Among squirrel monkeys fed cholesterol, certain individuals (hyperresponders) develop severe hypercholesterolemia while others (hyporesponders) fed the same diet maintain plasma cholesterol levels near that of controls. Preliminary studies indicated that these differences were genetically determined. The strength of genetic influence on plasma cholesterol levels and, additionally, the extent and severity of atherosclerotic lesions associated with hypercholesterolemia of hyperresponder squirrel monkeys have been investigated. A numerical estimate for heritability of this trait was determined by comparing the regression of the plasma cholesterol values of offspring on the mid-parental mean. The data derived suggested that more than 92% of the variability in plasma cholesterol values of the progeny was attributable to genetic factors. Hyperresponder monkeys had enhanced atherosclerosis as well as lesions in other organs associated with hyperlipidemia.

The purposes of this investigation were to determine reliability and validity of percept-concept-motor function (PCMF) measures and the effect of multidisciplinary experimental treatment directed to identified PCMF deficits among left hemiplegics after completed stroke. Seventy-eight patients qualified for research and were assigned by a random system to the control group for standard treatment or to the experimental group. Research treatment was completed by 21 control patients and 26 experimental subjects. The two groups were comparable on 56 crucial variables at outset and remained so after 20 treatment days. Significant improvement was accomplished in all 14 of the activities of daily living (ADL) ratings and 11 of the 24 reliable PCMF measures. Experimental treatment did not effect more functional improvement than did standard treatment. Factor analysis showed that PCMF and ADL variables measured separate functions. Thus, the validity of PCMF measures was not determined.

Stenotic lesions of varying magnitudes were induced in the common carotid arteries of rabbits. Resulting alterations in carotid blood flow were correlated with changes in the ocular, external maxillary, long posterior ciliary, and central ear artery pressure pulses. A reduction of the common carotid artery lumen of approximately 45% was necessary before blood flow was reduced. Progressively greater degrees of stenosis had a much greater effect on blood flow than on blood pressure. Changes in the systolic and diastolic portions of the flow pattern were reflected in the ocular and blood vessel pulses by a decrease in amplitude, reduction in slope of the anacrotic and catacrotic limbs, rounding of the crest with a slight delay, or double peaking of the crest and a dicrotic notch that occurred higher than normal on the catacrotic limb or was absent.
ABSTRACTS

AB-51-71

A fluorophotometric technique for simultaneous measurement of fluorescein arrival upon the rabbit fundus shows that differentiation between occluded and normal carotid artery circulation is possible. In addition, it is possible to use such a device in the study of normal and abnormal human retinal circulation.

AB-53-71

Platelet adhesiveness was noted to increase on the second postoperative day in a group of male patients undergoing surgery. However, platelet adhesiveness decreased significantly ten minutes after the intravenous injection of 1 I.U. heparin per kilogram of body weight. However, one and two hours after heparin injection, platelet adhesiveness had returned to preheparin levels. When the dose of heparin was changed to 1 I.U. heparin per kilogram of body weight, the response was similar to that noted with the higher dose. Because of this reduction in platelet adhesiveness with a smaller dose of heparin, a clinical trial of this medication, after surgery, to decrease the incidence of deep-vein thrombosis seems indicated.

AB-55-71

Human platelets incubated with $^{32}$P lysolecithin convert this compound to platelet lecithin and the water-soluble product glycerylphosphorylcholine. Lecithin synthesis from lysolecithin by intact platelets has a $pH$ optimum of 9, whereas platelet homogenates show a $pH$ optimum of 7.5 for the same reaction. Conversion of lysolecithin to platelet lecithin takes place by direct acylation of lysolecithin with free fatty acid. Addition of thrombin or ADP to the incubation medium has no effect on lysolecithin acylation or breakdown and does not affect the degradation of $^{3}C$ choline-labeled platelet lecithin. Polystyrene particles stimulate lecithin synthesis and lysolecithin breakdown to glycerylphosphorylcholine by intact platelets but have no effect when added to platelet homogenates. By converting lysolecithin to lecithin, platelets add 2% to their lecithin content in one hour.

AB-56-71

Incubation at 37°C for 30 min or the addition of CaCl$_2$ (5 mM) generated platelet-clumping activity in citrated plasma and EDTA plasma previously acidified to pH 5.5 and in which heparin was added to give a concentration of 0.5 mg/ml. Similar treatment could not produce platelet-clumping activity in saline or denatured plasma that had been heated to 56°C. Heparin, chondroitin sulfate B, or heparin sulfate produced platelet-clumping activity in BaSO$_4$-adsorbed serum over a given pH range. The effective pH range for each compound was heparin 0.5 mg/ml, pH 5.16 ± 0.09 to 6.31 ± 0.14; chondroitin sulfate B 0.5 mg/ml, pH 5.62 ± 0.09 to 6.88 ± 0.06; 2 mg/ml, pH 5.17 ± 0.16 to 7.18 ± 0.16. The effect of heparin sulfate in generating platelet-clumping activity was estimated only qualitatively at pH 6.0 and proved to be positive. Chondroitin sulfate A, chondroitin sulfate C, and hyaluronic acid failed to yield platelet-clumping activity in BaSO$_4$-adsorbed plasma. The minimal concentrations of heparin and chondroitin sulfate B necessary to induce platelet-clumping activity in BaSO$_4$-adsorbed serum were 0.5 mg/ml and 0.1 mg/ml, respectively.

AB-57-71

Definite proof of subarachnoid hemorrhage was available in only three of 50 cases of angiographically demonstrated spinal arteriovenous malformation. In all three cases arterial aneurysm was combined with the malformation. An additional patient with angiographic signs of both lesions had symptoms compatible with hemorrhage which was not further documented. The authors review the subject and compare the findings of hemorrhage in brain and cord. Subarachnoid bleeding was found in 75% of reported cases of coexistent arteriovenous malformation and arterial aneurysm of the brain and also in 75% of their cord patients with the combined findings.

*Authors' abstract.
ABSTRACTS

AB-58-71

ADP-induced platelet aggregation was measured each month for two months in 20 normal men. The response to a fixed dose of ADP increased significantly when platelet-rich plasma was allowed to stand for 20 min in plastic tubes at room temperature. Maximum aggregation responses in freshly prepared platelet-rich plasmas ranged from 11-84%. The frequency distribution of values was non-Gaussian and was skewed to the right. Individual test responses varied independently from month to month. It is concluded that optimal test performance requires the use of freshly prepared platelet-rich plasma. The distribution of test values and the month-to-month variation of individual responses in normal persons should be considered when interpreting the results of ADP-induced platelet aggregation tests in various disease states.

AB-59-71

The basal projection is useful as an adjunct to the standard projections in cerebral angiography. With modifications in technique, proper positioning of nearly all patients is possible. The authors use the basal projection routinely in patients with aneurysms not seen well on standard projections, in patients with possible subtemporal extracerebral hematomas, and in patients with suspected posterior fossa masses. A method of accurately determining the relationship of the anterior cerebral and pericallosal arteries to the midline is presented.

AB-61-71

Four patients presented with hemifacial spasm, including one case of bilateral hemifacial spasm, each of whom showed arteriographic evidence of a vascular abnormality in the cerebellopontine angle in the region of the seventh nerve. The problem of hemifacial spasm is reviewed, and our conclusions are in agreement with other recent studies based upon arteriography or neurosurgical exploration of the posterior fossa, that a significant portion of cases of hemifacial spasm are caused by mechanical compression of the seventh nerve in the cerebellopontine angle, usually by a vascular structure such as an elongated or tortuous normal artery, an aneurysm, an aneurysm, or arteriovenous malformation.

AB-63-71

The authors describe the frequency of vascular abnormalities and dynamic circulatory changes encountered in 27 patients with a variety of cerebral inflammatory diseases. Patients with meningitis demonstrated vasoconstriction of blood vessels at the base of the brain, the periphery, or both. Vasodilatation was frequently seen as well. Hypervascular patterns of three different etiologies, described in the text, were observed in 12 patients.

AB-65-71

The authors studied the effect of the association of cerebral ischemia (C.I.) with an atherogenic diet (under unchanged conditions of O2 supply in the body) on lipemia and on the development of atheromatous lesions of the arteries in 21 rabbits with C.I. and in 11 control rabbits (without C.I.). The following results were obtained:

1) The level of total serum lipids, cholesterol, phospholipids and beta-lipoproteins was significantly increased (P < 0.01) in rabbits with C.I. as compared to the controls. No significant changes in the concentration of free fatty acids in the serum was found.

2) A precocious occurrence and more rapid development of atheromatous lesions was found in rabbits with C.I.

3) Starting from these results, the authors discuss the pathogenetic significance of the association of these two factors in atherogenesis, pointing out the importance of hypoxic disturbances of the C.N.S. in spontaneous atherogenesis and in atherogenesis induced by an atherogenic diet.

AB-66-71

The design and results of a six-month study of test precision in a coagulation laboratory are reported. The assays under evaluation were fibrinogen, factor X, plasminogen, plasminogen, and alpha-2-antiplasmin. Analytical coefficients of variation for normal plasma

*Authors' abstract.
samples ranged from 13% to 30%. In most cases, the assays studied showed significant day-to-day variability. The importance of considering day-to-day variability in the estimation of test error is emphasized.

**AB-67-71**


Function of the "normal" hands of 27 stroke patients was studied. All patients had suffered a stroke at least six months prior to the test. Detailed neurologic examination and electroencephalograms were used to insure that there was no detectable contralateral brain involvement.

The normal hands of these patients were found to have slower hand function than the comparable hands in a control group of normal subjects. This was true for patients with right hemiparesis as well as for those with left hemiparesis.

Because of the possible effect of medication on hand performance, a subgroup of patients taking no drug or drugs not known to have psychotropic effect was studied. These patients also demonstrated slowing of hand function in the normal hand as compared to normal subjects.

Possible mechanisms causing the decrement in hand function on the normal side are discussed.

**AB-68-71**


A test system has been devised to study the influence of reduced blood flow on platelet adhesiveness in arterial and venous blood in man. It has been found that eight min of reduced flow causes a 50% increase in arterial blood platelet adhesiveness in control subjects. This contrasted sharply with the absence of increased platelet adhesiveness in subjects who had suffered myocardial infarction. Anticoagulation therapy did not appear to influence the results.

**AB-70-71**


(1) The cerebral arteries of 374 Japanese subjects were estimated for total lipids, free and ester cholesterol, lipid phosphorus, triglycerides and various types of glycosaminoglycans. The cerebral arteries were divided into normal and diseased. The samples were pooled for each decade, in an endeavour to dissociate age changes from those related to atherosclerosis.

(2) In general, lipid concentration increased with age and atherosclerosis. The ratio, ester/total cholesterol, in normal tissue was approximately 25-30%, in contrast with 45-50% in the lesions. Atherosclerotic lesions contained approximately 13 to 35 times as much esterified cholesterol as young normal tissue. The rise with age in total and esterified cholesterol in the Japanese cerebral arteries was much the same or just slightly steeper than that reported in South African and American Caucasians.

(3) Total glycosaminoglycans increased in both normal tissue and lesions. The proportion and concentration of heparin sulphate decreased in atherosclerotic lesions compared with grossly normal tissue; yet those of chondroitin-4- or -6-sulphate and dermatan sulphate increased. The relative proportions of glycosaminoglycans in normal tissues did not alter with age.

(4) Quantitative chemical analysis confirmed the low proportion of both hyaluronic acid and chondroitin sulphates in the total glycosaminoglycans of Japanese cerebral arteries.

**AB-71-71**


During the first 12 days after suffering acute ischemic strokes, lumbar cerebrospinal fluid (CSF), arterial, and jugular venous blood samples of 102 patients were analyzed for acid-base and gas values. Significantly increased CSF lactate and pyruvate concentrations with correspondingly decreased bicarbonate ion levels were the most characteristic findings. Respiratory alkalosis and hypoxemia of arterial and cerebral venous blood were also common. Frequently, a supernormal jugular venous oxygen pressure was recorded. The majority of these patients had a more elevated CSF lactate concentration; the patients with pronounced cerebral venous hypoxemia had a smaller increase of CSF lactate level. Disturbances of brain acid-base status may be important in the regulation of cerebral blood flow and oxygen supply in patients with ischemic strokes.

**AB-72-71**

**ROGERS WH, RUJKSUL A, CAMISHION RC, PADULA RT:** In Vivo Cinerephorographic Analysis of Aortic and Major Arterial Flow Patterns. Arch Surg 103:93-95 (July) 1971*

A perfusion system and optical device designed for direct observation of the interior of the
functioning cardiovascular system have been used to photograph flow patterns within the aorta and its major branches. Turbulence and evidence of intimal trauma have been observed at the orifices of the major arterial branches during systole. Stasis has been seen during diastole in the abdominal aorta and aortic arch. Since these phenomena occur at the same locations that atheromatous plaques are found clinically, it appears that a combination of intimal trauma and turbulence, followed by localized stasis occurring alternately with each heart beat, are significant and are factors which contribute to atheroma formation at these sites.

**AB-73-71**

**KATTLOVE HE, ALEXANDER B:** The Effect of Cold on Platelets. I. Cold-Induced Platelet Aggregation. Blood 38:39-48 (July) 1971*

Low temperatures induce platelet aggregation. This effect is greatest when chilled platelet-rich plasma (PRP) is stirred while it is warming or after it has warmed. The stirring of chilled PRP at low temperature or after prolonged warming causes little aggregation. The extent of aggregation increases as the temperature at which the PRP is chilled is lowered, and as the time of chilling is lengthened. This phenomenon resembles ADP-induced aggregation in that the shape of the aggregation curves of both are similar and both are inhibited by the same compounds. In addition, both forms of aggregation require calcium. However, cold-induced aggregation is not mediated by ADP since this compound is not found in the supernatant of chilled PRP. Nor is the effect of cold on plasma proteins responsible for cold-induced aggregation since cold causes aggregation of platelets suspended in a nonprotein medium. The mechanism of this phenomenon may be similar to ADP-induced aggregation. Its clinical significance is that it may account for the deleterious effect of cold on the preparation and preservation of platelet concentrates.

**AB-74-71**

**WEBBER MM, VICTERY W, CRAIN MD:** Demonstration of Thrombophlebitis and Endothelial Damage by Scintiscanning. Radiology 100:93-97 (July) 1971*

Several particulate radiotracers were studied with respect to their behavior in the vicinity of clots. Experiments were performed in vitro, microscopically and quantitatively, and in vivo on artificially created lesions. Of the particles studied, macroaggregates of albumin and aggregates of stannous hydroxide showed the best accumulation on clots and venous lesions. It was concluded that there is definite demonstrable clot affinity for some particles and not for others. The mechanism remains to be elucidated. Clinical usefulness is to be evaluated.

**AB-75-71**


Surgical intervention was successful in alleviating symptoms in a patient with a posterior fossa extradural hematoma. Clinically, a rapidly developing papilledema, ipsilateral hemiplegia and the angiographical demonstration of marked hydrocephalus were felt to be important diagnostic clues. Based upon a review of the literature, the authors also stress the importance of recognized occipital fractures as being associated with this disorder. The necessity for bilateral posterior fossa burr holes is stressed in situations of clinical deterioration when, for various reasons, angiography may not be performed. Twenty-one percent of the cases reported in the literature had multiple hematomas. (Original in French.)

**AB-76-71**

**CAPISTRANT TD:** Thermographic Facial Patterns in Carotid Occlusive Disease. Radiology 100:85-89 (July) 1971

Thirty-one of 35 patients (88.6%) with angiographically confirmed carotid stenosis were noted to have abnormal facial thermograms. In some cases routine thermography failed to show any abnormality (presumably due to increased collaterals from the external carotid circulation) and it was only after utilizing a head clamp to simultaneously interrupt the external carotid supply were the abnormalities detected. Analysis of the thermograms showed four basic patterns of thermal asymmetry. Awareness of these patterns is felt to be essential in order to achieve maximum sensitivity of the method as an indicator of internal carotid occlusive disease.

**AB-77-71**


The rise times and delay times of arterially induced pulsations in range of intracerebral interfaces were detected ultrasonically and written out as an analogous wave form in patients with cerebrovascular disease or cerebral tumors to determine whether they differed significantly from the wide limits obtained from healthy people. No significant difference from normal was noted and it is concluded that, using ultrasonic methods, the detailed study of the individual wave forms...
ABSTRACTS

written out by the arterially induced movement of intracerebral interfaces is not useful as a diagnostic test.

AB-79-71

In 169 patients undergoing hip arthroplasty three drugs affecting platelet function were assessed. Six of 43 patients receiving warfarin, nine of 34 receiving dipyridamole, six of 43 receiving aspirin and six of 49 receiving dextran developed thromboembolic complications. It was the purpose of the study to compare the latter three agents to warfarin. The results with aspirin, warfarin, and dextran were better than those in an untreated group reported previously (26 thromboembolic complications in 67 patients). Thromboembolic complications occurred in 26% of patients receiving dipyridamole, a rate not significantly different from the control group (39%). Also, side effects required the therapy to be discontinued in 12%. Dipyridamole was not recommended for prophylaxis in venous thromboembolism. The frequency of hemorrhagic complications did not differ in the four groups.

AB-80-71
JOHNSON HW, LEE GB: Changes in Serum Lipids During Administration of an Oral Contraceptive. Minn Med 54:335-336 (May) 1971

In 25 young women receiving an oral contraceptive over a 12-week period serum triglyceride levels were found to be significantly elevated in 18 of the subjects. Serum cholesterol was elevated in only three women and a distinct prebeta lipoprotein band on protein electrophoresis was noted in seven women. Emphasis is placed on the relation of elevated serum lipids to atherosclerosis and the hazard of cardiovascular and cerebrovascular complications which may follow long-term oral contraceptive use.

AB-81-71

Four cases of carotid sinus syncope successfully treated with propantheline, a parasympathetic antagonist, are described. Propantheline is felt to be superior to similar parasympatholytic agents because of its high ratio of ganglionic blocking to antimuscarinic properties, and longer duration of action. The only complication noted was dryness of the mouth.

AB-82-71

Cholesterol embolism to the central nervous system was reported which may have been attributed to atheromatous detachment during carotid arteriography which had been performed shortly before death.

AB-83-71
FELDMAN R, YASHON D, LOCKE GE, HUNT WE: Cerebral Tissue Lactate in Experimental Oligemic Shock. J Neurosurg 34:774-778 (June) 1971

Following resections of cerebral tissue from dogs in the normotensive state, the animals were bled to arterial pressures of 30 to 35 mm Hg and more cerebral tissue was resected at zero, 30 and 60 minutes after the onset of hypotension. Progressive increase in lactate in the cerebral tissue correlated with the duration of shock. The brain is susceptible to the effects of poor tissue perfusion at low mean arterial pressures which results in inadequate oxygenation in spite of mechanisms for preferential shunting of blood to the brain.

AB-84-71

A method of expressing platelet aggregation which is considered preferable to direct measurement is presented. Pre-incubation of platelets with reserpine inhibited platelet aggregation more slowly than 5-hydroxytryptamine pre-incubation. Platelet aggregation is relative to the amount of 5-hydroxytryptamine in the medium. Platelet binding sites are occupied by 5-hydroxytryptamine and can impair platelet aggregation theoretically. Reserpine acts by releasing 5-hydroxytryptamine from the platelet accounting for the longer time required in the pre-incubation period to inhibit platelet aggregation.

Pre-incubating platelets with methysergide tends to inhibit 5-hydroxytryptamine-induced aggregation probably by blocking 5-hydroxytryptamine at the platelet membrane level. Clonidine, a new therapeutic agent used in migraine, has no effect on platelet aggregation. Pre-incubation with tyramine produced results similar to reserpine pre-incubation in inhibiting platelet aggregation.

AB-85-71
McLAURIN RL, ISAACS E, LEWIS HP: Results of Nonoperative Treatment in 15 Cases of Infantile Subdural Hematoma. J Neurosurg 34:753-759 (June) 1971

Post-traumatic subdural effusions in infancy were treated by subdural taps in response to
increased intracranial pressure in 15 patients. Psychometric testing subsequently revealed 27% of this group to be retarded, a figure similar to other studies employing various other means of therapy including craniotomy and removal of subdural membranes. Subdural tapping alone appears to be satisfactory in treating subdural effusions and complete evacuation of the fluid is not essential. When intracranial hypertension persists despite repeated tapping, surgical procedures may be required.

AB-86-71
LOWELL HM, BLOOR BM: The Effect of Increased Intracranial Pressure on Cerebrovascular Hemodynamics. J Neurosurg 34:760-769 (June) 1971

Post-traumatic intracranial hypertension has been attributed to brain edema and enlargement of the vascular compartment. These two parameters have been studied in the monkey—epidural balloon experimental model during acute elevation of intracranial pressure and following trauma. Progressive decrease in cerebral blood flow and volume and a concomitant increase in mean transit time were noted; increased resistance, decrease in perfusion pressure, and impaired CO2 reactivity were also observed. The findings failed to support the concept that increased size of the cerebrovascular compartment is responsible for increased intracranial pressure following trauma.

AB-87-71

The rarity of thrombosis of the veins of the Galenic system in adults is re-emphasized by the author. In this light he presents three cases of Galenic system venous thrombosis. Thrombosis of other venous systems was not found. Review of the cases revealed all three patients were women. Only one patient was on oral contraceptives, while another was taking amitriptylinepamoate which seemed to have initiated the symptoms. The third patient had polycythemia and developed the thrombosis subsequent to cranial fracture. Review of the literature since 1900 failed to reveal similar cases.

AB-88-71

In the arms of normal controls, fibrinolytic activity is four to six times greater than that of the legs following venous occlusion for 20 minutes. Nineteen hemiplegic patients were divided into three groups based on degree of mobilization. Marked fibrinolytic activity developed in the arms of all but one of the patients following venous occlusion. The fibrinolytic activity of the legs was almost the same as that of the arms in contrast to the lowered activity in the controls. In those patients partially mobilized, the fibrinolytic activity of the legs also equaled that of the arms but decreased with increasing mobilization. Differences between the paralyzed and nonparalyzed limbs were not observed. It is concluded that the habitual vertical position of human beings tends to empty fibrinolytic activator from the vessel wall and accounts for the lowered fibrinolytic activity seen following venous occlusion of the legs compared to the arms in the individual who is ambulatory.

AB-89-71

Experimentally induced venous thrombosis in dogs with subsequent venography and histological examination revealed that although large endothe- lial spaces occur in the occluded vessel they seldom interconnect to reform a continuous functional channel. The occluded vessels were studied at regular intervals up to 12 weeks postocclusion.

AB-90-71

Lysis of induced venous thrombosis in dogs with streptokinase was found to be most effective when the thrombolytic enzyme was delivered regionally in high doses. Low-dose regional infusions and systemic therapy were found to be much less effective. This has led to successful thrombolysis in patients when the enzyme was employed regionally.

AB-91-71

It has been suggested that heparin may influence platelet adherence through its activation of lipoprotein lipase. In the dog enzyme responses were found to be directly related to the logarithm of the heparin dose.

AB-92-71
YASHON D, WAGNER FC JR, MASSOPUST LC JR, WOLIN LR, WHITE RJ: The Electrocardiographic Limits of Cerebral Viability During Cardiac Arrest and Resuscitation. Amer J Surg 121:728-731 (June) 1971

Resuscitation by open cardiac massage subsequent to induced ventricular fibrillation in dogs...
was judged successful based on electrocorticographic criteria obtained simultaneously. If resuscitation was delayed for four to nine minutes or arrested two to six minutes following one hour of continuous resuscitation, progressive deterioration in the quality of the electrocorticogram was noted. The adequacy of cerebral vascular perfusion can be assessed accurately with the aid of cerebral surface electrical recording.

AB-93-71

It has been demonstrated that ventricular size can be determined in patients with subarachnoid hemorrhage by accurate assessment of the thalamostriate vein. Nineteen of 50 patients had significant ventricular dilatation following subarachnoid bleeding, a more common finding than generally realized. Symptoms attributable to the hydrocephalus were found in nine of the 19 patients and spontaneous remission of the symptoms occurred in three. Two stages of development of hydrocephalus following subarachnoid hemorrhage were suggested: a reversible stage caused by partial obstruction of the subarachnoid pathways, and a more permanent hydrocephalus developing with irreversible adhesions.

AB-94-71

A high-sensitive capacitance meter is described which is capable of measuring the dielectric properties of blood. Changes in the dielectric property of the platelet occurs during aggregation along with release of lysozymes, serotonin, and potassium ions. It is now possible to follow platelet aggregation induced by ADP or collagen and the counteraction of these substances by anti-adhesive drugs as demonstrated in this study. Determination of platelet behavior in whole blood using this method is proposed.

AB-95-71

Ultrasoft x-ray examination of ten saccular aneurysms of large cerebral arteries removed postmortem revealed duplication, thickening, and fragmentation of the elastic lamella. Within several millimeters of the mouth of the aneurysm calcification was noted in the intimal collagenous tissue. The hypothesis that there is a compensatory hypertrophy of the elastic lamella at the site of the media defect is supported by the above observations. Similar results were noted with fluorescent microscopy of the elastic lamella.

AB-96-71

Mechanical stresses such as pressure, tension, compression, rates of change of these stresses, and friction result in vessel adaptation. The author suggests the vascular system is able to sense these stresses and responds with a specific negative feedback easing the stress.

The mechanism of vessel wall narrowing depends on several factors. Plasma components infiltrate into the wall subsequent to increased pressure. Rupture is prevented by a laying down of collagen induced by mechanical tension. Local pressure can be reduced by increasing the stream velocity. This lowered pressure allows intrusion of the wall materials into the lumen resulting in vascular narrowing.

High stream velocity can actually lift the arterial wall lining from the outer media resulting in dissection. This may in turn result in hemorrhage into the media by the vasa vasorum with subsequent vessel lumen obstruction. Further reduction of the lumen may follow friction on the endothelium which generates papilliferous growths.

AB-97-71

Intravenous administration of 10 mg/kg purified intestinal alkaline phosphatase to rabbits results in enhancement of platelet aggregation and adhesiveness, presumably due to the release of ADP. When similar amounts of alkaline phosphatase are given to rabbits pretreated with aspirin, ADP release is inhibited, and enhanced platelet aggregation and adhesiveness are not observed.

AB-98-71

A population of 1,236 boys (98% Caucasian) ranging in age from 12 to 17.9 years was studied. Variability in the level of plasma cholesterol was not accounted for by the intake of specific nutrients or quantity of dietary fats, and neither height nor weight appeared to show statistically significant correlations with plasma cholesterol. However, both triceps and subscapular skinfold thickness were related to plasma cholesterol at the p < 0.05 level of confidence. Longitudinal studies over two to three years showed little change in the
range of cholesterol determinations in any individual. It is concluded that if prevention of athrosclerosis is ever to be a reality, attention will need to be directed to a relatively young group of people, and to manipulate habit patterns while they are more amenable to alteration.

AB-99-71

A study was conducted of 163 patients surviving prosthetic cardiac-valve replacement and receiving anticoagulation with warfarin sodium. Seventy-three received dipyridamole (400 mg/day) and the remaining 84 patients received a placebo. The frequency of embolization in the dipyridamole group was significantly lower than that in the placebo group (1.3% versus 14.3%), and there was no significant difference between the death rates or drug discontinuation rates of the two groups. The clinical effectiveness of dipyridamole as an antithrombotic agent is suggested.

AB-100-71

Hemorrhagic complications of anticoagulant therapy resulting in surgery on the CNS are discussed. In this series of 27 patients the majority were elderly, male, and had a prothrombin time outside the desired therapeutic range on entering the hospital. Intracranial hemorrhage accounted for 22 cases (bilateral subdural hematoma, eight; unilateral subdural hematoma, six; intracerebellar hematoma, one; intracerebral hematoma, seven), and spinal canal bleeding accounted for the remaining five cases. The bleeding proved fatal in nearly half the cases.

AB-101-71

Retrograde filling of the basilar and both vertebral arteries was noted in 14 (2%) of 678 carotid angiograms. Seven of these 14 patients were studied clinically and with an ultrasonically recorded pulse curve of the vertebral artery. In all but one case no indication of any disturbance in flow was detected. It is concluded that retrograde filling of the vertebro-basilar system is of no pathological significance and represents a rare accidental occurrence in an otherwise normal circulation. (Original in German)

AB-102-71

Two cases of terminal basilar aneurysm are reported. The clinical features were those of gait disturbance, progressive dementia and urinary incontinence, later associated with headache, nausea, vomiting and papilledema. Radiological investigation showed marked deformity of the third ventricle and this may account for the associated hydrocephalus; however, it is suggested that transmission of pulsations from the aneurysm to the ventricular system may have contributed to the ventricular enlargement. Pathological examination in one case revealed, in addition to the terminal basilar aneurysm, a communicating hydrocephalus and atrophic changes of the mammillary bodies and basal ganglia. Attention is drawn to the clinical similarity to the syndrome of adult "normal pressure" hydrocephalus.

AB-103-71
O'BRIEN JR, TULEVSKI V, ETHERINGTON M: Two In-Vivo Studies Comparing High and Low Aspirin Dosage. Lancet 1:399-400 (Feb 20) 1971

Seven healthy volunteers were studied to see the effect of high (2.5 gm/day) and low (0.6 gm/day) aspirin dosage on collagen response. It was concluded that there is no evidence in human beings to suggest that a higher dosage of aspirin has any greater effect. It is noted that each volunteer tends to have a uniquely characteristic response, but that for each individual the effect is apparently maximal at once and no evidence of a cumulative effect was noted at either dose level.

AB-104-71

Ischemic heart disease, cerebrovascular disease, hypertension, and diabetes were studied with respect to age and sex trends utilizing hospital discharge data generated through the Canadian Hospital Insurance Program. Morbidity due to ischemic heart disease was higher in men and increased with age. The increased morbidity among younger subjects was greater than anticipated, suggesting that case fatality for ischemic heart disease increases with age. Morbidity data for cerebrovascular disease suggested that men have a higher risk of developing such accidents than women (1.3:1). Hypertension and diabetes were found to be more prevalent among women; this may reflect a selective removal of men through premature death due to ischemic heart disease.
ABSTRACTS

AB-105-71

A new method for study of microcirculation using incident dark-field illumination is described. Details of the circulation in the living animal can be studied due to the relative transparency of the coverings of most organs. A three-dimensional effect is obtained by projection of the light to surround the observed vessels on all sides. This method has distinct advantages over previous methods requiring transillumination which failed to provide the resolution obtained with the dark-field procedure.

AB-106-71

Platelet aggregation induced by adenosine diphosphate (ADP), collagen, or thrombin can be inhibited by the pyrimido-pyrimidine compounds (RA8 or dipyridamole, RA433 and RA233). This was observed with either rabbit or human platelets. These compounds were also capable of inhibiting the platelet release reaction and platelet uptake of glucose. Extracorporeal shunt thrombosis was inhibited by all three compounds.

AB-107-71

A case of spinal epidural hemorrhage which remitted spontaneously is reported. The patient had suffered a recent myocardial infarction and was receiving anticoagulants. Surgery was deemed detrimental so soon after the infarct (six weeks), so the patient was treated with vitamin K and responded favorably within two days. Only one other case of spontaneous remission appears in the literature. Severe back pain with a radicular component is the usual manifestation at onset. Over several hours spinal neurological deficits appear. The thoracic area is the most frequent site of occurrence. In a review of the literature, 12 of the 32 cases of spinal epidural hematoma reported were receiving anticoagulants (37.5%).

AB-108-71

Lowering of local blood pressure surrounding the carotid body in rabbits did not produce any chemoreflex increase in respiration or in systemic blood pressure until values between six and 18 mm Hg were reached. In contrast, cats had significant activation of carotid chemoreflexes when local carotid sinus pressure reached 40 to 74 mm Hg. In rabbits chemoreflexes do not participate in the regulation of blood pressure during hemorrhage.

AB-109-71

Midline structures can be better visualized by applying autotomography to cerebral angiography. The technique is simple and has been used for some time in pneumoencephalography. This new technique should be employed whenever a midline lesion is suspected.

AB-110-71

Hypoplasia and stenosis of the internal carotid artery, often bilateral, associated with pseudo-angiomatous cerebral circulation is reported in four cases. A cause for this condition has not been determined but the original reports were in Japanese patients only. The present report is from Italy. A congenital and malformative origin is the hypothesis favored to explain this condition.

AB-111-71
KOCHEL RL, GLICKMAN MG: The Angiographic Diagnosis of Extradural Hematoma of the Posterior Fossa. Amer J Roentgen 112:289-295 (June) 1971

Four patients are described in which posterior fossa extradural hematomas were demonstrated by angiography. Vertebral angiograms are particularly important in patients sustaining occipital trauma or fracture. Carotid angiograms are frequently performed in cases of head trauma and cerebellar signs are often dismissed when supratentorial hematomas are found. Reigh and O'Connell (1962) report concomitant supratentorial lesions in more than 20% of patients with posterior fossa extradural hematomas.

AB-112-71

Total crossing of the visual pathways in the chick makes this animal an ideal model for studying the effect of unilateral deprivation on the vascular system of the brain. Unilateral eye
extirpation or monocular eyelid suture was carried out; cerebral blood flow was determined by intracardiac injections of radioactive iodinated albumin at various times following the above blinding procedure. Circulatory deficits in the contralateral brain could be detected as early as one hour after monocular deprivation and these persisted for at least six days. This deprivation was observed in both the contralateral optic lobe (innervated by optic nerve) and the contralateral cerebral hemisphere (no direct relationship to the optic nerve). A patterned sensory input may be required to maintain an adequate cerebral circulation.

**AB-113-71**


Injection of thrombin into the blood stream induces disseminated intravascular coagulation resulting in capillary thrombosis. The concentration and speed of administration of the thrombin determine the size of vessels thrombosed; i.e., sudden, large injections produce thrombi in the pulmonary arteries whereas small, dilute infusions over several hours induce capillary thrombi. Composition of capillary thrombi varies; i.e., platelet thrombi occur in the lung whereas fibrin is the predominant component in kidney and gastrointestinal thrombi. The location of the thrombi can be altered by vasomotor active agents such as histamine which cause thrombi to occur in venules and capillaries; alpha-adrenergic agents yield mural thrombi in capillaries; beta-adrenergic agents produce arteriolar thrombi. The systemic clotting mechanism is required to trigger thrombi formation in the gastrointestinal circulation; neither histamine, norepinephrine, nor epinephrine is capable of inducing thrombi alone. The synergism between a systemic clotting episode and vasomotor active agents produces arteriolar thrombi. The systemic clotting mechanism is required to trigger thrombi formation in any given vessel.

**AB-114-71**


A study in cats was carried out to determine the quantitative responses of pial precapillary vessels to changes in arterial blood carbon dioxide tension. Vessels of 13 to 90 microns in diameter respond to hypercapnia with increases in diameter and to hypocapnia with decreases in diameter. With higher concentrations of CO2 of the vasculature dilatation was earlier in onset, faster, and of greater magnitude. Smaller vessels (13 to 40 microns) increased their diameter to a greater degree than the larger vessels (41 to 90 microns) when both were exposed to the same increase in P CO2. These observations indicate there must be significant readjustments in pressure gradients in the pial precapillary vasculature when CO2 tension is changed.

**AB-115-71**


Serum cholesterol, beta-cholesterol percentage, and triglyceride determinations in families living in a Kibbutz environment in which the “family eating pattern” does not exist fails to support the genetic hypothesis for determination of these levels. Father and child relationships were the only ones where potentially higher correlations were found. When serum uric acid values were considered, a distinct pattern was noted supporting the genetic pre-determination of this factor. The “family eating pattern” which has confounded environmental influences with genetic effects does not exist in this study since parents and children share separate dining facilities in the Kibbutzim. This arrangement enabled the genetic relationships to be uninfluenced by eating habits. Limitations to the study include the narrow age limit (16 to 18 years) of the children; the study reflects nothing of what may be found when these children reach adulthood. Also all the members in the study had normal lipoprotein values.

**AB-116-71**


Blunt injury to any artery can result in an intimal tear with formation of a flap and arterial occlusion. This may occur in high-velocity gunshot wounds or fractures and should be expected in any patient with signs of arterial insufficiency who has sustained blunt trauma. Various patterns may be seen with arteriography from occlusion to a band-like shadow in the column of dye. Prompt surgical correction is required with resection of the artery or intimectomy. Nine new cases are added to the 49 cases already reported.

**AB-117-71**


Four cases of internal carotid artery occlusion diagnosed by angiography were reported. A direct causal relationship to a dull blow to the neck was

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made in one case only. In a second case the occlusion was related to a blow to the base of the skull and in the two remaining cases a causal relationship to trauma remained unsettled. Narrowing of the vessels by swelling, hematoma of the soft parts, and vascular spasm are the main causes of occlusion. Increased intracranial pressure is also mentioned as a factor in slowing circulation in vessels in the neck.

AB-118-71

Certain organs from the rat, including the liver, are capable of inducing transient platelet aggregations in platelet-rich plasma (PRP). If the liver was left in the platelet aggregation mixture until deaggregation occurred, it was unable to induce aggregation when placed in fresh PRP. However, if fresh liver was again added to the original PRP, platelet aggregation could be re-elicited. Active platelet aggregation inducer could be detected in liver homogenates, in ultrafiltrates, or in plasma or saline that had been in contact with liver slices. Platelets in calcified saline could not be induced to aggregate by adding liver slices, but addition of plasma restored platelet clumping activity. Although aspirin has been shown to inhibit platelet-collagen interaction, aspirin did not inhibit platelet clumping induced by liver. Thrombogenesis due to exposure of collagen to circulating platelets (i.e., vascular endothelial collagen release) may be inhibited by aspirin but aspirin may not be beneficial when platelet aggregation has been induced by agents from damaged tissue.

AB-119-71

One hundred thirty-five vascular operative procedures were monitored by segmental plethysmography and skin thermometry. Skin thermometry was not helpful but good plethysmographical responses were obtained in 86% of the cases after restoration of blood flow. In the monitored group, 15 vascular complications were detected by plethysmography during the surgical procedure in the first two postoperative weeks. No further cases were detected. In a similar group of non-monitored patients, four accidents were detected during surgery and 14 occlusive complications developed within 24 hours of surgery. In the non-monitored group there were ten amputations and three deaths; in the monitored group there were two amputations and no deaths. Intraoperative vascular occlusions may be detected reliably and safely with plethysmographical monitoring.

AB-120-71
FREDE KE, BENNER KU: Quantitative Measurements of Platelet Aggregation In Vivo Induced by Adenosine Diphosphate. Pflügers Arch 324:319-327, 1971

Intra-arterial infusions of ADP in dogs produced platelet aggregates which could be demonstrated by a new photoelectric technique. Trapping of these aggregates in the microvasculature of the lung and hind limb was indicated by noting a significant decrease in platelet aggregate count following circulation through these tissues. Significant obstruction of the microvasculature was not observed because of the low stability of the platelet aggregates.

AB-121-71

ADP infused into the jugular vein induces platelet aggregation; the aggregates are removed from the circulation when the blood circulates through the lungs, resulting in a fall in platelet concentration in the sample subsequently removed from the carotid artery. The platelet concentration in this sample is directly related to the concentration of ADP infused and the infusion time. A 50% drop in platelet count may be induced by a 0.2 mg/kg of ADP infused over one minute with a return to normal platelet concentration in 30 minutes. This method may serve as a model for study of the effects of various agents on platelet aggregation. For example, Prostaglandin E2 was found to inhibit the total aggregation response.

AB-122-71

Intravenous administration of clonidine in hypertensive patients resulted in a short, hypertensive response followed by a prolonged reduction of both systolic and diastolic pressure. The antihypertensive response was associated with a decrease of total forearm blood flow, while the muscle blood flow of the calf was unchanged or moderately increased. Skin blood flow showed a sharp reduction initially, followed by a slow return to control levels.

In patients with essential hypertension the reduction in blood pressure after acute oral administration of clonidine was associated with a decrease in cardiac output in the supine position.
In contrast, in the upright position, a reduction in both cardiac output and total peripheral resistance were observed. During the antihypertensive response, renal blood flow and glomerular filtration rate were maintained, both acutely and chronically.

Intravenous or intramuscular administration of clonidine proved to be very effective in hypertensive emergencies.

In 174 hospitalized patients, prolonged oral administration resulted in significant improvement of the blood pressure in 61% of the cases. In 115 ambulatory patients, significant improvement occurred in 64%. Clonidine was added to the therapeutic regimen of 20 ambulatory patients who had remained hypertensive during diuretic therapy alone, and 16 (80%) of the 20 showed a significant antihypertensive response in both the supine and upright positions. The most common side effects were drowsiness and dryness of the mouth.

Because of its marked efficacy and the beneficial cardiovascular and renal effects, clonidine represents a most useful addition to our antihypertensive armamentarium.

*Authors' abstract.


Three young premenopausal women, aged 27, 29 and 35 years, with acute myocardial infarction in the absence of significant predisposing causes are presented. All three patients were taking oral contraceptive agents at the time of infarction. Selective coronary arteriograms showed an isolated segmental occlusion in all cases with no other arterial disease. Although these events must be considered rare, oral contraceptive agents may be a possible contributing factor in myocardial infarction by a mechanism of thrombosis.

The role of estrogens in myocardial infarction and atherosclerosis is reviewed. The implication of these cases for increased incidence of thromboembolic disorders in clinical trials of estrogen in atherosclerotic disease is discussed.
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