward D, Balwski A, Capron B, Silverman D, James LM, Wolbert T, McCombs NJ—Circulation Research 30 and 31 (Suppl 2):11-101-11-109 (Sept) 1972*

In a predominantly black, middle-class, urban community of 23,000 adults, various methods of screening for elevated blood pressure were evaluated for effectiveness. Mobile van screening at locations where people congregated and door-to-door screening were the most effective methods. Of 6,012 adults screened, 1,713 (28.5%) were classified as hypertensive. A total of 71% of these (1,224) were either undiagnosed, untreated, or inadequately treated. A series of letters to the hypertensive suspects identified were more successful (59.3%) and more efficient than a series of telephone calls (30.9%) in referring individuals for diagnosis and treatment. A single casual blood pressure reading compared with a mean of three readings resulted in only a 6% increase in numbers of individuals classified as "hypertensive."

AB-855-72

Multiple histological sections were made along the limb nerves at autopsy of a patient with rheumatoid arthritis and neuropathy to determine the three-dimensional morphology of fiber degeneration related to sites of occluded vessels. Circumscribed necrosis of all tissue elements with a border zone of macrophages, as occurs in infaracts of brain, was not found. That ischemia probably accounts for the fiber damage is strongly suggested by the ubiquitous necrotizing angiography with occlusion, the patchy and often total loss of fibers in a vascular pattern, and, in some cases, capillary stasis and hemorrhage in the region of fiber degeneration. Regions of fiber degeneration began in central-fascicular locations at mid-upper-arm and mid-thigh levels. A probable explanation for this is that the affected regions represent watershed zones of poor perfusion. Whole sural nerves were frequently helpful in demonstrating a necrotizing angiopathy, whereas fascicular biopsies usually were not. No distinctive alterations of blood vessels in nerve were observed between rheumatoid arthritis, polyarteritis nodosa, Churg-Strauss syndrome, and Wegener's granulomatosis.
ABSTRACTS

AB-856-72

Eighty-nine patients underwent 103 operations for occlusive disease of the brachiocephalic vessels at the Mayo Clinic between January 1964 and December 1969. Seventy-eight patients had histories of transient ischemic attacks, and 12 of these had associated progressing or completed stroke. Arteriography was performed before operation to delineate the areas of the disease. Fifty-four patients underwent unilateral carotid endarterectomy, usually with patch angioplasty at the site of the arteriotomy. Fourteen patients underwent staged bilateral carotid endarterectomies. Hypercarbia was the most frequently employed technique for cerebral protection during periods of vessel cross-clamping. The operative mortality rate of patients undergoing carotid endarterectomy for transient ischemic attacks was 1.5%. Eighty-six percent of patients in this group who were alive at follow-up were asymptomatic. The result of patients operated on for completed or progressing strokes was less satisfactory.

AB-857-72
Angiographic Investigation of Cerebral Aneurysms. Technical Aspects—Lin JP, Kricheff II (Department of Radiology [Neuroradiology Section], New York University Medical Center, New York, New York)—Radiology 105:69-76 (Oct) 1972*

The accuracy in diagnosis of intracranial aneurysms can be increased by improving cerebral angiographical techniques. A brief description of various steps of the angiographical examination and appropriate projections for aneurysms at different locations is given. It is hoped that this will assist radiologists to obtain an adequate angiographical study, limit the need for repeated angiograms, and decrease the angiographical complication rate.

AB-858-72
Use of the Fogarty Catheter in Arteriovenous Malformations of the Spinal Cord—Benton JR (Assistant Professor, Department of Radiology, UCLA School of Medicine, Los Angeles, California), Crandall PH—Radiology 105:65-68 (Oct) 1972*

A Fogarty catheter was inserted percutaneously into the single feeding artery of a spinal cord arteriovenous malformation in two young patients. The technique, utilizing readily available materials, is described. In one patient the catheter was introduced into the feeding artery as a preoperative test for possible cord ischemia prior to successful ligation of the artery. In the second patient, obliteration of the arteriovenous malformation by clotting was accomplished by a two-hour period of balloon inflation. Follow-up angiography showed non-filling of the malformation.

AB-859-72
Simultaneous Use of Multiple Fibrometers for Coagulation Factor and Heparin Assays—Abildgaard CF (Department of Pediatrics, University of California, Davis, California 95616), Harrison J—Amer J Clin Path 58:272-274 (Sept) 1972*

A procedure for the simultaneous use of four fibrometers for coagulation factor and heparin assays is described. Using this method it is possible to perform 20 individual assays per hour.

AB-860-72
Circulatory Responses to Graded Stimulation of the Carotid Chemoreceptors in the Dog—Pelletier CL (Mayo Clinic and Mayo Foundation, Rochester, Minnesota 55901)—Circulation Research 31:431-443 (Sept) 1972*

The vascular effects of graded stimulation of the carotid chemoreceptors were studied in 13 anesthetized and artificially ventilated dogs, and stimulus-response curves were defined. The carotid bifurcations were isolated and perfused at constant pressure, and the vasi were cut. Autologous blood collected in a reservoir was equilibrated at Pr02 varying from 104 to 34 mm Hg, Pr02 from 39 to 81 mm Hg, and pH from 7.46 to 6.87 and was used to stimulate the carotid chemoreceptors. Systemic arterial Pr02, PrCO2, and pH were kept normal. Reflex increases in aortic blood pressure and in hind-limb perfusion pressure (constant-flow perfusion) were first seen with Pr02 of 70 mm Hg or Pr02 > 39 mm Hg. The vascular responses increased linearly with lower Pr02 or higher PrCO2 until tensions of 34 and 71 mm Hg, respectively, were reached. These stimuli caused a reflex dilatation of the perfused saphenous vein that was also proportional to the degree of stimulation. Increasing the pH of the blood perfusing the chemoreceptors decreased these changes by more than 50%; decreases in pH, with normal Pr02 and PrCO2, caused marked vascular responses, indicating an important role of pH in the activation of the chemoreflex mechanism.

AB-861-72

A noninvasive method for determining patency of saphenous vein coronary bypass grafts has been developed in our laboratory. The system consists of a pulsed ultrasonic Doppler, a position-sensing arm for the Doppler transducer, a memory oscilloscope, an electrocardiogram, and a strip-chart recorder. Patients are studied with the transducer in the suprasternal notch and intercostal spaces. Wherever flow is detected in the anterior mediastinum, a visible dot is stored on the oscilloscope screen at a point corresponding to the location of flow in the mediastinum. By repeated sampling at various depths a composite picture of a proximal section of graft is developed. Peak velocity flow signals from grafts occur during diastole distinguishing them from other arterial flow signals. Twenty-eight patients having 41 patent grafts were studied in a
preliminary evaluation of the method. Three examples of angiograms with corresponding ultrasonic arteriograms demonstrate the feasibility and potential value of this new noninvasive technic for assessing patency of saphenous vein coronary bypass grafts.

AB-862-72

To our knowledge, this is the eleventh reported case of contrast agent extravasation from a ruptured intracranial aneurysm during angiography and the first during brachial arteriography. The patient, an 84-year-old woman, was in good condition at the time of the roentgenographical examination though she had suffered three episodes of subarachnoid bleeding more than a week earlier. The films showed filling of the ventricles by contrast agent extravasating from a ruptured anterior communicating aneurysm. The angiographical procedure could have contributed to the aneurysmal rebleed.

AB-863-72
Subarachnoid Hemorrhage Due to Ruptured Aneurysms. A Simple Method of Estimating Prognosis—Alvord EC Jr (Department of Pathology, University of Washington School of Medicine, Mail Stop SK-20, Seattle, Washington 98195), Loeser JD, Bailey WL, Copass MK—Arch Neurol 27:273-284 (Oct) 1972*

In an attempt to define the natural history of patients with subarachnoid hemorrhage due to ruptured intracranial aneurysms, we have constructed a table of probabilities of future survival based on two clinical observations: (1) duration of past survival from either the first or the last subarachnoid hemorrhage, and (2) the clinical status (grade) of the patient at this point in time. Using this table, we have been able to predict the number and percentage of survivors in practically every reported series regardless of the method of treatment, the site of the aneurysm, or the percentage death rate actually observed. The simplicity of the method, which compares each individual patient with his own matched, theoretical control, allows any physician to evaluate his own groups of patients treated in different ways.

AB-864-72
Benorylate and Gastrointestinal Blood Loss—Danhof IE (Department of Physiology, University of Texas Southwestern Medical School, Dallas, Texas), Kailey JD, Guinn EC—Current Therap Res 14:583-589 (Sept) 1972*

Benorylate is a lipid-soluble ester of acetylsalicylic acid and N-acetyl P-aminophenol which has been found by others to be well absorbed after oral ingestion, well tolerated, and effective in the control of postoperative pain, fever, and rheumatoid disease. When ingested in 4 and 8 grams daily in divided doses, no significant increase in fecal blood loss as compared with the control was demonstrated in 12 healthy male volunteers utilizing chromium-51 labeled autologous erythrocytes as an indicator in serially collected stool specimens. Medication ingestion was confirmed by plasma salicylate analyses.

AB-865-72
Reserpine, Hydralazine, Hydrochlorothiazide Combination (Ser-Ap-Es) in Essential Hypertension—Glazer N (2700 Bardstown Road, Louisville, Kentucky 40205)—Current Therap Res 14:561-572 (Sept) 1972*

A double-blind comparison was made of a combination antihypertensive tablet containing reserpine 0.1 mg, hydralazine 25 mg, and hydrochlorothiazide 15 mg (Ser-Ap-Es), with placebo in 51 patients with moderate to moderately severe essential hypertension. After a six-week "washout" period, patients were assigned randomly to drug or placebo groups, in which they remained for ten weeks. Rigid selection criteria, monitoring at two-week intervals, and a computer screening and editing program eliminated most variables to make this a homogeneous population.

Rapid, clinically and statistically significant decreases in systolic and diastolic pressure were achieved in almost every patient, at a dosage of one tablet three times a day.

AB-866-72
Paradoxical Embolism. Diagnosis During Life—Meister SG, Grossman W, Dexter L, Dalen JE (Peter Bent Brigham Hospital, Boston, Massachusetts 02115)—Amer J Med 53:292-298 (Sept) 1972*

Of 128 reported cases of paradoxical embolism, only 12 have been diagnosed during life. However, five cases of paradoxical embolism have been detected during life at this hospital in two years. These five cases are presented to illustrate the pathophysiological features that allow detection of paradoxical embolism during life.

All five patients had unexplained arterial embolism. None had associated atrial fibrillation, mitral stenosis or myocardial infarction. Each had venous thrombosis. Two patients had congenital heart disease, whereas in three the defect permitting paradoxical embolism was a patent foramen ovale.

Each patient was treated to prevent further embolism. Three did well and were discharged. Two died, and at postmortem examination, the clinical diagnosis was confirmed.

The detection of five cases in two years indicates that this treatable cause of systemic embolism is substantially more frequent than indicated by the literature.

AB-867-72
ABSTRACTS

Hansastraasse 9, Deutschland—Arch Psychiat Nervenkranke 215:376-395, 1972 (Springer-Verlag, publisher)*

Topographical correlations of the basilar artery to skull base structures as well as variations of branching and of diameter of the arteries near the base were studied by evaluating 63 brachial and 60 vertebral angiographies. Normal values were established by computing normal angiograms of adults and children. Abnormal values were found in angiograms of patients with arteriosclerosis and with infratentorial tumors.

In normal angiograms (adults) the average distance between clivus and basilar artery was 7.2 mm at the apex dorsi sellae, 4.9 mm at the lower edge of the dorsum sellae and 2.9 mm at a point 2 cm below the apex. At a distance of 2 mm and less the basilar artery is pressed toward the clivus. At a distance of 12 mm and more, the basilar artery is ablated from the clivus. In 67.6% of the cases the lateral deviation of the basilar artery was less than 2 mm.

Patients with cerebral arteriosclerosis showed a significant elongation of the basilar artery (48.5 mm) compared to the average normal value (38.5 mm). This elongation is combined with a marked elevation of the basilar artery above the apex (6.6 mm) and with lateral deviations up to 12 mm.

Children up to 10 years had larger basal cisterns with a distance between basilar artery and clivus of 7.96 mm at the apex dorsi sellae, of 6.0 mm at the lower edge of the dorsum sellae and of 3.8 mm at a point 2 cm below the apex. The median length of the basilar artery was 41.5 mm. Children have the highest elevation of the basilar artery above the apex (7.8 mm) which is due to the relative retardation of osseous maturation of the skull base in comparison to the brain stem and vessels.

It is of diagnostic value for infratentorial tumors when the basilar artery is pressed toward (less than 2 mm) or away from the clivus (more than 12 mm).

AB-869-72
Extracranial-Intracranial Bypass Grafts—Khodadad G (Department of Neurosurgery, University of Pennsylvania Medical School, Philadelphia, Pennsylvania)—J Neurol Neurosurg Psychiat 35:527-530 (Aug) 1972*

An extracranial-intracranial bypass graft was established in 16 dogs. The graft was routed deep in the lateral pharyngeal space as opposed to the subcutaneous course in front of the ear, which may be hazardous. Of ten common carotid-middle cerebral arterial bypass grafts three were still patent four and a half, six, and 11 months postoperatively. The remaining seven arterial and six venous bypass grafts were occluded either at the first angiogram 1 to 4 days after the operation or at the second angiogram ou to nine weeks later. The low patency rate in this experiment is attributed to the very small external diameter (average 0.8 mm) of the recipient artery, to donor-recipient discrepancy, to spasm and possibly edema of the graft. To our knowledge this is the first report on patent extracranial-intracranial bypass grafts in a laboratory animal.

AB-869-72

Clinical observations and EEG recordings made over a prolonged period of time are reported for eight young patients (9 to 15 years) who suffered from complicated migraine with severe focal symptoms. Vascular anomalies were ruled out by carotid angiography. In five patients cerebral symptoms were restricted to the period of the migrainous attack, whereas in one patient they lasted for two days. Another patient showed a permanent neurological deficit (probably caused by an ischemic lesion). In seven cases the EEG showed severe focci outlasting the focal symptoms for days and weeks: in one patient for six days, in three cases for two weeks and in two patients for four to six weeks. Problems of diagnosis and the indication for cerebral angiography are discussed.

AB-870-72
Rapid Formation of Giant Aneurysm: Case Report—Fried LC (Division of Neurological Surgery, Medical College of Virginia, Richmond, Virginia 23219), Yballe A—J Neurol Neurosurg Psychiat 35:527-530 (Aug) 1972*

A case is presented which documents the formation of a giant intracranial aneurysm over a period of less than three months. It had previously been postulated by several authors that giant aneurysms form from hematomas in communication with the aneurysm. The gross appearance and histology of the lesion in our case supports this theory.

AB-871-72
Thrombosis of the Brachial Artery Following Cardiac Catheterization: Etiology and Treatment—Scott ML, Ochsner JL (Department of Surgery, Ochsner Clinic and Ochsner Foundation Hospital, New Orleans, Louisiana 70121)—Southern Med J 65:1095-1098 (Sept) 1972*

The authors collect a series of very frequent complications of cardiac catheterization—that of postcatheter arterial occlusions. Suggestions for diagnosis and proper treatment are made.

AB-872-72
Effects of Amyl Nitrite on Coronary Arterial Blood Flow Velocity in Man—Benchimol A (Good Samaritan Hospital, Phoenix, Arizona 85006), Deser KB, Gartlan JL Jr—Amer J Cardiol 30:327-333 (Sept) 1972*

Instantaneous coronary arterial phasic blood flow velocity was measured in 21 patients (eight with coronary artery disease) after amyl nitrite inhalation. Measurement was made with use of a Doppler ultrasonic flowmeter catheter positioned at the ostia of the coronary arteries. In all cases, there was an appreciable increase in diastolic coronary arterial phasic blood flow velocity within ten seconds. Flow velocity increased from 50% to 216% over control values after administration of amyl nitrite. Subjects with marked
obstructive coronary artery disease had decreased peak coronary arterial phasic blood flow velocity responses when compared with control subjects. Atrial pacing to heart rates attained with amyl nitrite alone resulted in no appreciable increase or decrease in coronary arterial phasic blood flow velocity, thus showing that increase in the latter was not dependent on this action of the drug. Furthermore, increase occurred before appearance of the arterial hypotensive effect of amyl nitrite. The presence of an increase in coronary arterial phasic blood flow velocity after administration of a drug with demonstrable coronary vasodilating action strongly suggests that one of the important attributes of nitrites is their ability to increase coronary arterial blood flow.

AB-873-72

Interactions of Benzodiazepines with Warfarin—Orme M (Department of Chemical Pathology, St. Thomas' Hospital, London S.E.1, England), Brekenridge A, Brooks RV—Brit Med J 3:611-614 (Sept 9) 1972*

Administration of nitrazepam (10 mg nightly), diazepam (15 mg/day), and chlordiazepoxide (15 and 30 mg/day) had no effect on steady-state plasma warfarin concentrations, the plasma half-life of warfarin, or anticoagulant control in patients and it appears safe to prescribe these agents to patients on long-term oral anticoagulants. Urinary excretion of 6-α-hydroxy-cortisol, however, increased in two out of five patients given chlordiazepoxide. In rats pretreatment with chlordiazepoxide (40 mg/kg for four days) caused stimulation of liver microsomal enzyme activity but neither diazepam nor nitrazepam had this effect.

AB-874-72

Control of Cerebral Blood Flow in the Goat; Role of the Carotid Rete—Edelman NH, Epstein P, Cherniack NS, Fishman AP (Cardiovascular-Pulmonary Division, Department of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania 19104)—Amer J Physiol 223:615-619 (Sept) 1972*

A procedure has been developed for continuously measuring cerebral blood flow in the goat. This method takes advantage of the unique anatomy of the cerebral vasculature of this species in order to measure unilaterial cerebral blood flow with an electromagnetic flowmeter. Studies using radioactive particles indicated that flow measured in this manner included a small quantity of noncerebral blood flow (5% to 15%), primarily that of the eye. Using this procedure, the cerebral vasculature of the goat was shown to dilate during acute hypoxia and hypercapnia in a manner similar to that observed in other mammals. Separate studies were done to characterize the behavior of the vessels that comprise the carotid rete. These indicated that the vessels of the rete constrict in response to norepinephrine, dilate in response to isoproterenol, and are unaffected by an appreciable increase in arterial P<sub>CO</sub><sub>2</sub> (of approximately 9 mm Hg). In this respect, they behave like systemic rather than intracerebral vessels. Under ordinary conditions, there was little damping in the transmission of the pressure pulse across the carotid rete. However, some damping did occur when systemic blood pressures reached hypertensive levels. These observations suggest that the carotid rete may protect the brain against extreme elevations of systemic blood pressure by increasing resistance to blood flow and dampening the systemic pressure pulse.

AB-875-72

Gastric Bleeding and Benorylate, a New Aspirin—Croft DN, Cuddigan JHP (Senior Registrar, St. Thomas' Hospital, London S.E.1, England), Sweetland C—Brit Med J 3:545-547 (Sept 2) 1972*

Benorylate (4-acetamidophenyl 2-acetoxybenzoate) is a new esterified aspirin preparation whose antirheumatic properties are reported to be as good as those of aspirin. Gastrointestinal blood loss, measured with 51Cr-labelled red cells, during benorylate therapy was compared with that during therapy with soluble aspirin in 15 subjects, a simplified crossover procedure being used. Mean blood loss during benorylate therapy was 1.7 ml/day which was significantly less than that during therapy with soluble aspirin (5.1 ml/day; P<0.001). In 12 of the 15 patients blood loss with benorylate was less than 2.5 ml/day. Benorylate appears to be a definite improvement on current formulations of aspirin and should be a useful drug for the treatment of patients with chronic rheumatic disorders.

AB-876-72

Deposition of Formed Elements of Blood on the Intima and Signs of Intimal Injury in the Aorta of Rabbit, Pig, and Man—Jørgensen L (Institute of Medical Biology, University of Tromsø, 9001 Tromsø, Norway), Packham MA, Rowell HC, Mustard JF—Lab Invest 27:341-350 (Sept) 1972*

The aortas of rabbits and pigs, infused with Evans blue, show focal areas of blue staining, indicating accumulation of albumin at these sites. The areas of maximal accumulation corresponded to sites where early atherosclerotic lesions occur. Sections from white and blue areas of the animal aortas were examined by light and electron microscopy; sections from corresponding sites in aortas of young humans who died suddenly were examined by light microscopy only. Particularly in sections from pale areas of the animal aortas and from corresponding areas of the human aortas, the endothelial cells were close to the internal elastic membrane. In other sections, especially from intensely blue areas or corresponding areas in humans, the intima was thickened as a result of increased space between the structures, probably representing edema, and of the presence of smooth muscle cells, collagen fibers, and leukocytes. As counted by light microscopy, the number of small platelet-fibrin thrombi or rounded to oval cytoplasmic bodies, considered to be individual platelets, on the intimal surface, as well as the number of leukocytes between or beneath the endothelial cells, correlated with the degree of intimal edema. In some places, particularly beneath platelet masses, the endothelial cells were severely damaged or missing.

*Authors' abstract.

244

Stroke, Vol. 4, March-April 1973
ABSTRACTS

The observations indicate that focal injury of the endothelial lining occurs in the aorta of healthy animals and young persons. The injury may allow increased accumulation of plasma proteins in focal areas of the intima. The most likely explanations for the focal injury are platelet-leukocyte interaction with the vessel wall and the effect of hemodynamic factors.

AB-877-72
Overall Value of Brain Scans and Electroencephalograms in Detecting Neurosurgical Lesions—Williams JO, Herzberg L, Hicks EP, Williams NE, Croft DN (St. Thomas' Hospital, London SE1 7EH, England)—Lancet 2:642-645 (Sept 23) 1972*

In a general hospital the overall accuracy of brain scanning in detecting or excluding a cerebral lesion which required neurosurgical attention was 88% in a consecutive, unselected group of 128 patients followed up for up to five years. The most common cause of a false-positive result was a cerebrovascular accident. Scanning within three days of a cerebrovascular accident or three months after may help to distinguish it from an underlying tumor. A negative scan did not exclude a supratentorial lesion and occurred in 29% of those patients with a "neurosurgical lesion." In two cases, the electroencephalogram (EEG) was the only positive finding at the initial presentation, and it is suggested that focal EEG abnormalities might profitably be followed by regular scanning until the existence of a tumor can reasonably be excluded. The overall accuracy of EEGs, however, was only 66%.

AB-878-72
Low-Dose Heparin After Myocardial Infarction—Handley AJ (Westminster Hospital, London, SW1P 2AP, England)—Lancet 2:623-624 (Sept 23) 1972*

A trial of low-dose subcutaneous heparin in the prevention of deep-vein thrombosis was undertaken in 50 patients with myocardial infarction. The development of lower-limb thrombosis was detected by the radioactive fibrinogen technique in 23% of the patients who received heparin and 29% of the controls. This difference is not significant.

AB-879-72
Phenformin Plus Ethylestrenol in Survivors of Myocardial Infarction. Three-Year Pilot Study—Chakrabarti R, Fearnley GR (Gloucestershire Royal Hospital, Gloucester)—Lancet 2:551-555 (Sept 16) 1972*

Sixty patients who had had a first attack of myocardial infarction entered a trial to assess the effects of phenformin plus ethylestrenol on blood fibrinolytic activity, plasma-fibrinogen levels, and serum-cholesterol levels, together with any possible side-effects. Treatment was given for 36 lunar months. Excluding deaths and withdrawals, 42 patients completed the trial. In all but one of the patients with low fibrinolytic activity the treatment brought and maintained this measurement to within the normal range. Plasma-fibrinogen levels were reduced in most patients, particularly in those in whom this measurement was high. The effect on serum-cholesterol was unremarkable. The overall mortality rate was about 7% per annum, but the rate of new nonfatal infarctions was low (4% per annum). Except for one patient who developed folie-acid deficiency, the side-effects of phenformin were negligible. Ethylestrenol tended to potentiate retention of sodium in patients with badly damaged left ventricles, but in nearly all this could be controlled by an oral diuretic. This combination of drugs seems suitable for a controlled trial in survivors of vascular accidents.

AB-880-72
Lipid and Lipoprotein Responses of Hypertriglyceridaemic Outpatients to a Low-Carbohydrate Modification of the A.H.A. Fat-Controlled Diet—Hulley SB (Lipid Research Laboratory and Metabolic Unit, U.S. Public Health Service Hospital, San Francisco, California 94118), Wilson WS, Burrows MI, Nichaman MZ—Lancet 2:551-555 (Sept 16) 1972*

Thirteen non-obese men with hypertriglyceridemia were followed monthly during a year of dietary treatment. During the last six months a diet designed to lower serum levels of both triglyceride and cholesterol was prescribed. Carbohydrate intake was low (30% of total calories), cholesterol intake was low (259 mg daily), and total fat intake was high (50% of calories) with a high polysaturated/saturated (P/S) ratio (3/2). Compared with baseline values, the diet caused significant reductions in the mean levels of triglyceride (by 96 mg per dl), cholesterol (by 28 mg per dl), pre-β-lipoprotein (by 65 mg per dl), and β-lipoprotein (by 84 mg per dl). Weight fell significantly (by 2 kg) despite attempts to prevent this, but the triglyceride response appeared to be unrelated to the weight loss. These events are compared with the effects of the standard American Heart Association (AHA) fat-controlled diet during the first six months in the same subjects, and during 12 months of treatment in a group of 28 men with normal serum-triglyceride concentrations. The chief effect of the standard AHA diet appears to be a reduction of the level of β-lipoprotein and that of carbohydrate restriction a lowering of pre-β-lipoprotein concentration. Our low carbohydrate modification of the standard AHA diet is acceptable to outpatients and has a sustained capacity to lower serum triglyceride and cholesterol concentrations.

AB-881-72

Biochemical and morphological studies were carried out on the early effect of hypercholesterolemia on the central nervous system in both metabolically normal and subdiabetic rabbits. Major biochemical difference was the elevation of nonesterified cholesterol in the subdiabetic animals. Histologically, Alzheimer type II astrocytosis was noted in the basal ganglia of the
subdiabetic rabbits during the fourth week. The astrocytosis extended into the entire portion of the cerebrum and cerebellum during two to four months. In the metabolically normal rabbits on the cholesterol diet, on the other hand, similar astrocytic changes were noted after two months. Despite the fact that cholesterol crystals had frequently been noted in the capillary walls of the viscera after the second week, similar changes were not observed in the blood vessels of the brains of both the subdiabetic and the metabolically normal rabbits during the four months of cholesterol feeding. These observations suggest that cholesterol deposits in the vascular walls are determined by the different rates of lipid metabolism in each individual organ.

AB-882-72
Scanning Electron Microscopy of Saccular Intracranial Aneurysms—Hassler O (Associate Professor, Department of Pathology, University of Umeå, 901 87 Umeå 6, Sweden)—Amer J Path 68:511-520 (Sept) 1972*

Eight intracranial saccular aneurysms from six autopsies were studied with the scanning electron microscope and the cerebral arteries from control autopsies and rabbits were compared. The intima of the aneurysms had a more uneven and rugged surface than the surroundings. Only slight atherosclerotic changes were discovered in the immediate vicinity of the aneurysms. The windows of the internal elastic lamella were enlarged at the mouth of the aneurysms; the edge of the muscle layer was rounded and showed fibrosis. The structure of the walls of the aneurysms differed from that of the control arteries because they were composed of collagenous connective tissue. The adventitia of the aneurysms resembled that of control arteries. The findings are in accord with the assumption that saccular aneurysms develop at sites of developmental media defects. The internal elastic lamella over the area of the media defect shows primarily compensatory hypertrophy and later degeneration, extension and decay.

AB-883-72
Recent Successes and Failures in Radiographic and Radioisotopic Angiography of the Spinal Cord—Di Chiuro G (Section on Neuroradiology, National Institute of Neurological Diseases and Stroke, National Institutes of Health, Bethesda, Maryland 20014)—Brit J Radiol 45:553-560 (Aug) 1972*

Radiographical visualization of the arteries of the thoracolumbar segment of the spinal cord has been consistently obtained since the introduction of the selective arteriographical technique. The successful demonstration of the cervical cord vessels is improved if, in addition to the vertebral arteries, both costocervical trunks are also injected. Nevertheless, we still fail to adequately visualize the cervical cord vasculature in about 20% of the cases. Attempts to demonstrate spinal cord vessels in man, by nonselective techniques with potentiation of arteriographical methods, have failed.

*Authors’ abstract.

Visualization of well-individualized normal spinal cord veins is rarely obtained.

Some observations made during our angiographical studies of 70 cases of arteriovenous malformation of the spinal cord are reported. Technical advice is offered to improve the demonstration of feeders in this frequent pathological lesion of the spinal cord. The first observation of a cord arteriovenous malformation associated with a similar malformation of the brain is reported. Spinal subarachnoid bleeding is an unexpectedly rare complication encountered almost exclusively in cases where a concomitant arterial aneurysm is present. In patients suspected of harboring an arteriovenous malformation of the thoracolumbar spinal cord, the dangerous possibility of needle penetration within the lesion should be considered before attempting a lumbar myelography. In some instances, one may pass directly to arteriographical studies avoiding myelography. An alternative screening procedure is the newly introduced radioisotope spinal cord angiography.

Certain angiographical observations in tumors, obstructive vascular disease, trauma, and radiation damage of the spinal cord are commented upon.

AB-884-72

During myelography we observed the contrast material in the spinal subarachnoid space while we changed: (1) the intracranial blood volume by CO₂ inhalation, hyperventilation, and jugular vein compression; (2) the intra-abdominal and intrathoracic pressure by forced expiration with glottis closed; and (3) the CSF volume by withdrawals and rejections of fluid. The spinal dural sac enlarges with increases in volume of both intracranial blood and CSF. It partially collapses with reductions in volume of both intracranial blood and CSF. With increases in intra-abdominal and intrathoracic pressure, the thoracolumbar sac partially collapses, while the cervical sac enlarges. From these observations we conclude that the spinal dural sac is a dynamic structure, readily changing its capacity in response to prevailing pressure gradients across its walls. It acts as a reservoir for CSF, which moves to and fro through the foramen magnum in response to changes in cerebral blood flow. By its bladder-like ability to alter its capacity, the spinal dural sac provides the “elasticity” of the covering of the central nervous system.

AB-885-72
5-Hydroxytryptamine Levels and Platelet Aggregation Responses in Subjects With Acute Migraine Headache—Hilton BP, Cumings JN (Institute of Neurology, National Hospital, Queen Square, London, England)—J Neurol Neurosurg Psychiat 35:505-509 (Aug) 1972*

Blood 5-hydroxytryptamine levels were reduced during migraine attacks in patients who had not taken any drugs but the aggregation responses to 5-hydroxytryptamine of the blood platelets from these patients were similar to responses of platelets from
ABSTRACTS

migrainous subjects between attacks. This confirms earlier findings that a permanent difference exists in the behavior of platelets from migrainous subjects. Blood 5-hydroxytryptamine levels were reduced during migraine attacks in patients who had taken ergotamine. The aggregation responses of platelets taken from migrainous patients on ergotamine both during and between attacks were inhibited, which is in agreement with results previously found for aggregation responses following the in vitro pre-incubation of control platelets with ergotamine. Blood 5-hydroxytryptamine levels were maintained during migraine attacks in patients who had taken analgesics and there was no reduction in the aggregation responses of their platelets.

AB-886-72
The Valsalva Maneuver and Coronary Arterial Blood Flow Velocity. Studies in Man—Benchimol A (Institute for Cardiovascular Diseases, Good Samaritan Hospital, Phoenix, Arizona), Wang TF, Desser KB, Gartlan JL Jr—Ann Int Med 77:357-360 (Sept) 1972*

Effects of the Valsalva maneuver on left coronary blood flow velocity were assessed in 15 patients with the Doppler catheter tip flowmeter. Straining against a closed glottis induced a decline of coronary flow velocity that ranged from 14% to 72%, with a mean of 45% for the study group. In seven of eight patients who executed the Valsalva maneuver twice the maximum decrease of coronary flow velocity was related to the magnitude of mean right atrial pressure rise. In three subjects with heart disease there was an unexpected continuous reduction of coronary flow velocity long into the poststraining period. These adverse consequences of the Valsalva maneuver on coronary blood velocity may account for some cases of "bedpan death."

AB-887-72
Cerebral Embolism. Review and Current Perspectives—Calkins RA (Department of Neurology, University Hospitals, University of Iowa, Iowa City, Iowa 52240)—Arch Int Med 130:430-435 (Sept) 1972*

In a discussion of old and new concepts of cerebral embolism, two cases are used to illustrate the pathophysiology of atheroembolism in producing intermittent and lasting neurological deficits. Emboli are due to both cardiogenic and noncardiogenic sources. The onset is characteristically abrupt, but premonitory warnings may occur. The risk of recurrent embolism must be weighed against the risk of anticoagulant therapy, which may cause lethal hemorrhage into the infarcted area. Definitive therapy may require surgical intervention. It seems likely that embolism occurs more frequently than has been previously stated, and these patients should be identified to permit appropriate medical and surgical therapy.

AB-888-72
Permanent Ventricular Pacing. Effect on Long-Term Survival, Congestive Heart Failure, and Subsequent Myocardial Infarction and Stroke—Davidson DM (Departments of Internal Medicine and Postgraduate Medicine, University of Michigan Medical Center, Ann Arbor, Michigan), Braak CA, Preston TA, Judge RD—Ann Int Med 77:345-351 (Sept) 1972*

One hundred and fifty patients with permanent ventricular pacemakers were followed to determine long-term survival statistics, the effect of pacing on congestive heart failure, and the incidence of subsequent myocardial infarction and cerebrovascular accident. A high prevalence of diabetes mellitus in pacing candidates was the only significant atherosclerotic risk. Survival was significantly improved in patients first paced after 1964 compared with those paced earlier. Of 20 patients with preexistent congestive heart failure, 16 markedly improved with pacing. Congestive heart failure occurred for the first time after pacing in 26 patients (17%). Paced patients had four myocardial infarctions (expected = 10.6) and six cerebrovascular accidents (expected = 7.7). Permanent ventricular pacing produced excellent long-term survival, with no increased risk of myocardial infarction or cerebrovascular accident. Pacing was effective for preexistent refractory congestive heart failure, but congestive heart failure, first appearing after implant, was frequent.

AB-889-72
Bedsores in the Chronically Ill Patient—Moolten SE (Director of Medical Education and Laboratory, Roosevelt Hospital, Metuchen, New Jersey)—Arch Phys Med Rehab 53:430-438 (Sept) 1972*

Although unrelieved pressure on the skin is the initiating cause of bedsores, their rate of development and ultimate severity depend largely on secondary factors. In a series of 50 cases treated during an 18-month period in a hospital for chronic diseases, undernutrition, chiefly the result of anorexia, was found to play an important role, particularly in the case of the elderly patient. Patients with stroke and senile dementia were particularly prone to weight loss. Bed sore formation was more closely correlated with low levels of serum albumin than with weight loss. The drop in serum albumin reflected not only malnutrition but also excessive loss of serum protein in bedsores exudate. Anemia and circulatory impairment also played a role. The factor of infection added seriously to the hazard of bedsores. Healing of bedsores was accomplished not only by energetic efforts to relieve pressure and treat anemia and local infection but also by improvement in nutrition. The chief effort was directed to remedying protein deficiency through the use of dietary supplements, anabolic steroids, parenteral vitamins and small doses of insulin before meals.

AB-890-72
Ruptured Mycotic Pericallosal Aneurysm With Meningitis Due to Neisseria Meningitidis Infection. Case Report—Sypert GW (Department of Neurological Surgery, University of Washington, Seattle, Washington 98105), Young HF—J Neurosurg 37:467-469 (Oct) 1972*

A case is reported in which a ruptured intracerebral aneurysm had been infected by Neisseria meningitidis. Evacuation of the resulting hematoma, clipping the
an aneurysm and antibiotic therapy resulted in a satisfactory recovery.

AB-891-72
Motor Response Time and Task Difficulty Among Aged and Brain-Damaged Patients—Zaretzky HH (Chief, Psychology Service, Department of Rehabilitation Medicine, Goldwater Memorial Hospital, Welfare Island, New York 10017), Brucker BS, Guttman AR, Mete J—Arch Phys Med Rehab 53:418-424 (Sept) 1972*

An investigation of the effects of age, brain damage, task difficulty and institutionalization on three different types of visual-motor reaction-time tasks is the basis of this report. Two groups, one consisting of ten hospitalized elderly brain-damaged patients and the other of ten hospitalized elderly non-brain-damaged chronically ill patients, were each presented the following-type tasks: (1) simple reaction time—one stimulus and one response alternative; (2) discrimination reaction time—three stimuli and one response alternative; (3) choice reaction time—two stimuli and two response alternatives. No significant differences were obtained between the performance of the elderly brain-damaged group and the elderly non-brain-damaged group on any of the three visual-motor reaction-time tasks. Reaction time of all subjects was shown to increase with task difficulty. For both groups, the simple reaction-time task was the least difficult and the choice reaction-time task was the most difficult. These findings may have implications for the rehabilitation and retraining of brain-damaged patients, since their ability may have been underestimated in comparison with other disabled non-brain-damaged patients.

AB-892-72
Role of Prostaglandin-F 2a in the Genesis of Experimental Cerebral Vasospasm. Angiographic Study in Dogs—Pennink M (University of Tennessee College of Medicine, Department of Neurosurgery, Room 231, Memphis, Tennessee 38103), White RP, Crockarell JR, Robertson JT—J Neurosurg 37:398-406 (Oct) 1972*

An angiographic study of cerebral vasospasm was performed in 40 dogs. Vasospasm was caused by injection of 4 ml of blood or 4 ml of blood mixed with prostaglandin F 2a into the chiasmatic cistern. A statistically significant difference (chi-square test, p < 0.01) was found between the incidence of cerebral vasospasm obtained with injection of blood alone (6 out of 18 cases, 33%) and the cerebral vasospasm induced with blood and prostaglandin F 2a (12 of 13 cases, 92%). In addition, cerebral vasospasm was obtained with injection of prostaglandin F 2a alone, whereas prostaglandin E 1 had no such effect. These findings, together with reports in the literature that the brain is rich in prostaglandin F 2a which it releases into the CSF, suggest a role of prostaglandin F 2a in the genesis of cerebral vasospasm seen clinically.

AB-893-72

Effects of intracarotid infusion of prostaglandins (PG) E 1 and F 2a on the circulation to the dog brain were examined by fluorescein angiography, by measuring diameter changes in the epicerebral vessels, and by measuring microregional cerebral blood flow with 133Xenon and lithium-drift silicon detectors. PGE 1 at doses of 0.5 μg/min constricted the epicerebral arteries 700 μ or less in diameter, arrested fluorescein dye injected into the carotid system, and reduced rCBF by 42% with increase of collateral flow to the brain by the vertebrobasilar system. This effect was not obtained by PGF 2a to which 0.08% ethanol had been added. PGF 2a at doses of 25 μg/min constricted epicerebral arterial vessels less than 200 μ in diameter, reduced rCBF by 35%, and decreased fluorescein dye in the cortical microcirculation with lengthening of the cerebral circulation time. Selective clipping of external and internal carotid arteries indicated that PGE 1 acts by constricting these vessels as well as the epicerebral arteries. Since prostaglandins are released from platelets as well as from stimulation of the cerebral cortex they should be considered as factors involved in the regulation of cerebral blood flow and in the mechanism of cerebral vasospasm. These properties of PGE 1 and PGF 2a also imply the need for caution when these substances are used for clinical investigation.

AB-894-72
Clofibrate-Induced Acute Muscular Syndrome—Sekowski J (to the Long Island Jewish Medical Center-Queens Hospital Center Affiliation, Jamaica, New York 11432), Samuel P—Amer J Cardiol 30:572-574 (Oct) 1972*

Two cases of acute muscular syndrome associated with administration of clofibrate are reported. In both patients there was a previous history of muscle pain during clofibrate therapy, which prompted us to rechallenge with the drug. Serum creatine phosphokinase activity became increased in both subjects, concomitant with muscle pain, but serum glutamic oxalacetic transaminase levels remained normal in one and were only moderately elevated in the other patient. The confirmation of the existence of this rare syndrome (and perhaps the possibility that serum glutamic oxalacetic transaminase may be muscular in origin in some patients treated with the drug) suggests the necessity of serial measurements of serum creatine phosphokinase levels during the administration of clofibrate.

AB-895-72
Pregnancy in Six Patients with Starr-Edwards Heart Valve Prostheses—Ibarra-Pérez C (Uxmal 689, Mexico City 13, Mexico), Del Bosque-Ruiz M—Amer J Cardiol 30:565-568 (Oct) 1972*

Six patients with Starr-Edwards prosthetic heart valves became pregnant while receiving acenocoumarin therapy. Administration of the drug was continued until term in four and discontinued in one. One patient with a past history of obstetric complications continued the
ABSTRACTS

Drug during an episode of vaginal bleeding and aborted. There was one more episode of vaginal bleeding during acenocoumarin therapy that subsided when the drug was discontinued. There were no emboli during four episodes of anticoagulant suspension in three patients. In two cases heparin was used as an adjuvant drug during puerperium. In three cases diprydiamole was used as an adjuvant or alternate drug during pregnancy, labor or puerperium. Five patients were delivered of infants without congenital defects. There were no complications in two infants delivered by forceps while the mothers had “therapeutic” prothrombin times. There is not enough evidence to suggest sterilization or routine interruption of acenocoumarin therapy during pregnancy in patients with Starr-Edwards prosthetic heart valves. Pregnant women with Starr-Edwards prosthetic heart valves can have normal children if the use of acenocoumarin is carefully controlled.

AB-896-72
ADP as the Cause of Reversible Inhibition of Platelet Retention in Glass-Bead Columns—Friedberg NM, Zucker MB (New York University Medical Center, New York, New York 10016)—J Lab Clin Med 80:603-612 (Oct) 1972*

When 5 ml of undisturbed heparinized blood was passed through a column of glass beads, 85% ± S.D. 4 of the platelets in the fourth and fifth milliliter were retained. If blood was disturbed by rapid transfer between syringes, retention was inhibited (21% ± S.D. 19) but returned to normal in 45 to 60 minutes. Blood disturbed by slow centrifugation and remixing also exhibited low retention which improved only slightly in two hours. Addition of 0.1 μM ADP or 1.0 μM ATP to undisturbed blood inhibited retention with a maximal effect at ten minutes. Neither 1 μM AMP nor adenosine was inhibitory. Plasma ADP, ATP, and hemoglobin concentrations rose significantly after passage of undisturbed blood through the column; hemolysis was responsible for less than 10% of the released nucleotides, and the ratio of ATP to ADP was about 1.5, suggesting they are derived from platelets. ADP and ATP concentrations were not increased in the plasma of disturbed blood before or after passage through the column. Incubation of disturbed blood with apyrase (1 mg/ml) partially restored retention in two minutes and completely in ten minutes. Even after incubating platelet-rich plasma with apyrase to diminish the inhibition due to centrifugation, platelets were not retained. We conclude that ADP and possibly ATP are responsible for the reduced retention in disturbed blood. The slow return of retention, either spontaneously or after addition of apyrase, and the lack of a measurable increase in ADP and ATP in plasma of disturbed blood, suggest that the inhibitory nucleotide is sequestered.

AB-897-72
Tissue Response to an Arterial Substitute of Bovine Origin—Dillon ML (Surgical Service, V. A. Hospital, Lexington, Kentucky 40507), Scott SM, Vasquez MD, Postlethwait RW, Dart CH—Arch Surg 105:577-581 (Oct) 1972*

Tissue responses in and to a heterograft collagen tube, used as an arterial substitute in 27 patients, demonstrated by biopsies at intervals from three days to 32 months that this graft was inert and became incorporated within a tube of living collagenous host tissue. Within five weeks of implantation, the operative debris was cleared and the host collagenous tissue surrounding the graft was well developed. Incorporation of the graft by the host tissue continues so that at eight months the graft collagen was difficult to identify in the adventitial layer. Atheromatous changes appeared after several months in areas which histologically appeared to be evolution of lesions of small dissections of blood into the media. Four grafts with aneurysms showed atheromatous changes; however, other factors may have been involved in their cause.

AB-898-72
The Frequency of Procainamide-Induced Systemic Lupus Erythematosus—Hope RR, Bates LA (Dunedin Public Hospital, Dunedin, New Zealand)—Med J Aust 2:298-303 (Aug 5) 1972*

Of 61 patients taking procainamide for longer than one month, three (4.9%) were found to have systemic lupus erythematosus. Five other patients with the syndrome were referred to us because it was suspected they were developing systemic lupus. Difficulties in definition of the syndrome are outlined; three other patients might have been included. The relevance of both the clinical assessment and the laboratory investigations in screening patients taking procainamide is discussed.

AB-899-72
Retinal Ischemic Symptoms in Cardiovascular Diagnosis—Hoyt WF (Professor of Ophthalmology, Neurology and Neurosurgery, University of California Medical Center, San Francisco, California)—Pongrad Med 52:85-90 (Oct) 1972*

Monocular transient ischemic attacks, particularly those caused by emboli, must always be regarded as symptoms of a potentially crippling, sometimes life-threatening cerebrovascular or cardiac disease. By careful questioning of the patient, one can often distinguish embolic attacks from attacks produced by hypotension or other disease (e.g., migraine). This is a matter of obvious practical significance in preventing permanent blindness and serious cerebral complications of the underlying cardiovascular disease.

AB-900-72

In 13 cats spinalized at C2 the cervical spinal cord (SC) was explored systematically by electrical monopolar stimulation (40 μA or 50 μA) for responses of
blood-pressure (BP) and sympathetic activity (renal or splanchnic). Sympathetic responses and BP reactions were elicited from extensive regions of the SC. Stimulation within the dorsal column changed neither BP nor sympathetic mass activity (SMA).

1. An excitatory region increasing BP and enhancing SMA was localized in the dorsal part of the lateral funiculus (LF) and in laminae II—VII of the gray matter. Stimulation just dorsal to the dentate ligament activated the SMA during the whole stimulation period and produced the highest BP increases found.

2. An inhibitory region decreasing BP and reducing SMA was revealed in the ventral funiculus, in the ventral part of the LF and lateral to the apex and head of the dorsal horn. The reduced SMA responses showed various courses which were not associated with distinct SC regions.

3. Stimulation within the transitional zones between excitatory and inhibitory areas could change the BP and SMA independent of one another.

4. It is assumed that the responses of stimulation indicate an excitation of descending pathways. The connection of these pathways with supraspinal systems controlling spinal sympathetic activity is discussed.

**AB-901-72**

**Prolonged Treatment with Clonidine: Comparative Antihypertensive Effects Alone and with a Diuretic Agent—**

Mroczek WJ (Georgetown Medical Division, D.C. General Hospital, Washington, D.C. 20003), Davidov M, Finnerty FA Jr—*Amer J Cardiol* 30:536-541 (Oct) 1972*

Clonidine hydrochloride, an imidazoline antihypertensive agent, was administered daily to 35 patients for periods averaging 14 months and for as long as 25 months. Dosage ranged from 0.075 to 4.8 mg/day. The majority of patients received clonidine for several months, after which a diuretic agent such as chlorothalidone or hydrochlorothiazide was added. A maximal therapeutic response (normotension or a decrease of at least 20 mm Hg in mean arterial pressure) was attained by 13 of 29 patients (45%) receiving clonidine alone; 29 of 33 (88%) achieved that response on a regimen of clonidine plus a diuretic agent. Side effects of clonidine, primarily dry mouth and drowsiness, had diminished greatly by the time the diuretic drug was added. Treatment was discontinued in only one patient who experienced marked drowsiness and dizziness with clonidine plus a diuretic agent.

It is concluded that clonidine plus a diuretic agent is an extremely effective, well-tolerated long-term method of therapy in patients with moderately severe or severe hypertension. It seems to possess two advantages over current therapy: (1) Side effects decrease after the first six months, and (2) it is frequently effective when other antihypertensive combinations have failed.

**AB-902-72**

**Intravascular Platelet Aggregation in the Heart Induced by Norepinephrine. Microscopic Studies—**

Haft JI (Chief, Cardiac Section, V. A. Hospital, Bronx, New York 10468), Kranz PD, Albert FJ, Fani K—*Circulation* 46:698-708 (Oct) 1972*

Aggregated platelets and occlusive platelet thrombi were found in small myocardial vessels of dogs on electron-microscope examination after prolonged infusion of norepinephrine. The etiology of the myocardial necrosis and fibrosis induced by catecholamines in experimental animals and seen in patients with pheochromocytoma and patients after norepinephrine treatment for shock may be related to this intravascular platelet-aggregating effect of catecholamines. The link between stress and acute myocardial infarction may be via catecholamine-induced intravascular platelet thrombosis. If the thrombogenic theory of atherosclerosis is valid, platelet aggregation induced by catecholamines may be the mechanism whereby arteriosclerotic heart disease is related to stress.

**AB-903-72**

**Arteries of the Head and Neck in Giant Cell Arteritis. A Pathological Study to Show the Pattern of Arterial Involvement—**

Wilkinson IMS (Department of Neurology, Manchester Royal Infirmary, Oxford Road, Manchester 13, England), Russell RWR—*Arch Neurol* 27:378-391 (Nov) 1972*

In patients dying during the active phase of giant cell arteritis there was a very high incidence of severe involvement of the superficial temporal, vertebral opthalmalic, and posterior ciliary arteries. The internal carotid, external carotid, and central retinal arteries were less commonly severely involved. The intracranial arteries were never involved in the cases studied, though mild involvement is reported infrequently in the literature. The pattern of arterial involvement was reflected by the high incidence of monocular blindness, occipital blindness, and brain stem strokes (including the lateral medullary syndrome) in severely affected patients dying of the disease. There appeared to be a close correlation between the susceptibility to giant cell arteritis and the amount of elastic tissue in the media and adventitia of the individual arteries of the head and neck.

**AB-904-72**

**The Vertebral Artery. Extracranial and Intracranial Structure—**

Wilkinson IMS (Department of Neurology, Manchester Royal Infirmary, Manchester 13, England)—*Arch Neurol* 27:392-396 (Nov) 1972*

As the vertebral artery enters the skull, its adventitia and media undergo a significant reduction in thickness, associated with gross diminution or total loss of elastic fibers in these two layers of the artery wall. This transformation is most marked in the last 0.5 cm extradurally, but is not complete until about 0.5 cm beyond the point of dural perforation.

**AB-905-72**

**Regional Cerebral Blood Flow. Response to Carbon Dioxide Inhalation in Cerebrovascular Disease—**

McHenry LC Jr (Professor of Neurology, Bowman Gray School of Medicine, Winston-Salem, North Carolina 27103),
ABSTRACTS

Goldberg HI, Jaffe ME, Kenton EJ III, West JW, Cooper ES—Arch Neurol 27:403-412 (Nov) 1972*

Regional cerebral blood flow (rCBF) measurements were performed in three groups of patients before and during 5% carbon dioxide inhalation. In the first group with normal cerebral angiograms, the rCBF increased 60%. Patients with diffuse cerebrovascular disease had baseline flow of 34 ml/100 gm/min with an increase to 44 ml/100 gm/min during hypercapnia. In 20 patients with angiographical evidence of focal vascular disease, blood flow was measured both as the hemispheric mean cerebral blood flow (CBF) and as rCBF in normal or nonfocal regions and in abnormal or focal regions. In nonfocal regions, mean rCBF increased from 37 to 50 ml/100 gm/min; in focal regions, rCBF increased from 28 to 36 ml/100 gm/min. Fifty-seven percent of the focal regions and 71% of the nonfocal regions increased significantly during hypercapnia.

AB-906-72
Assessment of Sinus Node Function in Patients with the Sick Sinus Syndrome—Mandel WJ (Department of Cardiology, Cedars of Lebanon Hospital, Los Angeles, California 90029), Hayakawa H, Allen HN, Danzig R, Kermayer AI—Circulation 46:761-769 (Oct) 1972*

Thirty-one patients with symptomatic sinus node dysfunction were evaluated with electrocardiograms, Holter monitor recordings, exercise, isoproterenol infusions, atropine administration, Valsalva maneuvers, carotid sinus massage, and overdrive pacing. Four basic clinical subsets were recognized: (1) carotid sinus hypersensitivity, (2) bradycardia-tachycardia syndrome, (3) episodic sinus arrest, and (4) persistent symptomatic sinus bradycardia. The study group demonstrated a normal heart rate response to exercise and isoproterenol infusion (%Δ = +95 exercise, +144 isoproterenol) in the face of diminished responsiveness to atropine administration (%Δ = +23). Marked carotid sinus hypersensitivity was demonstrated in eight patients, and four patients demonstrated slight abnormalities during performance of Valsalva maneuvers. Significant suppression of sinus node dysfunction was observed following atrial overdrive in the study group (postpacing pause = 3087 ± 464 msec) as compared to patients without significant sinus node function (postpacing pause = 1073 ± 63 msec) (P < 0.001). In patients with intact V-A conduction, ventricular overdrive also resulted in sinus node suppression (postpacing pause = 1901 ± 357 msec). There was a marked decrease in the degree of sinus node depression following atropine administration. Ten of 31 patients demonstrated various degrees of A-V block following atrial pacing at rates less than 100 beats/min.

It is concluded that the present methods of evaluation of sinus function, especially sinus node recovery time following overdrive pacing, may prove of value in the investigation of patients with syncope of unknown etiology.

AB-907-72

The surgical treatment of intracranial aneurysms with subarachnoid bleeding is beset with difficulties if the operation is performed at the acute or subacute stage. Cerebral edema and vascular spasm increase the risk, and it has been found essential to carry out the operation at an optimal time with regard to the cerebral circulation. The latter can be determined with the aid of the intravenous isotope indicator technique, which gives information about cerebral blood flow and mean transit time. The reliability of the calculations regarding cerebral flow has been tested through comparison with the Xenon washout method. The two methods correspond well; the coefficient of variation was about 15% at moderately disturbed circulation. This finding confirms the importance of the simple and easily repeated intravenous isotope technique.

AB-908-72
Electroencephalographic and Histopathological Changes Re-sembling Jakob-Creutzfeldt Disease After Transient Cerebral Ischemia Due to Cardiac Arrest—Nilsson BY (Department of Clinical Neurophysiology, Södersjukhuset, S-100 64 Stockholm 38, Sweden), Olsson Y, Sourander P—Acta Neurol Scand 48:416-425, 1972*

Electroencephalographical changes similar to those seen in the subacute stage of Jakob-Creutzfeldt disease were observed in two comatose patients surviving one and three months, respectively, after a period of transient cerebral ischemia caused by cardiac arrest. Neuropathological examination revealed severe neuronal changes, status spongiosus and gliosis of cerebral and cerebellar cortex and of basal ganglia. The distribution and character of the lesions closely resembled those known to occur in subacute cases of Jakob-Creutzfeldt disease. The rhythmic EEG changes characteristic of the subacute stage of Jakob-Creutzfeldt disease diminish in the terminal stage of this disorder, and this type of activity has not been seen in more severe cases of ischemic brain injury. These EEG changes, therefore, may be related to the degree of the corresponding morphological brain lesions and not to their etiology.

AB-909-72
Increased Fibrinolytic Activity and Fibrin Degradation Products After Experimental Intracerebral Haemorrhage—Tovi D (Department of Neurosurgery, Umeå Hospital, S-901 85 Umeå, Sweden), Nilsson IM—Acta Neurol Scand 48:403-415, 1972*

The fibrinolytic activity of the peripheral blood and cerebrospinal fluid was studied in ten dogs in which intracerebral haematomas had been produced by injection of blood into the brain. Blood and cerebrospinal fluid samples were obtained at regular intervals before and after operation. The fibrinolytic activity of these two fluids were estimated by the fibrin plate method and by assays for fibrin degradation products. After the
production of the hematoma, signs of increased fibrinolytic activity were found in blood and cerebrospinal fluid one day after the intracerebral injection in six animals. A correlation was found between the size of the hematoma and the level of the fibrinolytic activity of blood and cerebrospinal fluid. Determination of fibrin degradation products in blood and cerebrospinal fluid and the measurement of fibrinolytic activity by the platelet method complement each other and are therefore recommended in this type of investigation.

AB-910-72  
**Fibrinolysis and Subarachnoid Haemorrhage: Inhibitory Effect of Tranexamic Acid. A Clinical Study—**Tovi D (Department of Neurosurgery, Umeå Hospital, S-901 85 Umeå, Sweden), Nilsson IM, Thulin C-A—*Acta Neurol Scand* 48:393-402, 1972*

In four patients with subarachnoid hemorrhage after ruptured intracranial aneurysm, tranexamic acid (AMCA) was used to prevent the recurrence of the bleeding. 1000 mg of AMCA was given intravenously six times a day for eight days. The fibrinolytic activity of blood and spinal fluid was measured simultaneously with the determination of AMCA levels before and after the beginning of treatment. The fibrin plate method showed no fibrinolytic activity in plasma or in CSF. Local fibrinolysis was demonstrated by the presence of fibrin degradation products in spinal fluid. After repeated administration, AMCA crossed the blood-brain barrier and effectively inhibited the local fibrinolysis within the spinal fluid. The findings in this study suggest that in patients with subarachnoid hemorrhage AMCA should be administered intravenously in a dosage of 15 to 20 mg/kg body weight six times a day as soon as possible after the bleeding. But treatment with the antifibrinolytic drug does not change the indication for surgical therapy.

AB-911-72  
**Aggregation of Human Blood Platelets by Vasopressin—**Haslam RJ, Rosson GM (Department of Pathology, McMaster University, Hamilton, Ontario, Canada)—*Amer J Physiol* 223: 958-967 (Oct) 1972*

Synthetic [8-arginine]-vasopressin, [8-lysine]-vasopressin, [8-ornithine]-vasopressin or [2-phenylalanine, 8-lysine]-vasopressin aggregated human platelets in heparinized platelet-rich plasma. The lowest effective concentrations (1 to 4 mU/ml) caused a primary transient aggregation, while higher concentrations also caused a secondary irreversible aggregation. Vasopressin was almost inactive in citrated platelet-rich plasma but caused aggregation in recalcified citrated or native material. Vasopressin also aggregated washed human platelets suspended in buffered saline, if fibrinogen and either Ca$^{2+}$ or Mg$^{2+}$ ions were present. Ethylene glycol-bis(β-aminoethyl ether)-N,N′-tetraacetic acid inhibited aggregation completely but only after preincubation with the platelets, suggesting that platelet-bound calcium was also required. Phosphocreatine with creatine phosphokinase partially inhibited primary aggregation of platelets by vasopressin and prevented secondary aggregation, which suggests that release of platelet ADP contributed to these processes. Concentrations of vasopressin causing irreversible aggregation released small amounts of $^{14}$C from platelets containing serotonin-$^{14}$C. Platelet aggregation induced by vasopressin was inhibited by adenosine, prostaglandin E$_1$, N$\_2$, 2-O-dibutyryl cyclic 3', 5'-AMP, caffeine, imipramine, or N-ethylmaleimide. Adenosine and prostaglandin E$_1$ each inhibited the action of vasopressin much more powerfully than that of ADP and, therefore, cannot act solely by inhibiting the effects of the ADP released. In several respects the effect of vasopressin on blood platelets resembled its action on smooth muscle.

AB-912-72  
**Aneurysms of the Cervical Portion of the Internal Carotid Artery Associated with Nonpenetrating Neck Trauma—**Teal JS, Bergeron T, Rumbaugh CL, Segall HD (Department of Radiology, Los Angeles County-University of Southern California Medical Center, Los Angeles, California 90033)—*Radiology* 105:353-358 (Nov) 1972*

Four cases of aneurysm of the cervical internal carotid artery are presented. In three cases a history of significant nonpenetrating trauma to the neck was present; in the fourth case a history of blunt neck trauma was probable. Three of the cases are felt to represent dissecting aneurysms. Pathological proof of the etiologies of aneurysm formation is not available since none of the patients had neck explorations.

AB-913-72  
**Inversion of an Arterial Branch: A Technique for Inducing Thrombosis—**Constantine JW, Coleman GL, Purcell IM (Departments of Pharmacology and Pathology, Medical Research Laboratories, Pfizer Inc., Groton, Connecticut 06340)—*Atherosclerosis* 16:31-36 (July-Aug) 1972*

Arterial thrombosis was induced in anesthetized dogs by inverting a branch of the carotid or femoral artery into the lumen of the main vessel to cause endothelial damage without introducing foreign material into the circulation. Platelet-fibrin thrombi and platelet plaques were attached to necrotic endothelium on and close to inverted vessels. This technique is suggested as a model of thrombosis.

AB-914-72  
**Blood Coagulation and Fibrinolysis in Man After Myocardial Infarction Compared With a Representative Population Sample—**Korsan-Bengtson K (Medical Clinic II, Sahlgren's Hospital, S-413 45, Göteborg, Sweden), Wilmethsen L, Elmefeldt D, Tibblin G—*Atherosclerosis* 16:83-88 (July-Aug) 1972*

Blood coagulation and fibrinolysis were studied in a group of 83 patients three months after their first myocardial infarction (MI). All patients were below 55 years of age (mean 49 years). A randomly selected subsample ($n = 76$) of 55-year-old men from the general population was used as a control series. The MI group had shorter clotting time of recalcified plasma, shorter partial thromboplastin time (PTT) in
ABSTRACTS

Silicone tubes but not in glass tubes and lower factor II-VII-X activity than the control series. No other significant differences were found.

The possibilities of finding out the significance of blood coagulation and fibrinolysis for coronary thrombosis and MI are discussed.

AB-915-72
Systemic Lupus Erythematosus in the Elderly—Foad BSI, Sheon RP, Kirsner AB (Division of Rheumatology, Toledo Clinic, Inc., Toledo, Ohio 43623)—Arch Int Med 130:743-746 (Nov) 1972

Nine of 86 patients with systemic lupus erythematosus (SLE) were diagnosed after the age of 60. They differ from younger patients with SLE in mode of onset, specific organ systems involved, severity of disease, and prognosis. The presentation in the elderly is insidious rather than acute. Most patients initially show a polymyalgia rheumatica syndrome or rheumatoid-like arthritis. The clinical course is benign, serositis is less common, the patients are more easily controlled on aspirin or low-dose steroids, and the progress of SLE in the elderly is relatively slow. Because age modifies the clinical expression of SLE the diagnosis in the elderly can be easily missed if not specifically searched for.

AB-916-72

A simple technique is described, which permits the interruption of circulation of blood to the intracranial nervous system of the dog without production of general circulatory collapse. The injection of a special polymerizing mixture into both common carotid arteries results in a complete arrest of the cerebral circulation within a few seconds. The immediate and complete arrest of the cerebral circulation is proved electroencephalographically and by macerated preparations of the injected brains.

AB-917-72
Clinical Evaluation and Correction of Carotid Artery Occlusive Disease. Use of the Doppler Ultrasonic Flowmeter—Keitzer WF, Lichti EL (Department of Surgery, University of Missouri-Columbia School of Medicine, Columbia, Missouri 65201), DeWeese MS—Amer J Surg 124:697-700 (Nov) 1972

The Doppler ultrasonic flowmeter is used, routinely, as a screening device for extracranial cerebrovascular disease. It is used intraoperatively to determine the patency of the carotid artery after endarterectomy. Postoperative follow-up study with the instrument allows the surgeon an opportunity to atraumatically evaluate the patency of the extracranial vessels without the morbidity of angiography.

AB-918-72
Spontaneous Thrombosis in a Giant Middle Cerebral Artery Aneurysm. Case Report—Scott RM, Ballentine HT Jr (Massachusetts General Hospital, Warren Building, Room 805, Boston, Massachusetts 02114)—J Neurosurg 37:361-363 (Sept) 1972

Five-year follow-up angiography in a woman with an untreated giant aneurysm of the left middle cerebral artery revealed complete thrombosis of the aneurysm. Her case suggests that certain asymptomatic giant cerebral aneurysms may be treated without surgery.

AB-919-72
Familial Occurrence of Multiple Intracranial Aneurysms. Case Report—Nagae K (Second Department of Internal Medicine, Kyushu University Faculty of Medicine, Fukuoka City, Japan), Goto I, Ueda K, Morotomi Y—J Neurosurg 37:364-367 (Sept) 1972

A 48-year-old man and his 66-year-old mother had multiple intracranial saccular aneurysms visualized by angiography or verified at autopsy. Histological examination of the arteries at the base of the brain in the case autopsied showed a caterpillar tread-like appearance ("Raupenketten Elastica") of the internal elastic lamina, which may indicate thinning of the elastic lamina and deserve consideration as a causative factor in the development of intracranial saccular aneurysms.

AB-920-72
The Posterior Fossa Approach to Aneurysms of the Vertebral and Basilar Arteries—Hammon WM (Col. MC USA, Tripler Army Medical Center, APO San Francisco, California 96438), Kempe LG—J Neurosurg 37:339-347 (Sept) 1972

The posterior fossa surgical approach to aneurysms arising from the vertebral and basilar arteries and their branches is presented. The importance of detailed preoperative angiography is stressed, particularly as related to regional anatomy.

AB-921-72
Über die Rolle der nicht dominanten Hemisphäre in der Restitution der Sprache der Aphasiker (The Role of the Non-Dominant Hemisphere in the Restitution of Speech in Aphasia)—Cowf J (Neurologisch-Psychiatrische Universitätsklinik Pécs Réts u. 2sz. Pécs, Ungarn)—Arch Psychiat Nervenkr 216:162-171, 1972 (Springer-Verlag, publisher)*

The role of the nondominant hemisphere in the restitution of speech has been investigated with the method of intracarotid barbiturate injection in 30 patients. Twenty-five of them were right-handed aphasics and one was a left-handed aphasic; four patients with no signs of hemispheric lesion served as control. The results obtained in 22 right-handed aphasic patients could be evaluated. In ten of them the injection into the right carotid artery abolished speech, in nine it moderately worsened speech, and in three it had no effect. Seven patients of the same group were
also given a left-sided injection, which caused only a slight and transitory deterioration of the aphasic manifestations in two patients in whom the right-sided injection had abolished speech. In four patients both the left-sided and the right-sided injections worsened speech to about the same degree; in one patient the left-sided injection was followed by very grave aphasia, while the right-sided injection produced no effect.

These observations support the assumption that the nondominant hemisphere has a basic role in the restitution of speech in aphasia. There seem to exist, however, considerable individual differences.

In 14 right-handed aphasic patients the right-sided injection was followed by a disturbance of conscious- ness, which was of hypnoid character in five and of apallie character in nine patients. Thus, one can infer that after lesion of the dominant hemisphere the nondominant hemisphere gains some importance also in the maintenance of consciousness. No relation was found between a change, if any, in the patient's emotional disposition and the side of the injection.

AB-926-72
Comparison of Afferent Activity of Canine Aortic and Sinus Nerves—Pelletier CL (Mayo Clinic and Mayo Foundation, Rochester, Minnesota 55901), Clement DL, Shepherd JT—Circulation Research 31:557-568 (Oct) 1972*

Pressure-dependent changes in afferent activity in the aortic and the sinus nerves were studied in 17 anesthetized dogs that were artificially ventilated with oxygen. Systemic arterial blood pressure was varied either continuously or in steps over the range of mean aortic blood pressure from 220 to 50 mm Hg with a pressurized reservoir connected to the abdominal aorta. Multifiber preparations from 20 aortic and 8 sinus nerves were used, and stimulus-response curves were defined by measuring the mean impulse frequency at the various levels of pressure. Heart rate and pulse pressure were similar during recordings from both nerves. The two curves were S-shaped, with that for the aortic nerve being to the right of that for the sinus nerve. The
ABSTRACTS

change in activity was approximately linear from 200 to 120 mm Hg (mean aortic blood pressure) in the aortic nerve and from 180 to 80 mm Hg in the sinus nerve; there was no significant change in impulse frequency below mean blood pressures of 100 and 70 mm Hg, respectively. The threshold systolic blood pressure was 95 ± 3 (SE) mm Hg for the aortic receptors and 62 ± 4 mm Hg for the carotid sinus receptors. Thus, in the dog, the aortic baroreceptors are involved mainly in the control of high blood pressure, whereas at lower pressures the major control occurs through the carotid sinus baroreflex.

AB-927-72
Alteration of Experimental Cerebral Vasospasm by Adrenergic Blockade—Flamm ES (Milbank Research Laboratories, New York, New York 10010), Yasargil MG, Ransohoff J III—J Neurosurg 37:294-301 (Sept) 1972*

Two alpha adrenergic blocking agents have been used to alleviate spasm induced in the basilar artery of the cat by the application of blood or by mechanical manipulation. Parenteral phenoxybenzamine is effective in preventing spasm from blood when given in doses of 6 mg/kg or more provided at least one and one-half hours have elapsed between the completion of the infusion and the application of the blood; it also relieves and prevents spasm from blood when applied topically. Phenoxybenzamine does not prevent or alleviate spasm induced by mechanical manipulation of the basilar artery. Phentolamine alleviates both types of spasm, but its effect lasts no more than 15 minutes. The possible modes of action of these drugs are discussed.

AB-928-72

Prolonged experimental cerebral vasospasm, determined by angiography, can be produced in animals by puncture of an intracranial artery (IAP) or subarachnoid injection of blood (SAI). Following these stimuli, several patterns of blood flow evolve. The biphasic pattern, seen only with hemorrhage from mechanical trauma to the vessel, seems to resemble most closely the clinical phenomenon. Presumably because of autoregulation, only angiographical constriction of cerebral arteries to less than one-half of their control value is associated with significant reduction of cerebral blood flow. Cerebral blood flow recordings and vessel caliber measurements should complement experiments in cerebral vasospasm to ascertain whether the spasm is producing significant ischemia and to assess the efficacy of subsequent treatment techniques.

AB-929-72

Transcutaneous Doppler recordings from the patent anterior fontanel were used to measure superior sagittal sinus blood velocity (SSSV). In 15 cases it ranged from 4.5 to 18.1 cm/sec. In five of these patients with no mass effect and normal intracranial pressure, the mean SSSV was 13.6 cm/sec. An independent arteriographical measurement of SSSV was 4.5 cm/sec in a hydrocephalic patient with elevated intracranial pressure whose Doppler measurement of SSSV was 6.6 cm/sec. The Doppler technique may be used to diagnose sagittal sinus occlusion. SSSV tended to be low when CSF pressure was elevated, but the relationship was not constant.

AB-930-72
Cerebral Blood Flow Following Induced Subarachnoid Hemorrhage in the Monkey—Petruk KC, West GR, Marriott MR, McIntyre JW, Overton TR, Weir BKA (Department of Surgery, Division of Surgery, Division of Neurosurgery, University of Alberta, Clinical Sciences Building, Edmonton, Alberta, Canada)—J Neurosurg 37:316-324 (Sept) 1972*

The acute effects of experimental subarachnoid hemorrhage on cerebral blood flow were investigated in 14 adult rhesus monkeys injected with fresh autogenous blood through a needle positioned within the subfrontal subarachnoid space. Cerebral blood flow was measured by the Xenon 133 tissue clearance method before hemorrhage, and afterward at 30-minute intervals for a three-hour period. Postanesthetic neurological status was graded according to Botterell's classification. Twelve monkeys showed a significant decrease in cerebral perfusion, eight displayed focal neurological deficits, and four were moribund. There was a correlation between the degree of impaired circulation and the severity of neurological deficit. Four additional monkeys subjected to subarachnoid acidic saline injection showed no reduction in cerebral blood flow. In three animals cerebral perfusion was increased during the first hour after injection. It is suggested that measurement of cerebral blood flow may be a more valuable prognostic indication of cerebral function and survival than the angiographical demonstration of arterial vasospasm.

AB-931-72
Effect of Cholesterol-Lowering Diet on Mortality from Coronary Heart-Disease and Other Causes. A Twelve-Year Clinical Trial in Men and Women—Miettinen M, Turpinen O, Karvonen MJ, Elssoo R, Paavilainen E (Department of Biochemistry, College of Veterinary Medicine, 00550 Helsinki 5, Finland)—Lancet 2:835-838 (Oct 21) 1972*

The mortality from coronary heart-disease (CHD) and other causes was studied in two mental hospitals during a long-term (12-year) controlled preventive trial. The trial was crossover in design. In one of the hospitals a serum-cholesterol-lowering diet was introduced and the other hospital using a normal diet served as the control. After six years the diets were reversed, and the trial was continued for six more years. In men, the use of the cholesterol-lowering diet was associated with considerably and significantly reduced mortality from...
CHD. Total mortality also was consistently lower on this diet, although the differences were too small for statistical significance. In women, the mortality from CHD also appeared to be lower during the diet period, but the differences were small and not significant. In female total mortality no appreciable differences were found.

AB-932-72

An antithrombogenic aminoethylcellulose coating for Silastic valve prostheses was tested by implantation of coated, heparinized polyethylene cylinders into the thoracic inferior vena cava of dogs. The longest patency rate was achieved in the group that combined aminoethylcellulose (300 mg) with a mixture (2 ml) of Silastic fluid 360 and Silastic RTV 382 in a ratio of 1:2. One cylinder remained patent for 418 days, and the other three had not developed thrombus until 18, 53, and 120 days. In the other study groups, thrombus formation was consistently delayed for one week, but almost all cylinders eventually became occluded. These results are in marked contrast to the control groups where thrombosis had occurred during the first week in ten out of 14 cylinders examined. The aminoethylcellulose coating exerted an anticoagulant effect in vitro although the mechanism was not determined.

AB-933-72

A rapidly expanding carotid aneurysm initially produced partial upper respiratory obstruction and then suddenly ruptured into the oropharynx. Emergency replacement of the aneurysm with use of an internal shunt was successful. The English literature contains reports on 42 patients who have undergone resection of a primary carotid artery aneurysm with restoration of arterial continuity. Arteriosclerosis was the most common cause, and reconstruction consisted of either primary anastomosis (26 patients) or insertion of a graft (16 patients). A neurological deficit developed in six of the 21 patients who were operated on without benefit of cerebral protection, compared to four of the 21 who had some form of cerebral protection from ischemia.

AB-934-72
Cerebral Ischemia During Cardiac Resuscitation—Yashon D (Division of Neurological Surgery, Department of Surgery, Ohio State University College of Medicine, Columbus, Ohio 43210), Locke GE; Donovan D, Hunt WE—J Surg Res 13:24-27 (July) 1972

*Authors’ abstract.

Ventricular fibrillation was induced in dogs followed by open cardiac massage in an attempt to assess the value of this resuscitative measure in preventing cerebral ischemia. Since tissue lactate is an indicator of hypoxia, the extent of lactate accumulation was determined up to 40 minutes while systemic blood pressure was maintained above 80 mm Hg. Although lactate was present in large amounts, cardiac massage afforded some protective value when comparing to animals with total circulatory arrest and oligemic hypotension (30 mm Hg).

AB-935-72
Long-Term Evaluation of Cloth-Covered Metallic Ball Prostheses—Isom OW, Williams CD, Falk EA, Glassman E, Spencer FC (Departments of Surgery and Medicine, New York University Medical Center, New York, New York 10016)—J Thorac Cardiovasc Surg 64:354-367 (Sept) 1972

Various parameters were evaluated in 267 patients undergoing valve replacement with Starr-Edwards cloth-covered metallic ball prosthesis. Thromboembolism occurred in 4% of the cases and was lethal in 0.7%. In patients with isolated aortic valve replacement (less than 1%) thromboembolism was negligible. In 10 of 11 patients having embolic episodes, isolated mitral or a combination of mitral replacement with either aortic or tricuspid replacement had been undertaken. Atrial fibrillation appears to be a significant factor in determining the incidence of thromboembolism. In patients receiving anticoagulants there were seven deaths from intracranial hemorrhage as well as six nonfatal major bleeding episodes. The hazards of long-term anticoagulant therapy must be weighed against the risk of thromboembolic events without anticoagulant therapy.

AB-936-72
ECG Patterns Useful in the Diagnosis of Intermittent Heart Block—Hault JI (130 West Kingsbridge Road, Bronx, New York 10468), Lasser RP—JAMA 222:184-188 (Oct 9) 1972

Evaluation of the QRS pattern on the standard electrocardiogram (ECG) reveals specific information regarding the intraventricular conduction pathways (the right bundle branch, and anterior superior radiations and posterior inferior radiations of the left bundle branch). In many patients with documented intermittent heart block or in patients who subsequently develop permanent complete heart block, a block in two of the three pathways may be present (i.e., right bundle branch block and left axis deviation, right bundle branch block and right axis deviation, alternating complete right and left bundle branch block, or to a lesser extent left bundle branch block). In patients with syncope or dizziness, the presence of one of the above QRS patterns suggests their symptoms may be due to intermittent heart block, and these patients should have their cardiac activity monitored or have permanent demand pacemakers implanted.
ABSTRACTS

AB-937-72
Spinal Cord Complications Following Surgery for Coarctation of the Aorta. A Study of 66 Cases—Brewer LA III (Department of Surgery, University of Southern California School of Medicine, Los Angeles, California), Fosburg RG, Mulder GA, Verska JJ—J Thorac Cardiovasc Surg 64:368-381 (Sept) 1972

In 12,532 patients who had surgical correction of coarctation of the aorta, 0.41% had spinal cord complications. The existence of a segmental blood supply to the cord by multiple radicular branches from the intercostal vessels is an erroneous concept. The adequacy of the collateral circulation of the spinal cord must be assessed at surgery. The most reliable method is to measure aortic pressure above and below the coarctation before and after occlusion of the aorta. Additional protection of the spinal cord in patients with poor collateral circulation may be provided by hypothermia, left heart bypass, or jump grafts.

AB-938-72
Periventricular Atherosclerotic Leukoencephalopathy—DeReuck J, Schaumburg HH (Neuropathology Laboratory, Massachusetts General Hospital, Boston, Massachusetts 02114)—Neurology 22:1094-1097 (Oct) 1972

A case of periventricular leukoencephalopathy characterized by arterial end and border zone infarctions in the periventricular regions is described. Acute decrease in cardiac output on a barely adequate arterial blood supply to the left hemisphere was considered to be the etiological factor in production of the cerebral lesions. The mechanism for the above distribution of lesions is described more fully.

AB-939-72
Ultrasonic B-Mode Scanning for Study of Extracranial Vascular Disease—Blue SK, McKinney WM, Barnes R, Toole JF (Chairman, Department of Neurology, Bowman Gray School of Medicine of Wake Forest University, Winston-Salem, North Carolina 27103)—Neurology 22:1079-1085 (Oct) 1972

The results of ultrasonic B-mode scanning of 30 carotid arteries were correlated with those of conventional arteriography. A serrated pattern produced by arterial pulsation was the most reliable criterion for identification of the artery in the ultrasonic B-mode scans. Multiple scans of each artery were required and local disease may be indicated by the absence of the serrated pattern. There was a 73% correlation between the ultrasonic scans and arteriograms in this study. Three scans were false positive but there were no false negative scans, indicating that this examination is a useful screening procedure in evaluation of patients suspected of having extracranial vascular disease.

AB-940-72
The Topography of Impaired Microvascular Perfusion in the Primate Brain Following Total Circulatory Arrest—Ginsberg MD (Department of Neuropathology, Massachusetts General Hospital, Boston, Massachusetts 02114), Myers RE—Neurology 22:998-1011 (Oct) 1972

Juvenile Rhesus monkeys were studied by means of a colloidal carbon perfusion to determine the distribution of impaired small vessel reperfusion within the brain following varying lengths of circulatory arrest. Discrete bilaterally symmetrical areas of nonperfusion appeared after ten minutes of circulatory arrest. These areas were distributed in the region of the inferior colliculus, in the region of the third and fourth cranial nerve nuclei and in the putamen and thalamus. More extensive defects in perfusion were noted at 30 and 50 minutes of stasis with an extensive distribution affecting paracentral and anterior temporal cortices. However, 70 minutes of stasis led to smaller zones of nonperfusion than occurred following stasis of 30 or 50 minutes.

AB-941-72
Cerebral Blood Flow—Skinhøj E, Lassen NA (Departments of Neurology and Clinical Physiology, Bispebjerg Hospital, Copenhagen, Denmark)—Lancet 2:717 (Sept 30) 1972

Isotope contamination of extracranial tissues tends to invalidate cerebral blood flow studies based on inhalation or superficial temporal artery injections of Xenon. This is of importance in situations in which intracranial blood flow may change independently of the extracranial circulation. The authors demonstrate this concept by injecting Xenon-133 into the internal carotid which is essentially free from extracerebral contamination except in the supraorbital region. Following intravenous phentolamine, an alpha adrenergic agent, hypocapnic vasoconstriction was preserved in the intracranial circulation while the supraorbital areas failed to respond to hypocapnia. These findings support the concept that extracranial contamination tends to invalidate methods of CBF measurement based on Xenon-133 inhalation or common carotid artery injection.

AB-942-72
Effect of Aspirin Upon Experimental Coronary and Non-Coronary Thrombosis and Arrhythmia—Moschos CB (College of Medicine and Dentistry of New Jersey, New Jersey Medical School, Newark, New Jersey 07103), Lahiri K, Peter A, Jesrani MU, Regan TJ—Amer Heart J 84:525-530 (Oct) 1972

In an attempt to assess the role of aspirin upon arterial thrombogenesis, mongrel dogs were given aspirin orally and intravenously prior to attempting induction of coronary or femoral artery thrombosis. There was no difference in incidence of thrombus formation between control and study groups. The coronary thrombus was smaller in the group receiving aspirin but this was not statistically significant. In the coronary thrombus group treated with aspirin there was an unexpected decrease in incidence of ventricular fibrillation and arrhythmias.

AB-943-72
Cerebral Circulation and Metabolism at Deep Hypothermia—Tabaddor K (Albert Einstein College of Medicine, Bronx, New York 10461), Gardner TJ, Walker AE—Neurology 22:1065-1070 (Oct) 1972

Hypothermia to 20°C was induced in ten dogs and cerebral metabolic activity was measured during normothermia and hypothermia. During hypothermia,
cerebral oxygen consumption declined to 70% of the measured normothermic value while mean cerebral flow was decreased 39%. In half the animals in which cortical P02 levels were monitored a decrease of only 10% was noted at 20°C. A new method for measuring cerebral blood flow is described in this paper.

AB-944-72

Cerebral circulation in severe cerebral trauma may be evaluated by studying oxygen pressure, acid-base balance, acid metabolites and electrolytes in the CSF. Information regarding the extent of brain damage can be obtained from the difference between P O2 levels in blood and CSF. Changes in cerebral circulation can be determined from CSF pH and differences between arterial blood and CSF P CO2 levels. An increase of lactate and a decrease of bicarbonate in CSF is a most significant sign of reduced cerebral circulation. Recovery of cerebral function is unlikely when CSF lactate increases to greater than 45 mg percent.

AB-945-72
Familial Aneurysms and Infundibular Widening—Edelsohn L, Caplan L (Department of Neurology, Beth Israel Hospital, Boston, Massachusetts 02115), Rosenbaum AE—Neurology 22:1056-1060 (Oct) 1972

Five members of an 11-member family were found to have saccular cerebral aneurysms. Elective cerebral angiography was responsible for the detection of one of the five aneurysms; this asymptomatic patient was treated surgically. In eight of the 11 members of this family, aneurysms or infundibular enlargement at the internal carotid posterior communicating junction were detected. It is suggested that junctional dilatation is the precursor of aneurysms at this site. Angiography should be considered in evaluation of asymptomatic members of families with a high incidence of cerebral aneurysms. The authors discuss indications for surgery in asymptomatic patients with congenital aneurysms.

AB-946-72
A Rapid Procedure for Laboratory Control of Simultaneous Treatment With Intravenous Heparin and Oral Anticoagulant—Nyman D, Wahlberg P (Åland Central Hospital, Mariehamn, Finland)—Acta Med Scand 192:125-128 (July-Aug) 1972

The authors describe a new procedure by which the laboratory control of simultaneous I.V. heparin and oral anticoagulant treatment may take place without interruption of the heparin treatment. A capillary microthrombin time of 6 to 13 seconds is maintained by continuous I.V. heparin infusion—the method for this procedure is described in the paper. The Thrombotest (TT) may be used under these conditions without neutralization of the heparin. The optimum heparin effect may be obtained without risk by maintaining the recommended range of capillary microthrombin time. The capillary microthrombin time is recorded at the bedside simultaneously with the TT.

AB-947-72
Angiography in Cerebral Death—Bergquist E, Bergström K (Department of Diagnostic Radiology, Akademiska Sjukhuset, University of Uppsala, Uppsala, Sweden)—Acta Radiol (Diag) 12:283-288 (May) 1972

Arrest of the cerebral circulation is considered to be a sign of irreversible brain damage called cerebral death or total cerebral infarction. Angiographical findings in 28 patients with a clinical diagnosis of cerebral death and an isoelectric EEG are presented. In 24 of the patients no cerebral circulation was evident; faint contrast filling of arteries at the base of the skull was obtained in four patients. The level reached by the contrast medium in the carotid and vertebral arteries had no relation to the length of time of diagnosis of cerebral death and the angiographical examination. Autopsy disclosed total cerebral infarction in all patients. Angiography never furnished a false positive result. Four-vessel angiography is recommended as the most suitable angiographical method for verification of cerebral death.

AB-948-72

The clinical and angiographical findings in two additional patients with occlusion of the basilar artery are presented. The authors recently reported three similar cases in young adults. In three of the five cases a dissecting aneurysm was found at postmortem examination. The remaining two patients are alive. The clinical diagnosis should be suspected every time a patient presents with a pontine syndrome of rapid onset in the absence of embolic disease. This syndrome consists of "pseudo-coma," tetraplegia, mutism, pupil abnormalities and various oculomotor palsies. Angiographically the basilar artery is occluded just above the origin of the posterior inferior cerebellar arteries and there is retrograde filling of the superior segment of the basilar artery by way of the posterior communicating and posterior cerebral arteries. The most specific radiological sign is filling of the superior cerebellar arteries at the periphery of the cerebellum by the posterior inferior cerebellar arteries.

AB-949-72
Primary Pontine Haemorrhage Revealed by Pneumoencephalo-Roulette Tomography, and a Report on Surgically Treated Cases—Kowada M (Division of Surgical Neurology, Research Institute of Brain and Blood Vessels, Akita, Japan), Ito Z, Matsuoka Sh, Yamaguchi K—Acta Neurochir 25:269-276, 1971

Seven patients with primary pontine hemorrhage were studied by pneumoencephalo-roulette tomography. In each case the extensive mass lesion was distinctly visualized and without severe complication. Roulette tomography, developed previously, was only recently...
Thrombosis 27:407-415, Ontario, Canada), Aster RH was found that approximately 22% of the platelet was lost as a result of aging in the circulation. The platelet mass included phospholipid, cholesterol, and protein. Ability of the platelets to respond to aggregating stimuli fell with clofibrate (429 mg/100 ml to 255 mg/100 ml) and exercise pain, autogenous vein bypass was required. The treatment of choice in patients with type IV hyperlipoproteinemia (endogenous hypertriglyceridemia) is weight reduction and substitution of polysaturated fats for dietary carbohydrates. Since most patients fail to adhere to this strict regimen, clofibrate (2 gm/day) was evaluated in a double-blind study prior to diet therapy in 12 patients. Plasma triglyceride levels fell with clofibrate (429 mg/100 ml to 235 mg/100 ml) but not with placebo (565 mg/100 ml). Cholesterol levels remained unchanged in most patients. Clofibrate alone may be effective in certain type IV patients if both cholesterol and triglyceride levels are substantially reduced. However, clofibrate is no substitute for adequate dietary therapy.

AB-950-72
Type IV Hyperlipoproteinemia. Clofibrate Without Dietary Therapy—Zelis R (University of California School of Medicine, Davis, California 95616), Amsterdam EA, Spann JF Jr, Mason DT—JAMA 222:326-328 (Oct 16) 1972

The treatment of choice in patients with type IV hyperlipoproteinemia (endogenous hypertriglyceridemia) is weight reduction and substitution of polysaturated fats for dietary carbohydrates. Since most patients fail to adhere to this strict regimen, clofibrate (2 gm/day) was evaluated in a double-blind study prior to diet therapy in 12 patients. Plasma triglyceride levels fell with clofibrate (429 mg/100 ml to 235 mg/100 ml) but not with placebo (565 mg/100 ml). Cholesterol levels remained unchanged in most patients. Clofibrate alone may be effective in certain type IV patients if both cholesterol and triglyceride levels are substantially reduced. However, clofibrate is no substitute for adequate dietary therapy.

AB-951-72

Brachial artery exploration was carried out in 33 patients, 28 for acute ischemic symptoms or bleeding and five for hand and forearm exercise pain. Thrombus was found in all patients and a mechanical predisposition for thrombus could usually be demonstrated in many acutely thrombosed arteries. Segmental resection and end-to-end anastomosis was the corrective procedure of choice. In those cases with chronic occlusion and exercise pain, autogenous vein bypass was required. All patients left the hospital with functioning hands and good pulses. The patient with postcatheterization brachial artery occlusion should undergo surgical exploration to restore normal blood flow, to ensure viability and to prevent disabling exercise pain.

AB-952-72
Changes Associated With Platelet Aging—Ginsburg AD (Department of Medicine, Queen’s University, Kingston, Ontario, Canada), Aster RH—Thrombosis 27:407-415, 1972

By comparing cohorts of young and old platelets, it was found that approximately 22% of the platelet was lost as a result of aging in the circulation. The platelet mass included phospholipid, cholesterol, and protein. Ability of the platelets to respond to aggregating stimuli and to release platelet factor three was significantly reduced with aging. It is speculated that loss of platelet substance may be related to a functional role in maintaining endothelial integrity.

AB-953-72

Following careful preparation, seven patients with sickle cell anemia and neurological deficits secondary to CNS dysfunction were studied angiographically. To avoid complications from the study, preparation of the patient included reduction of S hemoglobin to less than 20% prior to study. All studies were performed without sequelae. Large cerebral vessels were found to be stenosed or occluded in six of the seven patients. In all six patients the internal carotid artery was involved. Other vessels involved included the anterior and middle cerebral and vertebral arteries. The common clinical assumption that the CNS manifestations of sickle cell anemia are a consequence of exclusively small cerebral vessel obstruction may in fact be erroneous.

AB-954-72

In an attempt to determine racial differences in clinical and arteriographical manifestations of ischemic stroke, an analysis was made of 5,593 white and 911 black patients in the Joint Study of Extracranial Arterial Occlusion. A higher frequency of occlusive disease of the intracranial vessels was noted in the black population, whereas lesions in the extracranial arteries were more common in the white population. Whites had a greater incidence of transient ischemic attacks and a lower frequency of completed stroke than blacks. Severe hypertension was noted in 26% of the white patients and 40% of the black patients. The age of blacks on admission tended to be younger than that of whites.

AB-955-72
Angiography in Allergic Woman Sensitive to Contrast Media—Miller RE (Indiana University Medical Center, Indianapolis, Indiana)—JAMA 222:370-371 (Oct 16) 1972

In response to a question regarding the use of iodinated contrast material in a patient with a documented sensitivity, a program for treatment for such situations was outlined. In the patient who has previously shown sensitivity to contrast material, it is best to premedicate with 100 mg of diphenhydramine hydrochloride orally two hours before a contemplated study or 100 mg intravenously immediately prior to the study. To determine the presence of an anaphylactic response, a skin test can then be given. If no reaction, the study can begin. An anesthesiologist should be present and prepared to maintain an airway and an intravenous route should be secured should the need for

Stroke, Vol. 4, March-April 1973
adrenalin arise. Premedication with corticosteroids was not recommended.

AB-956-72
Aspirin and Myocardial Infarction in Patients With Rheumatoid Arthritis—Isomäki HA (Rheumatism Foundation Hospital, 18 120 Heinola 12, Finland)—Lancet 2:831 (Oct 14) 1972

The effect of aspirin on incidence of myocardial infarction was evaluated in 1,000 patients with rheumatoid arthritis on various doses of aspirin (broken into categories by dose, i.e., 0 to 25 gm/yr, 26 to 150 gm/yr, 151 to 500 gm/yr and 501 plus gm/yr). Most myocardial infarctions occurred in the group taking 151 to 500 grams of aspirin per year. Rheumatoid patients taking 26 to 500 grams of aspirin per year had as many myocardial infarctions as patients taking aspirin only occasionally or not at all.

AB-957-72
Dexamethasone and Stroke—Candelise L, Spinnler H (Clinic for Nervous and Mental Diseases, Via Francesco Sforza, 35, Milan, Italy)—Med J Aust 2:335 (Aug 5) 1972

Two groups of patients with recent strokes (onset less than 24 hours prior to hospitalization) were studied retrospectively to determine the effect of dexamethasone on mortality. The control group consisted of 25 patients admitted between 1966 and 1967 (i.e., prior to dexamethasone utilization). The study group of 24 patients were admitted since 1970 when dexamethasone began to be employed for the treatment of CVA. The study patients received 16 mg of dexamethasone per saline infusion on admission to the hospital. The rate of death was computed for the two groups on the tenth day after the stroke. Forty-nine percent (23 out of 49) of the total group died; ten (40%) belonged to the nontreated group and 13 (45%) to the treated group. There is no trend for decrease in mortality figures in stroke patients who receive dexamethasone.

AB-958-72

Ninety-four rabbits were subjected to 15 minutes of total cerebral ischemia when the ascending aorta was occluded. Following this the animals were sacrificed and the brains sectioned coronally. Prior to the ischemia, various pharmacological agents were administered. Categorically anticoagulants (heparin, heparin and NaHCO3, coumadin, fibrinolyisin), vasodilators (papaverine, vasodilan, serc), and antithrombotic agents (dipyridamole) were administered to various subgroups of animals. Protection against postischemic vascular obstruction was obtained only with heparin and NaHCO3. The authors postulate that the acidosis which develops during ischemia may influence the ability of heparin to act effectively and thus premedication with NaHCO3 enables heparin to be more effective as an anticoagulant.

AB-959-72
Systemic Heparinization for Angiography—Wallace S (Department of Diagnostic Radiology, M. D. Anderson Hospital and Tumor Institute, University of Texas, Houston, Texas 77025), Medellin H, De Jongh D, Gianturco C—Amer J Roentgen 116:204-209 (Sept) 1972

The complications of angiography due to thrombosis may be decreased significantly by systemic heparinization. Heparinization may be achieved by direct intraarterial injection of heparin through the catheter at the onset of the procedure (1,000 to 5,000 units of heparin) and flushing occasionally with a dilute solution of heparinized saline. Anticoagulation did not increase hemorrhage at the arterial puncture site.

AB-960-72
Total Aortography in the Diagnosis of Takayasu's Arteritis—Lande A (Department of Radiology, Metropolitan Hospital, New York, New York 10029), Gross A—Amer J Roentgen 116:165-178 (Sept) 1972

All parts of the aorta may be affected by Takayasu's arteritis leading to narrowing, coarctation or dilatation. A similar process may occur in the pulmonary arteries. It is not uncommon to have associated stenosis or occlusion of the subclavian, carotid, renal or abdominovisceral arteries. In this paper the clinical and angiographical features in eight patients are described. The value of total aortography in this condition is stressed.

AB-961-72

Aneurysms of the common carotid artery usually present as mass lesions of the neck. Aneurysms of the cervical internal carotid artery may present as mass lesions either in the neck or in the pharynx. Presenting in the pharynx, these aneurysms may resemble peritonsillar abscess and have been biopsied with tragic consequences. Nonpalpable cervical carotid aneurysms frequently present with cerebral symptoms.

AB-962-72
Bilateral Giant Aneurysms of the Internal Carotid Artery—Waga S (Department of Neurosurgery, Kyoto University Medical School, Kyoto, Japan), Matsuda M, Handa H—Amer J Roentgen 116:23-30 (Sept) 1972

An unusual case of bilateral giant aneurysms of the internal carotid artery is presented. The one aneurysm arose from the right internal carotid artery and the other from the supraclinoid portion of the left internal carotid artery. The characteristic findings on the various studies are presented. Few clinical manifestations were noted in contrast to the many roentgenologic features. Bilateral optic atrophy and decreased visual acuity of the left eye with an upper quadrant temporal anopia were noted on physical examination. There was a history of epistaxis and blurred vision of the left eye.
ABSTRACTS

AB-963-72
Effect of Pulsatile Cardiopulmonary Bypass on Cerebral Metabolism—Geha AS (Department of Surgery, Washington University School of Medicine, St. Louis, Missouri 63110), Salaymeh MT, Abe T, Baue AE—Amer Surg 38:494-497 (Sept) 1972

Using dogs as experimental models, the effects of pulsatile, normothermic, high-flow cardiopulmonary bypass on cerebral metabolism were studied. The results in a similar group of dogs subjected to nonpulsatile cardiopulmonary bypass were compared to the study group. Nonpulsatile perfusion produced less lactate accumulation, and partial pressure of CSF O₂ was higher using pulsatile bypass. The authors conclude that there is a lack of definite evidence that pulsatile perfusion is more beneficial to cerebral metabolism.

AB-964-72
Ischemic Heart Disease and Dietary Fiber—Trowell H (Woodgreen, Fordingbridge, Hampshire, England)—Amer J Clin Nutr 25:926-932 (Sept) 1972

The hypothesis that increased consumption of natural starchy carbohydrates, taken with their full complement of fiber, is protective against hyperlipidemia and ischemic heart disease is supported by data in the present paper. It has been suggested that dietary fiber decreases the reabsorption of bile salts, increases fecal excretion, and reduces hyperlipidemia.

AB-967-72
Impact of Computer Technology on Analysis of Results of Peripheral Arterial Operation—Litherland HK (Department of Surgery, University of British Columbia at Vancouver General and Shaughnessy Veterans Hospitals, Vancouver 9, B. C.)—Amer Surg 38:477-480 (Sept) 1972

In an attempt to make more accurate treatment decisions, data stored in a computer are retrieved and analyzed at the time treatment is being decided. This gives the physician accurate facts on which to base therapy. The authors discuss the techniques of data collection, storage, and retrieval. The operative risk for various peripheral arterial procedures for occlusive disease below the renal arteries is discussed.

AB-968-72
Hyperlipidemia and Arterial Blood Gases—Faergeman O, Pedersen JT (Medical Department B, Rigshospitalet, University of Copenhagen, Copenhagen, Denmark)—Dan Med Bull 19:167-169 (July) 1972

Experimental hyperlipidemia has been reported to reduce arterial oxygen tension and saturation. In 13 patients with hyperlipidemia the following parameters were found to be within the normal range: arterial oxygen tension and saturation, carbon dioxide tension, and pH.

AB-969-72
Ectasia of Cerebral Arteries in Acromegaly—Hatam A, Greitz T (Department of Neurology, Karolinska Sjukhuset, Stockholm, Sweden)—Acta Radiol (Diag) 12:410-418, 1972

In 13 acromegalic patients examined with carotid angiography, cerebral artery sizes were measured. In six patients there was marked ectasia of cerebral vessels, while in the remainder the cerebral arteries were mostly wide. The mean arterial caliber was significantly larger than the expected normal mean value. Although acromegalic patients are known to have high blood pressure and hypertensive patients may be more prone to develop arteriectasis, there was no correlation between dilatation of the arteries and blood pressure in the patients studied.

AB-970-72
The Effect of Induced Hypertension on Internal Carotid Artery Pressure and Regional Cerebral Blood Flow During Temporary Carotid Clamping for Endarterectomy—Boysen G (Surgical Laboratory of Circulatory Research, Department D, Rigshospitalet, Blegdamsvej 9, 2100 Copenhagen, Denmark), Engell HC, Henriksen H—Neurology 22:1133-1144 (Nov) 1972

In 22 patients who underwent endarterectomy for carotid artery stenosis, the effects of induced hypertension on internal carotid artery stump pressure and regional cerebral blood flow (rCBF) were investigated. The P ao₂ was varied in two groups so that 11 patients were studied under normocapnia (P ao₂ 40 mm Hg) and 11 patients at hypocapnia (P ao₂ 29 mm Hg). Eight patients (four normocapnic and four hypocapnic) had poor collateral function as evidenced by stump...
pressures below 50 mm Hg during systemic normotension. rCBF was reduced from 34 to 17 ml/100 gm/min with clamping of the carotid artery; stump pressures could be increased from 38 to 44 mm Hg by increasing MABP from 111 to 134 mm Hg. However, this raised rCBF from 17 to only 19 ml/100 gm/min, which was not a "safe" range, and endarterectomies were done with shunts inserted. Moderate hypertension does not prevent cerebral ischemia during carotid clamping in patients with impaired collateral function; the hypocapnic state was not found to be preferable to the normocapnic state.

AB-971-72

Gradually increasing paraplegia and convulsive seizures resulted in death in a young woman. Angiography revealed narrowed carotid arteries in the neck and nonfilling of the intracranial vessels. Venous thrombosis of the dural sinuses and internal jugular veins and middle cerebral artery occlusion were noted at autopsy. During two pregnancies cerebral ischemic episodes had occurred and she was taking oral contraceptives at the time of her fatal illness.

AB-972-72

A case is reported of a patient who had multiple cerebral and systemic emboli from a left atrial myxoma following cardiac massage for cardiac arrest. The patient had no cardiac symptoms. An additional two cases with multiple cerebrovascular accidents were found to have left atrial myxomas as the embolic source. The tumors were removed successfully.

AB-973-72

Arterial supply and venous drainage are described in two patients with traumatic carotid-cavernous fistulas. In the first case angiography revealed obliterations of the internal carotid artery, and the arteriovenous shunt was fed by the circle of Willis and by the external carotid artery via the ophthalmic artery. The distal portion of the internal carotid artery was occluded under the origin of the ophthalmic artery resulting in a clinical cure. Penetrating trauma of the orbit led to a carotid-cavernous fistula with heterolateral exophthalmos in the second case. At angiography a homolateral ophthalmic vein could not be visualized while outflow through the opposite ophthalmic vein was noted. The patient recovered following surgery to ligate common and external carotid arteries in the neck followed by intracranial occlusion of the internal carotid under the origin of the ophthalmic artery.

AB-974-72
The Effect of Hypoxia on Glycogen Stores in the Adult Cerebral and Systemic Emboli from a Left Atrial Myxoma—Schwarz GA (Department of Physiology, Queen's University, Kingston, Ontario, Canada), York DH—Brain Res 45:321-324 (Oct 13) 1972

Thirteen cats were subjected to various O2 concentrations to determine the effect of hypoxia on the brain glycogen stores. Five of the animals breathed the hypoxia mixture (8.7% O2) for 30 minutes and eight animals in the control group breathed room air. Analysis for glycogen in brain samples revealed a lower concentration in each area sampled in the experimental hypoxic series, but only the values for the cerebral hemispheres were significantly different between the two groups. It is possible that the decrease in glycogen stores in the hypoxic group resulted from an interaction between the low Pao2 and the fall in Paco2. The data indicate the hypoxia must be severe to produce a reduction in cerebral glycogen stores.

AB-975-72
Blood Coagulation and Fibrinolysis in a Random Sample of 788 Men 54 Years Old. II. Relations of the Variables to "Risk Factors" for Myocardial Infarction—Korsan-Bengtsson K, Wilhelmsen L, Tibblin G (Medical Departments I and II, Sahlgren's Hospital, University of Göteborg, Göteborg, Sweden)—Thromb Diath Haemorrh 28:99-108, 1972

Plasma clotting times, factor II, VII, and X activity, factor VIII, fibrinogen, fibrinolytic activity and plasminogen were compared to anthropomorphic variables, blood lipids, blood sugar, blood pressure, heart rate, lung function and smoking in 788 men 54 years of age. Fibrinogen, plasminogen and factor II, VII, and X activity were negatively correlated to measures of lung function (FEV and VC). Although smokers have a higher fibrinogen level than nonsmokers, this is not due to decreased lung function. Partial thromboplastin time is correlated to serum cholesterol. A negative correlation was noted between fibrinolytic activity and weight, subscapular and thorax skinfolds, and chest and waist circumference, indicating a low fibrinolytic activity in obese subjects.

AB-976-72
Moyamoya—Calliauw L (Service de Neuro-chirurgie, Hôpital Saint-Jean, Bruges, Belgique)—Neurochir 18:383-390 (July-Aug) 1972

Two cases of "Moyamoya disease" in two non-Japanese individuals are reported. The angiographical features are stressed. This vasculopathy may be related to an intracranial inflammatory process in young people and cannot be considered a disease.

AB-977-72
Requirements for Aggregation of Washed Human Platelets Suspended in Buffered Salt Solutions—Harbury CB,
ABSTRACTS

Hershgold JE, Schrier SL (Department of Medicine [Hematology], Stanford University School of Medicine, Stanford, California 94305)—Thromb Diath Haemorrh 28:2-13, 1972

The study concerns assessment of factors capable of acting directly at the platelet plasma membrane to produce aggregation as opposed to those which produce the platelet release reaction and secondary aggregation. Although calcium (Ca) and fibrinogen will not independently induce platelet aggregation, neither will ADP, 5HT and epinephrine-mediated aggregation proceed in the absence of these two factors. Thrombin-induced aggregation in the presence of Ca will occur earlier if small quantities of fibrinogen are added. Therefore, Ca and fibrinogen are required for aggregation whether the aggregation is produced by addition or release of required components. It is noted that 5HT and ADP can act directly at the plasma membrane to produce extensive aggregation in the absence of any release reaction. Epinephrine produces a small release reaction and may enhance aggregation by direct action on platelet membrane or by release of an additional unknown factor. No evidence was found for the requirement of a plasma protein other than fibrinogen in platelet aggregation.

AB-978-72

Effects of Dopamine, Noradrenaline and 5-Hydroxytryptamine on the Cerebral Blood Flow in the Dog—Essen CV (Departments of Neurosurgery, Clinical Physiology, and Pharmacology, University of Göteborg, Göteborg, Sweden)—J Pharm Pharmacol 24:668 (Aug) 1972

The effects of biogenic amines on cerebral blood flow (CBF) in the dog were evaluated. Norepinephrine reduced CBF by 21%, an effect which was blocked by phentolamine, the alpha blocker. Cerebral metabolic rate for oxygen (CMRO) was constant. 5-Hydroxytryptamine produced a 28% reduction in CBF which was altered by neither alpha nor beta blocking agents. In low concentrations dopamine reduced CBF by 20%, an effect blocked by phentolamine. However, at higher dopamine concentrations, a 30% increase in CBF was produced which was blocked by haloperidol but not by propranolol.

AB-979-72

Changes in Cerebral Vasomotor Reactivity to CO2 and Autoregulation Following Experimental Subarachnoid Hemorrhage—Hashi K, Meyer JS (Department of Neurology, Baylor College of Medicine, Houston, Texas 77025), Shinmaru S, Welch KMA, Teraura T—J Neurol Sci 17:15-22 (Sept) 1972

Measurement of cerebral vascular capacitance to CO2 and to autoregulation in the baboon before and after subarachnoid hemorrhage (SAH) revealed impairment of CO2 vasodilator capacitance shortly after SAH but a preserved vasoconstrictor response. The ability of autoregulation to compensate for a decrease in perfusion pressure by vasodilatation shortly after SAH was also impaired. All types of vasomotor response were impaired one to two days after SAH. The above responses may be related to changes in cerebral metabolism, vasomotor tone, and autonomic innervation during the early and later stages of SAH. Study of autoregulation revealed impairment during the early stage of SAH only when cerebral perfusion pressure was reduced; after 24 to 48 hours, autoregulation was impaired for increases and decreases in cerebral perfusion pressure.

AB-980-72

Effect of Glycerol and Intracarotid Phenoxybenzamine on Cerebral Hemodynamics and Metabolism after Experimental Subarachnoid Hemorrhage—Hashi K, Meyer JS (Department of Neurology, Baylor College of Medicine, Houston, Texas 77025), Shinmaru S, Welch KMA, Teraura T—J Neurol Sci 17:23-28 (Sept) 1972

Subarachnoid hemorrhage was induced in monkeys and the effect of glycerol and phenoxybenzamine on cerebral hemodynamics and metabolism was studied 24 to 48 hours later. Although a progressive decrease in intracranial pressure occurred, an intravenous infusion of 10% glycerol caused a temporary increase in cerebral blood flow (CBF). A significant decrease in mean arterial blood pressure followed intracarotid injection of phenoxybenzamine but CBF and cerebral metabolic rate for O2 (CMRO2) increased. Intravenous infusion of saline slightly increased mean arterial blood pressure but CBF and CMRO2 increased significantly. Phenoxybenzamine is known to block α-adrenergic receptors and the importance of the sympathetic system in producing cerebral vasospasm after SAH is established.

AB-981-72

Post-Angiographic Vertebral Arteriovenous Fistulae—Sangruchi V (Central Hospital, Bangkok, Thailand), Hitchcock E, Donaldson AA—Brit J Surg 59:627-628 (Aug) 1972

Arteriovenous fistula of the high cervical vertebral artery is a complication of direct puncture of the vertebral artery using the lateral atlanto-occipital approach. Four cases of this complication are presented. Management includes proximal ligation, proximal and distal ligation, exposure and ligation of the fistula, and the conservative approach.

AB-982-72

Plasma Fibrinogen Recovery Rate After Administration of Malayan Pit Viper Venom Extracts in Nonstressed and Surgically Stressed Animals—Turina M, Schutz L, Bull B, Braunwald NS (Department of Surgery, Peter Bent Brigham Hospital, Boston, Massachusetts 02115)—J Surg Res 13:20-23 (July) 1972

Fibrinogen can readily be converted to fibrin by a proteolytic enzyme derived from the venom of the Malayan pit viper. Fibrin then undergoes lysis or phagocytosis. The present study assessed the value in reducing fibrinogen to prevent arterial thrombi on the surfaces of prosthetic devices implanted surgically. It was demonstrated in dogs that even at extremely low levels of plasma fibrinogen (i.e., less than 10 mg %) formation of platelet arterial thrombi continues. Surgical stress causes a marked increase in plasma fibrinogen production necessitating increasing amounts of the venom extract to maintain low fibrinogen levels.

Stroke, Vol. 4, March-April 1973
However, at the higher doses of venom extract the complication of intraoperative and postoperative hemorrhage becomes significant, making this approach unacceptable.

ABSTRACTS

Cerebral Hemodynamic and Metabolic Changes After Experimental Subarachnoid Hemorrhage—Hashi K, Meyer JS (Department of Neurology, Baylor College of Medicine, Houston, Texas 77025), Shinmaru S, Welch KMA, Teraura T—*J Neurol Sci* 17:1-14 (Sept) 1972

Measurements of cerebral blood flow (CBF), arterial and cerebral venous $P_{CO_2}$, pH, oxygen content, serotonin content, intracranial pressure and systemic arterial pressure were made at 24 to 48 hours after experimental subarachnoid hemorrhage (SAH) in baboons. CBF increased during and immediately following SAH in spite of a decrease in cerebral perfusion pressure and occurrence of vasospasm in the larger cerebral arteries demonstrated angiographically. CBF decreased and cerebral vascular resistance increased 24 to 48 hours after injection into the subarachnoid space. Perivascular edema with swelling of astrocytes was noted on electron microscopic studies; this edema was believed to compress the small vessels and to reduce CBF.

ITEMS OF INTEREST

Noninvasive Methods of Studying Peripheral Arterial Function—Strandness DE Jr, Sumner DS (Department of Surgery, University of Washington School of Medicine, Seattle, Washington 98195)—*J Surg Res* 12:419-430 (June) 1972

Methods for measuring intra-arterial pressure, velocity of flow, pulse volume and contours.

Morbidity and Mortality in Mild Essential Hypertension—U.S. Public Health Service Hospitals Cooperative Study Group—*Circulation Research* 30 and 31 (Suppl 2):110-1124 (Sept) 1972

Animal Studies of Effect of Chronic Exercise on the Heart and Atherosclerosis: A Review—Troelicher VF (USAF Aerospace Medical School [AFSC], Brooks AFB, Texas 78235)—*Amer Heart J* 84:496-506 (Oct) 1972

Strokes in Young Adults—Seneviratne BIB (General Hospital, Kurunegala, Ceylon), Ameratunga B—*Brit Med J* 3:791-793 (Sept 30) 1972

Juvenile Cerebral Arteriosclerosis and Other Cerebral Atheromatoses of Childhood—Six Autopsied Cases—Harvey FH, Alvord EC Jr (Professor of Pathology, University of Washington School of Medicine, Seattle, Washington)—*Acta Neurol Scand* 48:479-509, 1972

Cerebrovascular Disease in Children—Humphreys RP (The Hospital for Sick Children, 555 University Avenue, Toronto 2, Ontario1), Hendrick EB, Hoffman HJ—*Canad Med Assoc J* 107:774-781 (Oct 21) 1972

Progress in the Control of Oral Anticoagulation—Loeliger EA (Head, Laboratory Thrombosis Research, Hematology Section of the Department of Medicine, University Hospital, Leiden, The Netherlands)—*Thromb Diath Haemorrh* 28:109-119, 1972

Occlusive Cerebrovascular Disease—Hass WK (Professor of Neurology, New York University School of Medicine, New York, New York)—*Med Clin N Amer* 56:1281-1297 (Nov) 1972