

Contents

Section I Heart Failure and Thyroid: General Aspects

- 1 **Heart Failure: From Epidemiology to Pathophysiology** 3
Antonio L'Abbate
- 2 **Neuroendocrine Control of the Cardiovascular System in Heart Failure** 13
Claudio Ceconi and Roberto Ferrari
- 3 **Cardiac Morphology and Function in Mild Hypothyroidism** 21
Bernadette Biondi
- 4 **Cardiovascular Hemodynamics and Work Capacity in Thyroid Dysfunction** 31
George J. Kahaly

Section II Basic Aspects of Thyroid Hormone and Cardiovascular System Interrelationships in Normal and in Failing Heart

- 5 **Mechanism of Action of Thyroid Hormone on the Cardiac Vascular System** 45
Wolfgang H. Dillmann
- 6 **Cardiac Functional Effects of 3-Iodothyronamine, a New Endogenous Thyroid Hormone Derivative** 55
Riccardo Zucchi, Sandra Ghelardoni and Grazia Chiellini
- 7 **Cardiac Thyroid-Hormone Deiodinative Pathways in Ventricular Hypertrophy and Heart Failure** 67
Warner S. Simonides

8	Thyroid Hormone Receptor Signaling in Normal and Failing Heart	79
	Koichiro Kinugawa, Mark Y. Jeong, Michael R. Bristow and Carlin S. Long	
9	Pharmacological Effects of Amiodarone and Dronedarone on Cardiac Thyroid Hormone Receptors	89
	Wilmar M. Wiersinga	
10	Changes in Thyroid Hormone Metabolism and Gene Expression in the Failing Heart: Therapeutic Implications	97
	Sara Danzi and Irwin Klein	
11	Thyroid-Hormone-Regulated Cardiac Metabolism in Normal and Failing Heart	109
	Michael A. Portman	
12	Cardiac Myocyte and Vascular Remodeling in Altered Thyroid Conditions	119
	Yuefeng Chen and A. Martin Gerdes	
13	Thyroid Hormone and Ischemic Myocardium	131
	Constantinos Pantos, Iordanis Mourouzis and Dennis V. Cokkinos	

Section III Clinical Aspects

14	Thyroid and Cardiovascular Risk	151
	Avantika C. Waring and Anne R. Cappola	
15	Relationship Between Subclinical Thyroid Dysfunction and Heart Failure and Mortality	167
	Reto Auer and Nicolas Rodondi	
16	Low Triiodothyronine Syndrome as a Powerful Predictor of Death in Heart Failure	179
	Giorgio Iervasi, Laura Sabatino and Giuseppina Nicolini	
17	Thyroid, Renal Function, and Cardiac Outcome	191
	Carmine Zoccali and Francesca Mallamaci	
18	Low Triiodothyronine Syndrome and Depression in Patients with Chronic Heart Failure	203
	Robertas Bunevičius	

Section IV Treatment: Present and Future Options

19	Treatment Options for Primary Thyroid Disease in Patients with Heart Failure	215
	Anthony Toft and Kate Gaskell	
20	Synthetic Thyroid Hormone and Thyroid Hormone Analogues for Treatment of Heart Failure	225
	Alessandro Pingitore, Vincenzo Lionetti and Francesca Fiorini	
21	Thyroid Hormone Supplementation for Infants and Children Undergoing Cardiopulmonary Bypass for Cardiac Surgery	243
	Aaron K. Olson and Michael A. Portman	
22	New Approaches for Treating Heart Disease by Modulating Thyroid Hormone Signaling Using Gene Therapy Approaches	249
	Mark Davis, Maria Giovanna Trivieri and Peter H. Backx	
	Subject Index	261