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AN OFFICIAL JOURNAL OF THE AMERICAN HEART ASSOCIATION

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1849-1919

100 Years Ago: A Student in Pathology

In those days, before the multitudious special subdivisions of medicine which have bid fair to crowd the fundamentals out of the curriculum, the course of anatomy extended over two years, and as the dissecting-room represented the only laboratory to which a student had access the abler ones revelled in it. The teachers of the pre-clinical branches, moreover, were at the same time practitioners. . . .

. . . he 'spent more time in the dissecting-room than any other student, frequently bringing his lunch with him in order to get some extra time there. He did much of this work alone, working out problems of his own in his own way, without the aid of a demonstrator. Thus he pointed out the presence of the Trichina spiralis in the muscles of one of the bodies, which no one else had observed.'—Harvey Cushing: The Life of Sir William Osler. New York, Oxford University Press, 1940, p. 58.

Fifty Years Ago: His Last Postmortem

"Next morning in the absence of Major Gibson I made the post-mortem."
Influenzal pneumonia, bilateral rigidity, with hemorrhage into the theca vertebralis and nerve roots.—From Lancet 196: 501, 1919.
The Library and the Laboratory
Books and Transplants

Phenomenal though these advances [transplants] may be, they still fall short of an already existing non-medical technique for increasing longevity. A simple system now makes possible an incredible enlargement of human life. This system goes by the name of a book. Through it, one can live hundred of lifetimes in one. What is more, he may enjoy fabulous options. He can live in any age of his choosing. He can take possession of any experience. He can live inside the mind of any man who has recorded an interesting thought, any man who has opened up new sluices of knowledge, any man who has engaged in depths of feeling or awareness beyond the scope of most mortals.

Any life, however long, is too short if the mind is bereft of splendor, the passions underworked, the memories sparse, and the imagination unlit by radiant musings. Longevity by itself is indistinguishable from vegetation. A man can acquire a new pancreas, kidney, liver, heart, bone marrow, and lung, but he will succumb to boredom if his mind is without a horizon. —From Norman Cousins,


Galahads in Science

... scientists are "problem-seekers." Unlike most of the rest of mankind, who regard problems as something to be avoided, the scientist goes out and looks for them. If he cannot manage things so that his life is an endless succession of problems, he counts himself a failure. ... Most men throughout history have spent their lives desperately trying to solve problems they did not seek out, and failure to solve those problems has all too often meant trouble and tragedy. It is hardly surprising that men have come to think of happiness as the absence of problems. ...—John W. Gardner: No Easy Victories, edited by Helen Rowan. New York, Harper & Row, 1968, p. 31.
Minuscule Review
Foxglove Deflowered; Pharmacology Debased


The authors report on a 19-year-old patient who died thirteen hours after admission to hospital. He displayed such a severe weakness that a Guillain-Barré syndrome was suspected. A marked hypokalemia was found, bigeminal rhythm recorded, and later, ventricular tachycardia and fibrillation occurred. Death was attributed to the combined effect of digitalis, thyroid medication, amphetamines, and diuretics. An interesting aspect of the report is evidence of the digitalis medication, from thin-layer chromatography of the patient's myocardial tissue. Attempts to isolate a virus from the patient's tissues were unsuccessful.

H.B.B.
Minuscule Review


With the state of medical records generally in disrepute (figuratively antidiluvian, literally postdiluvian) any report pertaining to explorations into computer based medical records is worthy of notice. The paper by Juergens and Kiely is obviously a preliminary one, and it is to be hoped that they are carrying out more extensive investigations, particularly as they emphasize that the video-display computer print-out method required about twice as much time to record the cardiac findings as the traditional handwriting method. Apparently both methods of recording were done after the examination, thus handicapping the video-display system which could be readily adapted to use during the examination. The authors point out delays attributable to lack of familiarity with the technic and less-than-ideal matrices, but do not refer to slowing of the decision process, the physician being unable to qualify (“fudge”) his findings.

The computer method would lend itself ideally to studies of inter-observer variation and it is surprising that “there was uniformity in the final diagnosis independently made by each of six examining physicians.” This is particularly noteworthy as the test pertained to physical findings alone and one diagnosis was dependent on history and electrocardiogram; being post-infarction mitral insufficiency. Complete agreement on the diagnosis of tricuspid stenosis and insufficiency is also of interest. In a puckish mood, one cannot resist the temptation to draw the reader’s attention to the assembled message on the (unusual) hypothetical patient with mitral stenosis (fig. 1D) who has “normal waves” in the “neck veins” with the “rhythm” being “atrial fibrillation.”

I expect the authors would agree that the important aspects of utilizing computer-based medical records relate to completeness, the standardization of terms, and rapid retrieval capabilities rather than speed of initial recording, and there would always be room for the additional picturesque phrase to identify the usual.

H.B.B.


Mathematics

Mathematics deals exclusively with the relations of concepts to each other without consideration of their relation to experience.—Albert Einstein.
An Early Account of Aortic Insufficiency
Thomas Cuming, 1822

(Male 38, death approximately 3 months after onset of angina and nocturnal dyspnea)

The state of the aortic valves seems sufficient to account for the dilatation of the ventricle... they were consequently when applied to one another incapable of closing up entirely the ventriculo-aortic aperture. During each diastole of the ventricle, therefore, a quantity of blood flowed back through this aperture from the artery which meeting the stream of blood flowing at the same time from the auricle, occasioned a violent and supernatural effort in the ventricle to empty itself of its contents... Dilatation of the right cavities of the heart is to be attributed to the obstructed circulation through the lungs which was occasioned by the regurgitation of the blood from the aorta preventing the blood of the pulmonary veins from flowing readily into the left side of the heart... there was no diminution of the aortic aperture itself and therefore a full stream of blood was thrown into the artery at each stroke of the ventricle, whence arose the full, hard and vibrating pulse.—From D. Evan Bedford: An early Account of Aortic Incompetence by Thomas Cuming (1798-1887). Medical History 11: 398, 1967.
Critique on Electrocardiographic Practices a Quarter of a Century Ago

We shall not attempt a long discussion of the present wretched state of electrocardiographic diagnosis or the misery attributable to it. The errors made in this field are due in large measure to the same human frailties that are responsible for errors in others, medical and nonmedical. . . .

. . . We think also that there are altogether too many physicians who want to, and try to, read electrocardiograms but are unwilling to go back to the fundamental principles upon which the interpretation of the electrocardiograms must be based. In our opinion, it is impossible to use diagnostic criteria intelligently unless they are fundamentally sound and the foundations on which they rest are clearly understood by the user.

There is a wide misapprehension as to the function of statistics in medicine. For certain purposes they are of very great value; for others they cannot be more than a temporary and pitiful makeshift. When a physician is confronted by a man with bundle branch block, a knowledge of what is wrong with the average man who exhibits this electrocardiographic abnormality is of no great value to the doctor, and is of no interest to the patient. What is to be done depends upon the nature of the underlying disease responsible for the conduction defect. If the physician cannot diagnose this disease on the basis of unequivocal evidence, he is not justified in making a diagnosis based on the most frequent cause of bundle branch block or a prognosis based on the average length of life after the discovery of this disorder.

Electrocardiography is one of the most exact of diagnostic methods. Its potential value is great, but it is not being used to the best advantage. Electrocardiographic abnormalities are not diseases. They have no important bearing upon the life expectancy of the patient, or the extent to which his mode of life should be altered when there is a reasonable doubt as to the nature of the factor or factors responsible for them in that particular case.—From Wilson, F. N., Rosenbaum, F. F., and Johnston, F. D.: Interpretation of the Ventricular Complex of the Electrocardiogram. In Advances in internal Medicine vol. 2, edited by William Dock and I. Snapper. New York, Inter-science Publisher, Inc., 1947, p. 61.
If one doubts the necessity for controls, reflect on the statement: "It has been conclusively demonstrated by hundreds of experiments that the beating of tom-toms will restore the sun after an eclipse."—E. Bright Wilson, Jr.: An Introduction to Scientific Research. New York, McGraw-Hill Book Co., Inc., 1952, p. 41.
Votive Offering of a Leg
(Varicose Veins)

From the Asclepieion of Athens
Minuscule Review

Serum Enzyme Activity Half-Life


Prior explanations of turnover rates of myocardial or skeletal muscle enzymes have been based upon the time course of their disappearance from the serum after tissue injury. The elegant study of Dawson et al. in the April 1969 issue of the Annals of Internal Medicine not only confirms the supposed difference in half-life of, for example, CPK* and LDH,* but quantitatively measures the turnover rates of six enzymes in a patient with acute alcoholic myopathy by reinjection of a unit of plasma withdrawn at the height of his illness when the enzyme activity was most elevated.

It now becomes clear that the half-life of enzymes with low molecular weights and, therefore, more rapid diffusion is less than that of enzymes with high molecular weights. For example, substantial amounts of MDH,* PGM,* and CPK* were found in the urine, whereas enzymes with molecular weights above 80,000, that is, SGOT* and LDH* were insignificant. Comparable differences might well have been seen in the enzyme activity of other extracellular fluids had they been measured. This probably accounts for the observed early rapid decrease of serum enzyme activity as a result of loss into the extracellular space. The later, slower fall represents enzyme deterioration by as yet unknown pathways. There is now objective evidence accounting for the changes in enzyme activity following acute damage to tissue such as occurs after myocardial infarction. The turnover rates in chronic disease such as dermatomyositis and postnecrotic cirrhosis of the liver is probably very different because of continuing and varied tissue damage occurring in these disease entities.

JOHN S. LADUE

*Abbreviations: CPK = creatine kinase; LDH = lactic dehydrogenase; MDH = malic dehydrogenase; PGM = phosphoglucomutase; SGOT = glutamic-oxalacetic transaminase.