in a wide variety of disease processes. This change is paralleled by a large number of other blood protein changes. The mechanism by which these changes occur in disease is not yet understood.

Recent chemical studies indicate that it is unwise to consider ground substance changes as a uniform phenomenon. At least 8 different acid mucopolysaccharides have now been isolated from connective tissues. These differ with respect to chemical composition and biological properties. The exact structure of some of these compounds is not yet known. It is apparent that there is specific localization of individual compounds. Table 1 lists the known compounds.

The mucopolysaccharide composition of the ground substance varies in specific tissues. Thus, most cartilage contains chondroitinsulfuric acid-A while skin contains a mixture of chondroitinsulfuric acid-B and a smaller amount of chondroitinsulfuric acid-A mixed with hyaluronic acid. The exact localization of individual polysaccharides in tissues is not yet known. They may play highly specific roles which depend upon both their anatomic localization and their biological activities. An example of the biological specificity is indicated by the fact that chondroitinsulfuric acid-B, which differs from chondroitinsulfuric acid-A only in the position of the OH group on C-5 of the uronic acid fraction, is antithrombic while chondroitinsulfuric acid-A has no activity on the coagulation system. This example is indicative of the many possibilities

<table>
<thead>
<tr>
<th>Compound</th>
<th>Uronic acid</th>
<th>Amino sugar</th>
<th>Sulfate</th>
<th>Acetyl</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hyaluronic acid</td>
<td>Glucoinic acid</td>
<td>Glucosamine</td>
<td>—</td>
<td>+</td>
</tr>
<tr>
<td>Chondroitinsulfuric acid-A</td>
<td>Glucoinic acid</td>
<td>Galactosamine</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Chondroitinsulfuric acid-B</td>
<td>Iduronic acid</td>
<td>Galactosamine</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Chondroitinsulfuric acid-C</td>
<td>Glucoinic acid</td>
<td>Galactosamine</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Chondroitin</td>
<td>Glucoinic acid</td>
<td>Galactosamine</td>
<td>—</td>
<td>+</td>
</tr>
<tr>
<td>Keratosulfate (Galactose)</td>
<td>Glucosamine</td>
<td>—</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Heparin</td>
<td>Glucoinic acid</td>
<td>Glucosamine</td>
<td>+</td>
<td>—</td>
</tr>
<tr>
<td>Heparin monosulfuric acid</td>
<td>Glucoinic acid</td>
<td>Glucosamine</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

that specific localization or changes of individual compounds may result in profound physiologic and pathologic alterations.

This brief discussion is intended to focus attention on possibilities for the study of connective tissue changes in vascular degenerative disease but to warn against too ready acceptance of concepts that are not firmly based on critical evidence.

Albert Dorfman

THE PHYSICIAN

HIPPOCRATES

Greek physician, about 460-377 B.C.

For where there is love of man, there is also love of the art. For some patients, though conscious that their condition is perilous, recover their health simply through their contentment with the goodness of the physician.—Precepts. Trans. W. H. S. Jones. From Great Companions. Readings on the Meaning and Conduct of Life from Ancient and Modern Sources. Vol. I, Boston, The Beacon Press, 1952.

Medical Eponyms
By Robert W. Buck, M.D.

Babinski's Phenomenon. Joseph Francois Felix Babinski (1857-1932) described this sign in the Comptes rendus hebdomadaires des Séances et Mémoires de la Société de Biologie 48: 207-208 (Feb. 22) 1896. The title of the article from which the following quotation is taken is "A Plantar Cutaneous Reflex in Certain Organic Affections of the Central Nervous System" (Sur le Réflexe Cutané Plantaire dans Certaines Affections Organiques du Système Nerveux Central):

"I have observed in a certain number of cases of hemiplegia or monoplegia involving the leg which were associated with an organic affection of the central nervous system, a disturbance in the plantar reflex of which I here present a short description: On the healthy side, pricking of the sole of the foot causes a flexion of the thigh on the pelvis, the leg on the thigh, the foot on the leg, and the great toe on the metatarsus. This occurs similarly in normal patients. On the paralyzed side, a similar stimulus also gives rise to a flexion of the thigh on the pelvis, the leg on the thigh, the foot on the leg, but the great toe, instead of being flexed, is extended on the metatarsus."


I began to bethink my self if it might not have a circular motion, which afterwards I found true, and that the blood was thrust forth and driven out of the heart by the arteries into the habite of the body and all parts of it, by the beating of the left ventricle of the heart, as it is driven into the Lungs through the vena arteriosa by the beating of the right, and that it does return through the little veins into the vena cava, and to the right ear of the heart, as likewise out of the lungs through the aforesaid arteria venosa to the left ventricle, as we said before.

Which motion we may call circular, after the same manner that Aristotle sayes that the rain and the air do imitate the motion of the superiour bodies.—William Harvey. De Motu Cordis, 1628.


Data are presented on 30 healthy individuals aged 5½ to 45 years who sustained cerebrovascular accidents. The 2 large categories of strokes in the young were venous and arterial thrombosis. In healthy women, puerperal hemiplegia was the most common form of spontaneous stroke. It was characterized by the sudden onset of headache, convulsions, hemiplegia, or other focal neurologic signs during a previously healthy puerperal period. The episode occurred several hours to several weeks postpartum and was caused by cortical venous thrombosis. Twelve patients were reported with recovery in all, although minor neurologic sequelae persisted in 3 patients. Two other patients had similar findings during pregnancy; these were also thought to be caused by venous thrombosis. Arterial occlusion was thought to be the cause of strokes in the 16 other patients. Involvement of the carotid artery was often seen in strokes in the young. The cardinal sign of thrombosis of this vessel was hemiplegia. Contralateral headache was often present. Horner's syndrome and homonymous hemianopsia were frequent ocular signs of carotid artery thrombosis. The difficulty in distinguishing between middle cerebral and carotid artery thrombosis was discussed. Carotid arteriography was not recommended as a diagnostic procedure because of the hazard of precipitating or exacerbating a hemiplegia in an already susceptible patient. The cause of thrombosis in these patients was thought to be a solitary atheromatous plaque. No specific treatment was recommended, since prognosis is good in these patients.

KAYDEN
Atherosclerosis in Delhi


Direct-vision coronary endarterectomy with resection of an almost totally occluding thickened intimal core from 1 or more of the main coronary vessels was performed in 5 patients with severe angina pectoris without myocardial infarction. In all cases blood flow was reestablished through the previously occluded vessel at the time of operation. One patient died of asystole developing near the completion of the operation. Of the 4 surviving patients 2 have been greatly improved. In all instances marked improvement has been noted in the electrocardiograms taken during exercise. The operation was devised on the premise that the patient with severe angina pectoris was likely to have an occlusive process near the aortic origin of at least 1 of the 3 major vessels and that the distal coronary tree beyond the occlusion was likely to be patent and supplied by blood through collateral anastomotic channels that had attained their maximum state of development. The results indicated that it was technically feasible to perform definitive endarterectomy in the major coronary arteries and to reestablish blood flow in such previously obstructed vessels.
PROTEINS AND LIPOPROTEINS IN DIABETES


Subsequently, in the celebrated Commentaries upon which our grandfathers in the profession were educated, Heberden gave a fuller account of his experience with the disease. The name which he adopted can not be regarded as altogether satisfactory, since it was already in use in designating affections of the throat, with which its literal meaning—a strangling—is much more in harmony. In one sense, however, the term is fairly appropriate, since, as noted by Gairdner, the words anxiety and anguish, expressive of two of the most prominent features of the disease, have a derivation from the same Greek word as angina.—WILLIAM OSLER. Lectures on Angina Pectoris and Allied States, 1897.
REFERENCES


The Eskimo is often cited as a race which has little atherosclerosis, despite a high-fat diet. However, the incidence of atherosclerosis among Eskimos is actually unknown and many of them do not consume a high-fat diet. Accordingly, the serum cholesterol and blood pressure of 842 Eskimo men, age 17 to 53, were studied. The mean cholesterol level of 214.4 mg. per 100 ml. was not unusual. There was considerable variation of the mean depending on geographic location, northern Eskimos having higher levels than those of the south. The average systolic pressure was 126.9; the diastolic was 74.3 mm. Hg. Measurements of blood pressure showed much less variation.

Kurland


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In a study of the effects of stress on serum cholesterol levels, the serum cholesterol, total circulating eosinophils, body weight, blood pressure, and heart rate were measured at 3 different periods that were associated with varying degrees of stress. The first set of data was collected 3 weeks after starting the first year course in anatomy, the second set at the time of the final examination period in anatomy which was felt to be the period of maximal stress, and the final set of data was collected at a varying interval after the anatomy examination period at the convenience of the subject. Subjects were 52 male first-year medical students. The highest mean cholesterol value was found to occur at the time of the anatomy examination. It was 225.7 mg./100 ml. It was significantly greater than the value of 204.7 mg./100 ml. found at the examination made at random with presumably little stress. The mean cholesterol level of 224.4 mg./100 ml. found 3 weeks after starting medical school was not significantly lower than the value at the time of the anatomy examination. The mean eosinophil count at the time anatomy examination was 97 per cm.³ while at the time of the third or random examination the mean was 129 per cm.³ which was thought to be a significant difference. The measurements of pulse rate and systolic and diastolic blood pressures showed a significant difference only in the measurement of the diastolic blood pressure, which was highest at the time of the anatomy examination, next highest at the time of the initial examination, and lowest at the time of the random examination. Variations in body weight were effectively excluded as a cause for variation in cholesterol levels.

Maxwell

It has been demonstrated that carbon dioxide gas can be safely used to visualize the right side of the heart with little or no disturbances in hemodynamics. The gas has also been used with no untoward effects on the left side in normal dogs. The present study was to determine the usefulness of carbon dioxide gas in demonstrating interatrial septal defect in the dog. A cinefluorographic technic gave a permanent record of the course of injected carbon dioxide gas and physiologic measurements were made at the same time. Gas injected into the right heart was detected shortly afterward in the left atrium and then as a residual bubble in the left ventricle for 10 to 15 seconds. Gas passed rapidly from the right to the left atrium, despite the fact that the shunts were mainly from left to right. Pressures recordings in the right atrium indicated that values above 100 mm. Hg could be record for 1 to 5 seconds after introduction of gas, but little change in pressure readings was noted in the left atrium. At the time the gas passed through the defect the systemic pressure rose; if no defect was present the systemic pressure fell. Radiologic detection of gas in the left atrium and then in the left ventricle and motion picture recordings suggest that it will be possible to estimate both the size and position of the defect by duration, shape, and position of the gas bubble. The dissolution of the residual bubble is an important problem.

Kayden


The occlusion of a catheterized ureter for a brief period of time and the collection of urine via a polyethylene tube after the occlusion is released permits a comparison of proximal and distal tubular function. This type of experiment was carried out in dogs before and after the administration of mercurial diuretics. An osmotic diuresis was maintained by a constant infusion of mannitol. Intravenous administration of thioruric or meralluride caused at least a 50 per cent reduction in the mass of water and sodium reabsorbed by the proximal tubule during the brief period of occlusion. Reductions in water and sodium were equivalent, and the proximal tubule reabsorbate therefore had a sodium concentration similar to that of plasma. The mercurials did not alter the ability of the distal tubule to lower urinary sodium concentration during the period of ureteral occlusion. These studies suggest that the major effect of mercurial diuretics is on the proximal tubule and that their action may be to interfere with the passive reabsorption of sodium and water in this area of the nephron.
provisionava le major massa lateral del ventriculox dextere e sinistre. Le systema venose essueva simile a illo de altere mammiferos. Le volume ventricular e le rendimento cardiac essueva calculate crudemente a 453 litros per minuta (super le base de un frequentia cardiac de 10 per minuta). Le dimensiones del fibras myocardial essueva simile a illos in humanos. (Sed in un fetal corde de balena—de un peso de 1,600 g—micriissime fibras essueva incontrate.) Essua constata que le aorta habeva un diametro de 20 cm e que su pariete consistes de grandissime fases intertexite de histo elastic e histo fibroso, apparentemente sin musculo. Nulle signos de arteriosclerosis essueva notate. Comparative estimationes inter balena e homine essueva facile pro le proportion de rendimento cardiac a peso corporee e pro le proportion de peso cardiac a peso corporee.

REFERENCES
CLINICAL EVALUATION OF CHLOROTHIAZIDE

Since the initiating factor in acute rheumatic fever is infection by the Group A streptococcus, the authors attempted to alter the course of established rheumatic fever by eradicating the original inciting agent with penicillin. Forty-nine patients with acute rheumatic fever received an intensive 6-week period of penicillin treatment. The course of this group was compared with that of 48 patients who were not given antibiotics. All patients initially were treated with similar courses of aspirin for relief of symptoms. At the end of the 6-week period both treated and control patients were given 1,200,000 units of benzathine penicillin every 5 weeks for 1 year. Observations during the first 6 weeks of the illness in these patients showed no significant differences between the treated and control groups in regard to the acute clinical, laboratory, and electrocardiographic manifestations of the disease. Studies a year later, however, indicated a probable statistically significant reduction in the incidence of valvular heart disease in the penicillin-treated group. The difference between the effects of penicillin on the acute-phase manifestations of rheumatic fever and on the endocardial lesions suggests that these lesions may differ pathogenetically and also that the living streptococcus may continue to play a significant role in the development of valvular heart disease even after the symptoms of rheumatic fever have appeared. On the basis of these observations it is concluded that an intensive course of penicillin in addition to symptomatic therapy may be important in the treatment of acute rheumatic fever to reduce the incidence of later valvular damage.

SAGALL