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CARDIOLOGY BOARD REVIEW MANUAL

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Cardiac Transplantation: Case Studies

Series Editor:

W. Robert Taylor, MD, PhD

Associate Professor of Medicine

Director, Cardiovascular Disease Fellowship Training Program

Division of Cardiology

Emory University School of Medicine

Atlanta, GA

Contributing Author:

Wendy M. Book, MD

Assistant Professor of Medicine

Division of Cardiology

Emory University School of Medicine

Center for Heart Failure Therapy

Emory University Hospital

Atlanta, GA

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Contributing Author: Wendy M. Book, MD

Assistant Professor of Medicine

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I. INTRODUCTION

Cardiac transplantation dates back to the turn of the century, when Carrel and Guthrie transplanted the heart of a smaller dog into the neck of a larger dog in 1905.¹ However, it was not until the 1960s, when cardiac surgical techniques improved, that the first human cardiac transplant was undertaken. In 1964, Dr. James Hardy transplanted the heart of a chimpanzee into a 68-year-old man.¹ The heart was successfully implanted; however, the chimpanzee's heart was not large enough to maintain circulation for any length of time.

The first human-to-human cardiac transplant was performed in 1967, by Christiaan Barnard in South Africa.¹ The patient survived for 18 days but subsequently died of septicemia. This first human-to-human cardiac transplant provoked great debate both within the medical and public communities, inspiring a reevaluation of the concepts of life and death.

In different countries, more than 100 heart transplants were performed during the next 12 months, with very few long-term successes. Most patients succumbed to rejection or overwhelming infection related to immunosuppression. Based on the early experience, the procedure had an estimated 10% survival at 2 years; thus, many programs stopped performing cardiac transplantation. However, during the next several decades, improved and successful immunosuppressive protocols were developed that were associated with improved sur-

vival for patients who received cardiac transplants. With the development of cyclosporine in the early 1980s, cardiac transplantation became an acceptable therapy for patients with end-stage cardiac diseases.²

For the patient with severe heart failure or cardiogenic shock, a successful heart transplant may be the only potentially lifesaving and life-prolonging treatment available.³ Improved operative, immunosuppressive, and management techniques have made cardiac transplantation a successful therapy for patients with end-stage heart diseases. This review focuses on the selection, management, expected outcome, and complications of cardiac transplantation. This review does not permit a detailed discussion of the specifics of management of immunosuppression, but references are provided on this topic.

II. CASE PATIENT I

PRESENTATION

Patient 1 is a 54-year-old man whom you are asked to see in consultation for worsening heart failure symptoms. He was first diagnosed with congestive heart failure 5 years ago and was placed on an angiotensin-converting enzyme (ACE) inhibitor, digoxin, and diuretic agents. The β -blocker carvedilol was added approximately 2 years ago. During the past several months, he has noted increasing dyspnea and exertional fatigue. He