Rehabilitation of the Coronary Thrombosis Patient

RUDOLPH T. WAGNER, M.D., F.C.C.P.
Miami Beach, Florida

The problem of rehabilitating the patient who has suffered a coronary thrombosis has many facets and complexities. The physical experience may be new, but some of the mental and emotional experiences are by no means the patient's first ones. Most often he has become familiar with this disease as it affected a parent, close relative, or friend. He has probably read an account of this disease in Reader's Digest, or another periodical or has seen a television program, and the chances are that these have been dramatic portrayals, because anything less than sensational would hardly attract notice in these communication media. A person who has witnessed or read of such an experience often considers himself a minor authority on the subject, and is likely to present his dramatic story at social gatherings. When, to this limited educational experience are added a crushing chest pain, injections, an oxygen mask, a hospital bed, bottles and tubes of fluids, venipunctures, whispered orders of doctors to nurses, and the concerned, worried looks of the nearest of kin, it is little wonder that the patient who has suffered a coronary thrombosis is both a physical and emotional wreck, faced in his own mind with physical suffering which will end in either death or invalidism. With this in mind, it becomes obvious that the rehabilitation process should really have begun years before the coronary thrombosis. The whole problem might be divided into three phases as follows:

1. Preventive Medicine.
   (a) Concerning the contributory causes of coronary thrombosis.
   (b) Education of the public.
2. The conduct of therapy of the acute phase of coronary thrombosis.
   (a) Medical care.
   (b) Emotional and physical stresses.

1. Preventive Medicine

Regardless of any physician's individual beliefs and theories, certain general statements may be made about etiologic factors in myocardial infarction. Hereditary factors may be important, but we have no control over these. It is fairly safe to say that we Americans eat too much animal fat, in many instances we eat too many calories, live a highly mechanized existence in which we exercise too little, and live by time schedules which keep us too tense. It is not unreasonable to feel the sum total of all these factors contribute to biochemical changes which directly or indirectly influence blood pressure, blood vessels, and blood clotting. It is not unreasonable to feel that we as physicians should be able to educate the public in the basic principles of good health and good care, and in this way reduce the number of patients requiring rehabilitation.

No discussion of rehabilitation of the coronary thrombosis patient can be complete without a consideration of chemical approaches to the prevention and treatment of atherosclerosis and coronary thrombosis.
The use of anticoagulants initiated active therapy in a disease which heretofore had been left to the healing powers of nature. The coincident interest in the relationship of cholesterol, neutral and saturated fats to atherosclerosis and thrombus formation gave impetus to biochemical investigations which implicated alpha and beta lipoprotein ratios, cholesterol-phospholipid ratios, low density S-F lipoproteins, and androgens as contributory factors. The scope of this presentation does not permit any detailed discussion of these factors, but I should like to take this opportunity to call attention to the theory of deficient output of heparin by the liver, and to stimulate a greater interest in the long-term use of heparin. There is by now sufficient evidence, in the literature and in my own studies over the past six years, to indicate that heparin is superior to the oral anticoagulants because of its clearing factor; its ability to convert the low density lipoproteins to high density lipoproteins; to increase alpha-lipoproteins, and reduce beta-lipoproteins; and to reduce the sticky factor of red cells. By contrast, the oral anticoagulants act merely as anticoagulants without any of the other beneficial properties attributable to heparin. Although the cost of oral anticoagulants is admittedly less, the cost of heparin is not much greater than that of the oral anticoagulants and prothrombin time determinations. The greater value of heparin far outweighs the slightly higher cost. With some of the newer preparations available, pain is minimal with the parenteral administration of heparin.

2. The Conduct of Therapy

It is not my intention to discuss the actual treatment of a patient, but rather the manner in which we go about it. The powers of concentration and memory of the conscious patient during his ailment are amazing, as are his shrewd tactics in gleaning information. A constant awareness of this fact should help us to protect the patient from obtaining information he shouldn't have, and should instill in us a sense of caution in selecting the proper words, the proper tone of voice, and a casual manner in the patient's presence. It is necessary for the physician to maintain a calm and reassuring attitude. The nurses and technicians must be equally cautious in choosing words, in giving information, or withholding information. Refusing to give information can be disastrous to the patient's emotional balance and it may be better to give partial truths than no information at all. This, too, has its limitations, because it is incumbent upon the physician to carry out any promises he makes, and to instill in the patient the confidence that the privileges he receives are in keeping with the progress he has been told he is making. I have found it to be much more satisfactory to tell a patient that his privileges will depend upon the progress of a blood test, which is a scientific determinant, than to tell him that they will depend upon my opinions.

3. Programming the Patient's Future

This final phase of rehabilitation is probably the most difficult of all because patient and doctor are now separated. The patient is no longer under the physician's direct control, and his behavior and judgment are influenced by how much or how little instruction he was given by his
physician. Up to this point, the physician's problems have been concerned with active therapeutics with specific indications for anticoagulants, digitalis, diuretics, and finally the activities within the confines of a hospital room or corridor. Now the process of education takes on a more active form. It becomes necessary to explain to the patient that he has been driving along the road of life too carelessly, and too speedily, and has been fortunate enough to survive an accident. In keeping with nature's usual manner of handling an injury, a healing process is taking place with the formation of a scar which will remain and which may be visible on an ECG like the scar of any other injury. Since this injury occurred in an organ which cannot be put at complete rest, but must continue in motion 24 hours a day, the work load on the heart must be re-evaluated in the light of its capacity or reserve.

It is important that the patient be made to recognize that the changes in his way of life are not necessarily toward a subnormal existence, but rather toward an ideal existence befitting all normal people of his age. This is the way he should have been living before his coronary thrombosis. If he had, the coronary thrombosis might not have occurred. The period of convalescence will depend upon the extensiveness of the infarction, the state of cardiac compensation and laboratory estimates of the completeness of healing. A warm, equable climate is preferable during the convalescent period, because it allows the patient freedom from heavy winter clothing, and also makes it possible for the patient to resume mild muscular activity in the form of short walks. A graduated regimen makes it possible to overcome some of the weakness and easy fatiguability arising from inactivity and poor muscular tone. Sometimes the weakness is a manifestation of a reactive depression which may require electroshock therapy. In general, moderation in all activities should be recommended rather than numerous restrictions. Each case presents an individual problem from mental, physical, and economic standpoints. Work classification units are now in existence in many cities. These consist of a cardiologist, psychiatrist, and social worker who work together in a coordinated effort to rehabilitate the cardiac patient. Walking, golfing, fishing, and swimming should be encouraged in the absence of cardiac decompensation or angina pectoris. Sexual intercourse with or without a prophylactic dose of nitroglycerin may be permitted.

Return to some form of gainful occupation is possible in most instances. Very few, probably only one out of 300 or more patients, is unable to do some kind of work. The former occupation and the physical status after recovery will in great part determine whether the patient can return to his previous kind of work or whether a new type of occupation will be necessary. One should not overlook the effects of domestic problems and the influences of various types of insurances upon successful rehabilitation.

SUMMARY

Rehabilitation of the patient who has suffered a coronary thrombosis is an all-encompassing problem embracing medical, medico-legal, social, emotional, physical, and economic problems.
CORONARY THROMBOSIS PATIENT

RESUMEN
La rehabilitación del enfermo que ha sufrido una trombosis coronaria es un problema muy amplio que incluye problemas médicos, médico-legales, emocionales, físicos y económicos.

RESUMÉ
La réadaptation du malade qui a souffert d’une thrombose coronarienne est un vaste problème embrassant les domaines médical, médico-légal, social, émotionnel, physique et économique.

ZUSAMMENFASSUNG
Die Rehabilitation des Patienten, der eine Coronar-Thrombose erlitten hat, ist ein allumfassendes Problem, das ärztliche, gesundheitsgesetzgeberische, soziale, emotionelle, physikalische und wirtschaftliche Probleme in sich schließt.

CHILDHOOD TUBERCULOSIS: CLINICAL VALUE OF THE ELECTROPHORETIC PATTERN OF THE SERUM PROTEINS

The blood serum protein fractions of 138 children with tuberculosis were analyzed by paper electrophoresis serially over a period of many months. Many manifestations of tuberculous infection were studied. The group was divided into 11 categories ranging from healed or arrested tuberculous disease to various stages of activity. The serum protein fractions were evaluated in terms of prognosis, type of tuberculous disease, effect of intercurrent infection and age of patient. It was found that the greatest changes occurred in the gamma-globulin and albumin fractions in reciprocal relation. With the exception of tuberculous meningitis, the increase in gamma-globulin usually corresponded to the severity of disease. Albumin was correspondingly decreased and was low even in tuberculous meningitis. Both fractions approached normal levels as the patients improved. The greatest deviation from normal was seen in patients with miliary tuberculosis and those with pleurisy with effusion. Here the gamma and alpha-globulins were very high and the serum albumin was low. The alpha fraction was elevated in children with more severe disease, including tuberculous meningitis; with clinical improvement, it returned to normal more rapidly than the gamma. A rise in the beta-globulin fraction suggests caseation.


IMPORTANCE OF INVESTIGATING GLUTAMINO-OXALOACETIC TRANSAMINASE IN THE DIAGNOSIS OF MYOCARDIAL INFARCTION

The author conducted investigations of glutamino-oxaloacetic transaminase by the colorimetric method in 42 myocardial infarction cases, as well as in patients suffering from stenocardia, chronic coronary insufficiency, pneumonia, disturbances of cerebral circulation and comatous conditions. There was seen a 1.8 to 10-fold rise in the activity of transaminase in comparison with the initial level during the first three to five days of affection with myocardial infarction. In chronic coronary insufficiency and pneumonia, the transaminase activity underwent no essential changes. In two of 13 patients with cardiac failure and in one of five patients with disturbance of cerebral circulation, the level of transaminase was slightly above normal.

Special attention is attracted to the particular value of transaminase determination in the diagnosis of myocardial infarction, especially when there is an atypical electrocardiogram in cases of repeated and microfocal myocardial infarctions.