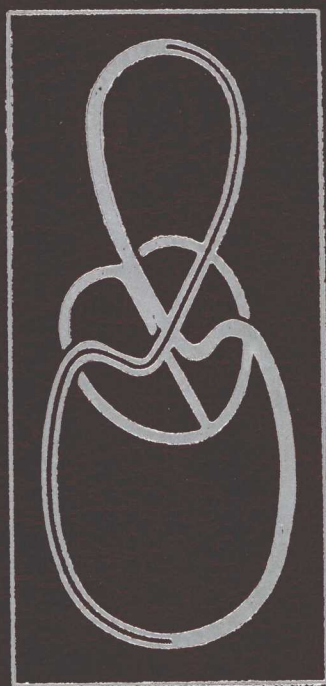


ADVANCES IN THE
MANAGEMENT OF
**Cardiovascular
Disease**

William T. Foley, M.D.



VOLUME **2**

Advances in the Management of Cardiovascular Disease

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ADVANCES IN THE MANAGEMENT
OF CARDIOVASCULAR DISEASE

VOLUME 2



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WILLIAM T. FOLEY, M.D.

Editor's Preface

THE CURRENT EXPLOSION OF KNOWLEDGE in medical science has created an enormous medical literature, most of which is competent and inspiring work. To keep up-to-date in the broad field of cardiovascular disease has become an impossible task without help. To cope with this problem we developed the "interview style" in Volume 1. It was new to medical reporting. Eleven of the great minds in this field were interviewed, and key questions were asked.

The response of the profession to the first volume has been so favorable that we felt encouraged to broaden the interview style in Volume 2. Of the twenty-one contributors, fourteen have been interviewed. As in the first volume, the entity of cardiovascular disease includes diseases of arteries, veins, and lymphatics, wherever they are found, as well as thromboembolism and hypertension.

In Volume 1, percutaneous transluminal arterioplasty (PTA) was introduced by Gruntzig and Dotter. This method has become the preferred approach to management of renal artery stenosis. It is discussed in detail in an interview with Soss and Sniderman.

Surgery continues to improve. The separate interviews with the great masters of this art, DeBakey and Cooley, are highlights in this volume. Phillips describes his success in coronary artery surgery in acute myocardial infarction. Barnard updates his previous report on cardiac transplantation—a major breakthrough of which he was a pioneer.

The advent of calcium antagonists is the most important advance in cardiovascular pharmacology. These drugs, widely used in Europe and Japan, are not yet available for general use in the U.S. They will probably be released later this year. The literature on this subject is unusually confusing and complex, perhaps due to the use of biochemical terms by internists and of clinical language by biochemists. To clarify this needlessly obscure subject, I have interviewed Kligfield. I asked him the simple, direct questions that I thought you would want answered.

The use of fibrinolytic enzymes in thromboembolism is a controversial field. Sherry, the pioneer for many decades, continues his enthusiastic endorsement. Kakkar updates his report on "miniheparin."

The etiology of arteriosclerosis continues to be elusive. Bourgain has developed an experimental model that students in this field will find intriguing. It seems to implicate some of the same factors involved in platelet adhesiveness.

Exercise and rehabilitation are discussed in an interview with Nagler from the point of view of a large medical center. Frank and Hess discuss it in the setting of a world-famous spa, Baden-Baden.

High blood pressure and its management in relation to the renin-sodium profile are discussed in thought-stimulating interviews with the masters of this field, Laragh and Page.

The "regional point of view" that was featured in Volume 1 has been expanded to include two cardiovascular specialists in India and three in Ireland (two from the South and one from the North). Padmavati in New Delhi makes the provocative statement that arteriosclerosis comes on at a much younger age in her area than it does in the U.S., even though the people in India follow a vegetarian, low-fat, low-cholesterol diet.

The importance of the clinical picture of arteriosclerosis is reflected in the considerable space devoted to its discussion by deWolfe, who prepared this section by special invitation, and by its further amplification in an interview.

Once again this work has brought me intellectual stimulation. I have been aided by Dr. Paul D. Kligfield, who has also given an interview. The library staff of Cornell Medical School, especially Doris Lowe, Ellen Poisson and the director, Eric Meyerhoff, have contributed their skill, for which I thank them. Gabriela Radulescu, our managing editor, has been a keen helper, as have been all the other members of the Year Book Medical Publishers staff who made the publication of this volume possible.

As this volume goes to press, I am already working on Volume 3. I invite the readers to bring to my attention any work in progress that they think should be included.

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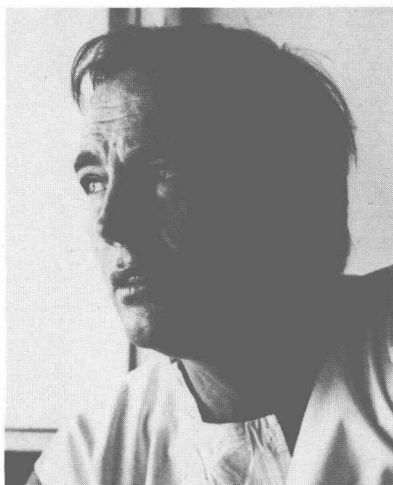
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CHRISTIAAN N. BARNARD, M.D.

DR. CHRISTIAAN N. BARNARD is Head of the Department of Cardiothoracic Surgery, University of Cape Town Medical School. He obtained his M.D. degree from the same school in 1953 and his Master in Surgery degree in 1958 from the University of Minnesota, where he also completed his Ph.D. studies in 1958. In 1972 he became Professor at the Department of Surgery, University of Cape Town. Among his many momentous contributions to cardiovascular surgery, the most notable is the first human-to-human heart transplant operation, which he performed at Groote Schuur Hospital, Cape Town, in 1967. Seven years later, Dr. Barnard also performed the world's first double heart transplant operation at the same hospital.

Cardiac Transplants—An Update*

W.T.F.: It is reported that you have given up the use of orthotopic donor heart replacement for the heterotopic transplant. Is this true? If so, what are the significant reasons for this?

C.N.B.: This is true. A valid criticism of orthotopic cardiac transplantation is the removal of a normal or slightly diseased right ventricle, or, in some instances, a hypertrophied right ventricle that over a period of time has become adapted to cope with pulmonary artery pressures approaching systemic level. Even the excision of the recipient's left ventricle can be criticized on the basis that, although diseased to the extent that cardiac output is significantly reduced, the ventricle can still maintain a systemic circulation that is compatible with a restricted life.

*EDITOR'S NOTE: Dr. Barnard has reviewed his interview in Volume I and updated it.

Since November, 1974, therefore, we have preferred heterotopic cardiac transplantation. A number of reasons has led us to prefer this technique. Firstly, the patient's own heart can assist the circulation if there is any donor heart malfunction in the immediate post-operative period or during rejection episodes. Secondly, the recipient's own right ventricle can support the pulmonary circulation even in the presence of severe pulmonary hypertension and a high pulmonary vascular resistance, which would have led to donor right ventricular failure if an orthotopic transplant had been performed. Thirdly, this technique may be used as a temporary method of cardiac support when the underlying cardiac pathology may be reversible, such as a myocarditis. Finally, if severe donor heart rejection occurs, leading to cessation of function of the donor heart, the recipient's own heart is still present and can maintain a circulation until the patient can have another transplant.

Disadvantages of the heterotopic technique include greater difficulty in recognizing early rejection, as the signs of right heart failure do not occur until extremely late; the risk of systemic emboli from the recipient's own heart; and, as a result of this, the need to maintain the patient on long-term anticoagulation. We have seen no other complications resulting from the patient's own heart being left in situ. The presence of the donor heart lying mainly in the right pleural space appears to have no deleterious effects.

The results of heterotopic heart transplantation have been comparable to those of orthotopic transplantation, giving a one-year survival rate of 61% and a three-year survival rate of just under 40%. Three of six patients who had heart transplants more than four years ago, however, remain alive, one patient over six years after transplantation.

W.T.F.: You mention the possibility of using heterotopic heart transplantation as a temporary method of cardiac support. Do you have patients whom you have been able

to tide over during periods of acute congestive failure (from cardiomyopathy) and in whom you have been able to remove the supplementary heart?

C.N.B.: In one of our patients, three months after heterotopic transplantation, there was both clinical and hemodynamic evidence of significant improvement in the function of the patient's own heart. At this stage, the patient was experiencing a severe episode of acute rejection. The rejection was allowed to proceed until the transplanted heart fibrillated, at which point it was removed. The patient made an uneventful recovery from this operation, and now, over three years later, he is leading a normal life and working full time.

W.T.F.: Are there any indications now for the orthotopic transplant?

C.N.B.: The presence of a prosthetic valve in the recipient's heart is a contraindication to heterotopic heart transplantation, as it may act as a focus for thrombus formation or infection. When there is severe uncorrected valvular disease in the recipient heart, orthotopic transplantation is again indicated.

W.T.F.: What are your present criteria for selecting a patient for transplant?

C.N.B.: All patients accepted for operation are suffering from severe, diffuse, myocardial disease, usually of ischemic, rheumatic, or unknown origin (as in cardiomyopathy), and have not responded to intense medical treatment or to a more conventional form of surgical intervention.

Apart from the contraindications common to transplantation of any organ, such as advanced diabetes and active infection, there are certain contraindications peculiar to patients suffering from advanced myocardial disease. A significantly elevated pulmonary vascular resistance (of more than 8 units or