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Nota di contenuto	Front Cover; Inflammation in Heart Failure; Copyright; Contents; Contributors; Preface; Section 1: Pathophysiology of the Inflammatory Response in Heart Failure; Chapter 1: Inflammation in Heart Failure with Preserved Ejection Fraction; 1.1. Introduction; 1.2. Consequences of Limited Understanding of Pathophysiology in HFP EF; 1.3. Underlying Causes of HFP EF; 1.4. Adaptive Mechanisms in HFP EF; 1.5. Inflammation in HFP EF; 1.5.1. Inflammation in HFP EF Animal Studies; 1.5.1.1. Interactions with Other Systems; 1.5.2. Inflammation in HFP EF Human Studies 1.6. Oxidative Stress, Endothelial Dysfunction and Microvascular Disease1.6.1. Potential Implications for Treatment of HFP EF; 1.7. Conclusions; References; Chapter 2: Role of the Innate Immune System in Ischemic Heart Failure; 2.1. Introduction; 2.2. Initiation of the Immune Response; 2.2.1. Receptors; 2.2.2. Complement; 2.2.3. Oxidative Stress; 2.2.3.1. ROS Generation Post- MI ; 2.2.3.2. Role of Oxidative Stress for Cardiac Necrosis and Inflammation; 2.2.4. Mechanical Stimuli; 2.3. Effectors of Innate Immunity; 2.3.1. Cytokines; 2.3.1.1. Cytokine Effects on Cardiomyocyte Survival 2.3.1.2. Cytokines Influence Granulation Tissue Formation and Vascular

Remodeling Post-injury 2.3.1.3. Cytokines Modulate Scar Tissue Formation After Injury; 2.3.1.4. Cytokines and ROS ; 2.3.1.5. Cytokines in Inflammation Resolution; 2.3.2. Cellular Effectors; 2.3.2.1. Leukocyte Recruitment; 2.3.2.2. Neutrophils; 2.3.2.2.1. Neutrophil-Mediated Cardiac Injury; 2.3.2.2.1.1. Reactive Oxygen Species; 2.3.2.2.1.2. Granule Toxicity; 2.3.2.3. Mononuclear Cells; 2.3.2.3.1. Monocytes; 2.3.2.3.2. Macrophages; 2.4. Reverse Remodeling 2.5. Clinical Implications: Is There a Causal Link Between Dysequilibrated Inflammation and Remodeling? References; Chapter 3: The Role of Inflammation in Myocardial Infarction; 3.1. Introduction; 3.2. Role of the Inflammatory Response Before MI; 3.2.1. Development of the Atherosclerotic Plaque; 3.2.2. Immune Cells Involved; 3.2.3. Maturation and Rupture of the Atherosclerotic Plaque; 3.3. The Role of the Inflammatory Response in MI; 3.3.1. MI and Wound Healing; 3.3.2. Humoral Immune Response Post-MI; 3.3.2.1. Cytokines; 3.3.2.2. Chemokines; 3.3.3. Cellular Immune Response Post-MI 3.3.3.1. Leukocytes 3.3.3.2. Monocytes; 3.3.3.3. Macrophages; 3.3.3.4. Nonimmune Cells; 3.3.4. Other Factors Modulating the Immune Response Post-MI; 3.4. Inflammation as a Pharmacological and Biocellular Target; 3.4.1. Therapy Aimed at Inflammation Before MI; 3.4.1.1. Current Pharmacotherapy Targeting Inflammation Before MI; 3.4.1.1.1. Statins; 3.4.1.1.2. Hypoglycemic Agents; 3.4.1.1.3. Renin Angiotensin System Targeting; 3.4.1.1.4. P2Y 12 Receptor Inhibitors; 3.4.1.2. Novel Strategies Targeting Inflammation Before MI; 3.4.2. Therapy Aimed at Inflammation After MI 3.4.2.1. Current Pharmacotherapy Targeting Inflammation After MI

Sommario/riassunto

Inflammation in Heart Failure, edited by W. Matthijs Blankestijn and Raffaele Altara, is the first book in a decade to provide an in-depth assessment on the causes, symptoms, progression and treatments of cardiac inflammation and related conditions. This reference uses two decades of research to introduce new methods for identifying inflammatory benchmarks from early onset to chronic heart failure and specifically emphasizes the importance of classifying at-risk subgroups within large populations while determining the patterns of cytokines in such classifications. Further, the book details c

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Nota di contenuto	Beam Structures; Contents; About the Authors; Preface; Introduction; References; 1 Fundamental equations of continuous deformable bodies; 1.1 Displacement, strain, and stresses; 1.2 Equilibrium equations in terms of stress components and boundary conditions; 1.3 Strain displacement relations; 1.4 Constitutive relations: Hooke's law; 1.5 Displacement approach via principle of virtual displacements; References; 2 The Euler-Bernoulli and Timoshenko theories; 2.1 The Euler-Bernoulli model; 2.1.1 Displacement field; 2.1.2 Strains; 2.1.3 Stresses and stress resultants; 2.1.4 Elastica 2.2 The Timoshenko model 2.2.1 Displacement field; 2.2.2 Strains; 2.2.3 Stresses and stress resultants; 2.2.4 Elastica; 2.3 Bending of a cantilever beam: EBBT and TBT solutions; 2.3.1 EBBT solution; 2.3.2 TBT solution; References; 3 A refined beam theory with in-plane stretching: the complete linear expansion case; 3.1 The CLEC displacement field; 3.2 The importance of linear stretching terms; 3.3 A finite element based on CLEC; Further reading; 4 EBBT, TBT, and CLEC in unified form; 4.1 Unified formulation of CLEC; 4.2 EBBT and TBT as particular cases of CLEC

4.3 Poisson locking and its correction 4.3.1 Kinematic considerations of strains; 4.3.2 Physical considerations of strains; 4.3.3 First remedy: use of higher-order kinematics; 4.3.4 Second remedy: modification of elastic coefficients; References; 5 Carrera Unified Formulation and refined beam theories; 5.1 Unified formulation; 5.2 Governing equations; 5.2.1 Strong form of the governing equations; 5.2.2 Weak form of the governing equations; References; Further reading; 6 The parabolic, cubic, quartic, and N-order beam theories; 6.1 The second-order beam model, $N = 2$
6.2 The third-order, $N = 3$, and the fourth-order, $N = 4$, beam models
6.3 N-order beam models; Further reading; 7 CUF beam FE models: programming and implementation issue guidelines; 7.1 Preprocessing and input descriptions; 7.1.1 General FE inputs; 7.1.2 Specific CUF inputs; 7.2 FEM code; 7.2.1 Stiffness and mass matrix; 7.2.2 Stiffness and mass matrix numerical examples; 7.2.3 Constraints and reduced models; 7.2.4 Load vector; 7.3 Postprocessing; 7.3.1 Stresses and strains; References; 8 Shell capabilities of refined beam theories; 8.1 C-shaped cross-section and bending-torsional loading
8.2 Thin-walled hollow cylinder 8.2.1 Static analysis: detection of local effects due to a point load; 8.2.2 Free-vibration analysis: detection of shell-like natural modes; 8.3 Static and free-vibration analyses of an airfoil-shaped beam; 8.4 Free vibrations of a bridge-like beam; References; 9 Linearized elastic stability; 9.1 Critical buckling load classic solution; 9.2 Higher-order CUF models; 9.2.1 Governing equations, fundamental nucleus; 9.2.2 Closed form analytical solution; 9.3 Examples; References; 10 Beams made of functionally graded materials; 10.1 Functionally graded materials
10.2 Material gradation laws

Sommario/riassunto

"Present a new, unified approach to both classical and advanced beam theory that is becoming established and recognised globally as the most important contribution to the field in the last quarter of a century. Beam Structures: Classical and Advanced Theories proposes a new original unified approach to beam theory that includes practically all classical and advanced models for beams and which has become established and recognised globally as the most important contribution to the field in the last quarter of a century. This approach overcomes the problem of classical formulae that require different formulas for tension, bending, shear and torsion; it can be applied to any beam geometries and loading conditions, reaching a high level of accuracy, and can tackle problems that in most cases are solved by employing plate/shell and 3D formulations. Beam Structures: Classical and Advanced Theories presents both the classical and advanced beam theories in a form that is very suitable for computer implementation. It is accompanied by dedicated software MUL2 that is used to obtain the numerical solutions in the book, allowing the reader to reproduce the examples given in the book as well as to solve other problems of their own. The authors also include a number of static and dynamic problems and solutions that serve to further illustrate the advanced theories presented"--
