ESC Congress 2023 –
Topics for Abstract Submission

ESC European Society of Cardiology

At the time of abstract submission, the submitter must select one single topic to index the abstract.
It is important to carefully select the best matching topic as this choice will determine under which area the abstract will be reviewed and graded.
Therefore, submitters should consider all potential options available before selecting the submission topic.
The topic list is organised by main topics and several layers of subtopics to maximize precision. Appropriately choosing the main topic and first subheadings is more important than the lowest layers of subtopics. Topics shown in italic serve as an indicator and may be useful to select the appropriate submission topic when your research is very specific.
If the abstract is accepted, presenters will be required to select 3 additional topics/keywords at the time of the upload of the presentation. These are important to optimise indexing of the abstract in the programme and in ESC 365, the cardiology knowledge hub. This serves to optimise search results and enhance visibility of the research.

B - IMAGING
C - ARRHYTHMIAS AND DEVICE THERAPY
D - HEART FAILURE
E - CORONARY ARTERY DISEASE, ACUTE CORONARY SYNDROMES, ACUTE CARDIAC CARE
F - VALVULAR, MYOCARDIAL, PERICARDIAL, PULMONARY, CONGENITAL HEART DISEASE
G - DISEASES OF THE AORTA, PERIPHERAL VASCULAR DISEASE, STROKE
H - INTERVENTIONAL CARDIOLOGY AND CARDIOVASCULAR SURGERY
I - HYPERTENSION
J - PREVENTIVE CARDIOLOGY
K - CARDIOVASCULAR DISEASE IN SPECIAL POPULATIONS
L - CARDIOVASCULAR PHARMACOLOGY
M - CARDIOVASCULAR NURSING AND ALLIED PROFESSIONS
N - e-CARDIOLOGY/DIGITAL HEALTH, PUBLIC HEALTH, HEALTH ECONOMICS, RESEARCH METHODOLOGY
O - BASIC SCIENCE

B IMAGING

3 Echocardiography

- 3.1 Technology
- 3.2 Morphology, Dimensions, Volumes and Mass
- 3.3 Systolic and Diastolic Function
- 3.4 Valvular Heart Disease
- 3.5 Myocardial Disease
- 3.6 Pericardial Disease
- 3.7 Congenital Heart Disease
- 3.8 Masses and Sources of Emboli
- 3.9 Doppler Echocardiography
- 3.10 Transoesophageal Echocardiography (TOE)
- 3.11 Contrast Echocardiography
- 3.12 Tissue Doppler, Speckle Tracking and Strain Imaging
- 3.13 Stress Echocardiography
- 3.14 3D Echocardiography
- 3.15 Intraoperative and Interventional Echocardiography

4 Cardiac Computed Tomography (CT)

- 4.1 Technology
  - 4.1.1 X-ray Generation and Attenuation Physics
  - 4.1.2 Image Reconstruction
  - 4.1.3 Radiation Exposure
- 4.2 Morphology, Dimensions, Volumes and Mass
- 4.3 Systolic and Diastolic Function
- 4.4 Valvular Heart Disease
- 4.5 Myocardial Disease
- 4.6 Pericardial Disease
- 4.7 Congenital Heart Disease
- 4.8 Coronary Calcium
- 4.9 Coronary Computed Tomography Angiography (Coronary CTA, CCTA)
  - 4.9.1 Computed Tomography Derived Fractional Flow Reserve (FFR-CT)
- 4.10 Plaque Imaging
- 4.11 Computed Tomography Myocardial Perfusion
- 4.12 Computed Tomography Imaging of Structural Heart Disease
- 4.13 Cardiac Devices
- 4.14 Extracardiac Findings

5 Cardiac Magnetic Resonance (CMR)

- 5.1 Technology and Physics
- 5.2 Morphology, Dimensions, Volumes and Mass
- 5.3 Systolic and Diastolic Function
- 5.4 Valvular Heart Disease
- 5.5 Myocardial Disease
- 5.6 Pericardial Disease
- 5.7 Congenital Heart Disease
- 5.8 Deformation Imaging
- 5.9 Flow Imaging
- 5.10 Stress Cardiac Magnetic Resonance (CMR)
- 5.11 Stress Myocardial Perfusion Magnetic Resonance
- 5.12 Dobutamine Stress Magnetic Resonance
- 5.13 Late Gadolinium Enhancement
- 5.14 T1 and T2 Mapping
- 5.15 Extracellular Volume
- 5.16 Coronary Imaging
- 5.17 Plaque Imaging
- 5.18 Angiography
- 5.19 Cardiac Masses
- 5.20 Safety

- **6 Nuclear Imaging**
  - 6.1 Technology and Tracers
    - 6.1.1 Radiation Exposure
  - 6.2 Single Photon Emission Computed Tomography (SPECT)
    - 6.2.1 Morphology, Dimensions, Volumes and Mass
    - 6.2.2 Systolic and Diastolic Function
    - 6.2.3 Ischaemia and Viability
    - 6.2.4 Inflammation, Infection, and Infiltrative Cardiovascular Disorders
    - 6.2.5 Innervation and Metabolism
  - 6.3 Positron Emission Tomography (PET)
    - 6.3.1 Morphology, Dimensions, Volumes and Mass
    - 6.3.2 Systolic and Diastolic Function
    - 6.3.3 Ischaemia and Viability
    - 6.3.4 Inflammation, Infection, and Infiltrative Cardiovascular Disorders
    - 6.3.5 Innervation and Metabolism
  - 6.4 Dimensions, Volumes and Mass
  - 6.5 Systolic and Diastolic Function
    - 6.5.1 Radionuclide Angiography
  - 6.6 Molecular Imaging
- **7 Hybrid and Fusion Imaging**
  - 7.1 Hybrid and Fusion Imaging
- **8 Cross-Modality and Multi-Modality Imaging Topics**
  - 8.1 Imaging of Cardiac Morphology, Dimensions, Volume, and Mass
  - 8.2 Imaging of Systolic and Diastolic Function
  - 8.3 Imaging of Valvular Heart Disease
  - 8.4 Imaging of Arrhythmias
  - 8.5 Imaging of Heart Failure
  - 8.6 Imaging of Coronary Artery Disease
  - 8.7 Imaging of Acute Coronary Syndromes
  - 8.8 Imaging of Myocardial Disease
  - 8.9 Imaging of Pericardial Disease
  - 8.10 Imaging of Congenital Heart Disease
  - 8.11 Imaging of Aortic Disease
  - 8.12 Imaging of Peripheral Vascular Disease
  - 8.13 Imaging in Prevention and Rehabilitation

C ARRHYTHMIAS AND DEVICE THERAPY

- **9 Arrhythmias, General**
  - 9.1 Pathophysiology and Mechanisms
    - 9.1.1 Cellular Mechanisms of Arrhythmias
    - 9.1.2 Genetic Aspects of Arrhythmias
    - 9.1.3 Ion Channel Disorders
  - 9.2 Epidemiology, Prognosis, Outcome
  - 9.3 Diagnostic Methods
    - 9.3.1 Electrocardiography (ECG)
    - 9.3.2 Signal-Averaged Electrocardiography
    - 9.3.3 Holter Monitoring
    - 9.3.4 Implantable Loop Recorder
    - 9.3.5 Photoplethysmography
    - 9.3.6 Wearables and m-Health
    - 9.3.7 Noninvasive Diagnostic Methods
    - 9.3.8 Invasive Diagnostic Methods
  - 9.4 Treatment
    - 9.4.1 Lifestyle Modification
    - 9.4.2 Antiarrhythmic Drug Treatment
    - 9.4.3 Cardioversion and Defibrillation
    - 9.4.4 Catheter Ablation of Arrhythmias
      - *9.4.4.1 Energy Sources*
      - *9.4.4.2 Mapping Technology*
      - *9.4.4.3 Radiation Exposure*
    - 9.4.5 Device Treatment

9.5 Prevention
9.6 Clinical

10 Atrial Fibrillation (AF)

10.1 Pathophysiology and Mechanisms
- 10.1.1 Cellular Electrophysiology
- 10.1.2 Cell-Cell Interaction
- 10.1.3 Disease Modelling
- 10.1.4 Genetic Causes
  - *10.1.4.1 Monogenic Diseases Causing Atrial Fibrillation*
  - *10.1.4.2 Common Gene Variants Causing Atrial Fibrillation*
- 10.1.5 Atrial Stressors
  - *10.1.5.1 Ischaemia and Metabolic Imbalance*
  - *10.1.5.2 Heart Failure and Left Ventricular Dysfunction*
  - *10.1.5.3 Valvular Heart Disease*
  - *10.1.5.4 Sleep Disordered Breathing*
  - *10.1.5.5 Obesity and Diabetes*
  - *10.1.5.6 Autonomic Dysfunction*
  - *10.1.5.7 Sports and Atrial Fibrillation*
- 10.1.6 Defining Types of Atrial Fibrillation
- 10.1.7 Mechanisms for Stroke
- 10.1.8 Mechanisms for Heart Failure and Cardiac Complications

10.2 Epidemiology, Prognosis, Outcome
- 10.2.1 Prevalence and Incidence of Atrial Fibrillation
- 10.2.2 Stroke in Atrial Fibrillation
- 10.2.3 Heart Failure in Atrial Fibrillation
- 10.2.4 Sudden Death in Patients with Atrial Fibrillation
- 10.2.5 Cognitive Function and Autonomy in Patients with Atrial Fibrillation

10.3 Diagnostic Methods

10.4 Treatment
- 10.4.1 Acute Management
  - *10.4.1.1 Acute Rate Control and Cardioversion*
  - *10.4.1.2 Patient Flow*
- 10.4.2 Rate Control
  - *10.4.2.1 Rate Control Targets*
  - *10.4.2.2 Medical Therapy for Rate Control*
  - *10.4.2.3 Atrioventricular (AV) Nodal Ablation and Pacemaker Therapy*
  - *10.4.2.4 Outcome of Rate Control Therapy*
- 10.4.3 Rhythm Control, Cardioversion
  - *10.4.3.1 Pharmacological Cardioversion of Atrial Fibrillation*
    - *10.4.3.1.1 Treatment Pathway and Technique*
    - *10.4.3.1.2 Outcomes and Complications*
  - *10.4.3.2 Electrical Cardioversion of Atrial Fibrillation*
    - *10.4.3.2.1 Treatment Pathway and Technique*
    - *10.4.3.2.2 Outcomes and Complications*
  - *10.4.3.3 Stroke Prevention in Cardioversion*
    - *10.4.3.3.1 Oral Anticoagulation*
    - *10.4.3.3.2 Transoesophageal Echocardiography (TOE) Guidance*
- 10.4.4 Rhythm Control, Antiarrhythmic Drugs
  - *10.4.4.1 Indications and Patient Selection*
  - *10.4.4.2 Episodic Drug Therapy*
  - *10.4.4.3 Long-Term Drug Therapy*
  - *10.4.4.4 Outcomes and Complications*
- 10.4.5 Rhythm Control, Catheter Ablation
  - *10.4.5.1 Indications*
  - *10.4.5.2 Techniques and Technology*
  - *10.4.5.3 Outcomes and Complications*
- 10.4.6 Rhythm Control, Atrial Fibrillation Surgery
  - *10.4.6.1 Indications*
  - *10.4.6.2 Techniques and Technology*
  - *10.4.6.3 Outcomes and Complications*
- 10.4.7 Rhythm Control, Hybrid Therapy
  - *10.4.7.1 Atrial Fibrillation Heart Team*
  - *10.4.7.2 Combination of Drug Therapy and Ablation*
  - *10.4.7.3 Combination of Pacing and Drug Therapy/Ablation*

10.5 Stroke Prevention
10.5.1 Oral Anticoagulation
10.5.1.1 Indications
10.5.1.2 Long-Term Treatment, Adherence, Attrition
10.5.1.3 Oral Anticoagulant Drugs
10.5.1.4 Bleeding Complications
10.5.1.5 Reversal Agents
10.5.2 Left Atrial Appendage Closure
10.5.2.1 Indications
10.5.2.2 Technology and Implantation Technique
10.5.2.3 Outcomes and Complications
10.6 Stroke Treatment
10.6.1 Imaging
10.6.2 Acute Therapy
10.6.3 Novel Therapies
10.6.4 Heart Teams for Stroke Prevention
10.7 Prevention
10.8 Clinical

11 Supraventricular Tachycardia (Non-Atrial Fibrillation)
11.1 Pathophysiology and Mechanisms
11.1.1 Cellular Mechanisms
11.1.2 Genetic Aspects
11.2 Epidemiology, Prognosis, Outcome
11.3 Diagnostic Methods
11.4 Treatment
11.5 Prevention
11.6 Clinical
11.6.1 Sinus Tachycardia
11.6.2 Focal Atrial Tachycardia
11.6.3 Macro-Reentrant Atrial Tachycardia and Flutter
11.6.4 Atrioventricular (AV) Nodal and Junctional Tachycardias
11.6.5 Accessory Pathway-Mediated Tachycardias

12 Syncope and Bradycardia
12.1 Pathophysiology and Mechanisms
12.1.1 Sinus Node Dysfunction
12.1.2 Atrioventricular (AV) Block
12.1.3 Tachycardia
12.1.4 Nonarrhythmogenic Mechanisms of Syncope
12.2 Epidemiology, Prognosis, Outcome
12.2.1 Epidemiology
12.2.2 Prognosis and Risk Stratification
12.3 Diagnostic Methods
12.3.1 Ambulatory Electrocardiogram (ECG) Monitoring and Loop Recorders
12.3.2 Provocation Tests, Assessment of Autonomous Nervous System
12.3.3 Detection of Underlying Heart Disease
12.3.4 Invasive Electrophysiological Evaluation
12.4 Treatment
12.4.1 Drug Treatment
12.4.2 Pacemaker Therapy
12.4.3 Non-Device/Nonpharmacological Therapies (Tilt Training, Radiofrequency [RF] Ablation, etc.)
12.5 Prevention
12.6 Clinical

13 Ventricular Arrhythmias and Sudden Cardiac Death (SCD)
13.1 Pathophysiology and Mechanisms
13.1.1 Coronary Artery Disease
13.1.2 Idiopathic Dilated Cardiomyopathy
13.1.3 Arrhythmogenic Right Ventricular Cardiomyopathy
13.1.4 Hypertrophic Cardiomyopathy
13.1.5 Other Nonischaemic Cardiomyopathies (Valvular, Neuromuscular, Infectious, Infiltrative, etc.)
13.1.6 Ion Channel Disorders
13.1.6.1 Brugada Syndrome
13.1.6.2 Long and short QT syndromes

13.1.6.3 Catecholaminergic Polymorphic Ventricular Tachycardia (CPVT)
13.1.6.4 Other Genetic Variants
13.1.7 Idiopathic Ventricular Arrhythmias
13.1.7.1 Outflow Tract Arrhythmias
13.1.7.2 Fascicular Tachycardias
13.1.7.3 Papillary Muscle
13.1.7.4 Mitral/Tricuspid Annulus
13.1.7.5 Bundle Branch Reentry Tachycardia
13.2 Epidemiology, Prognosis, Outcome
13.2.1 Epidemiology
13.2.2 Risk Factors and Risk Assessment
13.3 Diagnostic Methods
13.4 Treatment
13.4.1 Management of Out-of-Hospital Cardiac Arrest
13.4.1.1 Cardiopulmonary Resuscitation
13.4.1.2 First Responder Help Systems
13.4.1.3 Automated External Defibrillators (AED)
13.4.1.4 Acute in-Hospital Management
13.4.1.5 Enhanced Cardiopulmonary Resuscitation (eCPR)
13.4.2 Drug Treatment of Ventricular Arrhythmias
13.4.3 Ablation of Ventricular Arrhythmias
13.4.3.1 Catheter Ablation
13.4.3.2 Non-Catheter based Ablation
13.4.4 Device Treatment
13.4.4.1 Wearable Defibrillator (WCD)
13.4.4.2 Implantable Cardioverter-Defibrillator (ICD)
13.4.5 Radiotherapy
13.5 Prevention
13.6 Clinical

14 Device Therapy
14.1 Antibradycardia Pacing
14.2 Implantable Cardioverter-Defibrillator (ICD)
14.3 Cardiac Resynchronisation Therapy (CRT)
14.4 Home and Remote Patient Monitoring
14.5 Device Complications and Lead Extraction

D HEART FAILURE

15 Chronic Heart Failure
15.1 Pathophysiology and Mechanisms
15.1.1 Pathophysiology
15.1.2 Experimental Heart Failure
15.1.3 Cardiotoxicity of Drugs and Other Therapies
15.1.4 Haemodynamics of Heart Failure
15.1.5 Systolic Ventricular Dysfunction
15.1.6 Diastolic Ventricular Dysfunction
15.1.7 Ventricular Remodelling
15.1.8 Heart Failure with Reduced Ejection Fraction (HFrEF)
15.1.9 Heart Failure with Mid-Range Ejection Fraction (HFmrEF)
15.1.10 Heart Failure with Preserved Ejection Fraction (HFpEF)
15.2 Epidemiology, Prognosis, Outcome
15.3 Diagnostic Methods
15.3.1 Biomarkers
15.3.2 Imaging
15.3.2.1 Echocardiography
15.3.2.2 Cardiac Magnetic Resonance (CMR)
15.4 Treatment
15.4.1 Lifestyle Modification
15.4.2 Pharmacotherapy
15.4.3 Rehabilitation
15.4.4 Implantable Cardioverter-Defibrillator (ICD)
15.4.5 Cardiac Resynchronisation Therapy (CRT)
15.4.6 Ventricular Assist Devices
15.4.7 Heart Transplantation

15.4.8 Devices for Autonomic Modulation
15.4.9 Multidisciplinary Interventions
15.5 Prevention
15.6 Clinical
15.6.1 Peripheral Circulation, Metabolism, Skeletal Muscle
15.6.2 Comorbidities
15.6.2.1 Anaemia/Iron Deficiency
15.6.2.2 Cancer
15.6.2.3 Cerebrovascular Disease
15.6.2.4 Chronic Kidney Disease
15.6.2.5 Chronic Obstructive Pulmonary Disease
15.6.2.6 Dementia/Depression
15.6.2.7 Diabetes
15.6.2.8 Frailty
15.6.2.9 Muscular Dystrophy
15.6.2.10 Thyroid Disease
15.6.2.11 Sleep Apnoea

16 Acute Heart Failure
16.1 Pathophysiology and Mechanisms
16.1.1 Haemodynamics
16.2 Epidemiology, Prognosis, Outcome
16.3 Diagnostic Methods
16.3.1 Biomarkers
16.3.2 Imaging
16.3.3 Invasive Haemodynamic Monitoring
16.4 Treatment
16.4.1 Pharmacotherapy
16.4.2 Nonpharmacological Treatment
16.4.2.1 Circulatory Support
16.4.2.2 Renal Replacement Therapy
16.4.3 Multidisciplinary Interventions
16.5 Prevention
16.6 Clinical
16.6.1 Acute Myocarditis
16.6.2 Acute Pericarditis
16.6.3 Acute Coronary Syndromes
16.6.4 Cardiogenic Shock
16.6.4.1 Definitions, Pathophysiology and Mechanisms
16.6.4.2 Imaging
16.6.4.3 Acute Percutaneous Mechanical Circulatory Support

E CORONARY ARTERY DISEASE, ACUTE CORONARY SYNDROMES, ACUTE CARDIAC CARE

17 Coronary Artery Disease (Chronic) / Chronic Coronary Syndromes (CCS)
17.1 Pathophysiology and Mechanisms
17.1.1 Chronic Ischaemia
17.1.2 Coronary Circulation, Flow, and Flow Reserve
17.1.3 Coronary Microcirculation and Collaterals
17.1.4 Inflammation and Immunity
17.1.5 Hibernation
17.2 Epidemiology, Prognosis, Outcome
17.3 Diagnostic Methods
17.3.1 Noninvasive Diagnostic Methods
17.3.2 Angiography, Invasive Imaging
17.3.3 Intracoronary Flow and Pressure Measurements
17.3.3.1 Fractional Flow Reserve (FFR)
17.3.3.2 Non-hyperaemic Coronary Pressure Indices
17.3.3.3 Coronary Flow Reserve
17.4 Treatment
17.4.1 Lifestyle Modification
17.4.2 Nonpharmacological Treatment
17.4.3 Pharmacotherapy
17.4.4 Revascularisation
17.4.4.1 Percutaneous Coronary Intervention (PCI)

17.4.4.2 Bypass Surgery

17.5 Prevention

17.6 Clinical

17.6.1 Comorbidities

17.7 Nonatherosclerotic Coronary Abnormalities

18 Acute Coronary Syndromes

18.1 Pathophysiology and Mechanisms

18.1.1 Acute Myocardial Ischaemia

18.1.2 Thrombosis, Platelets, and Coagulation

18.1.3 Inflammation

18.1.4 Vulnerable Plaque

18.1.5 Vasospasm

18.1.6 Spontaneous Coronary Artery Dissection (SCAD)

18.1.7 Reperfusion and Reperfusion Injury

18.1.8 Left Ventricular Remodelling

18.1.9 No Reflow

18.2 Epidemiology, Prognosis, Outcome

18.3 Diagnostic Methods

18.3.1 Biomarkers

18.3.2 Noninvasive Imaging

18.3.3 Angiography, Invasive Imaging

18.3.4 Intracoronary Flow and Pressure Measurements

18.3.4.1 Fractional Flow Reserve (FFR)

18.3.4.2 Non-hyperaemic Coronary Pressure Indices

18.3.4.3 Coronary Flow Reserve

18.4 Treatment

18.4.1 Lifestyle Modification

18.4.2 Pharmacotherapy

18.4.2.1 Antiplatelet Agents

18.4.2.2 Thrombolysis/Fibrinolysis

18.4.2.3 Statins

18.4.3 Revascularisation

18.4.3.1 Coronary Intervention

18.4.3.2 Bypass Surgery

18.5 Prevention

18.6 Clinical

18.6.1 ST-Elevation Myocardial Infarction (STEMI)

18.6.2 Non-ST-Elevation Myocardial Infarction (NSTEMI)

18.6.3 Unstable Angina

18.6.4 Shock

18.6.5 Mechanical Complications

18.6.6 Postinfarction Period

18.6.7 Myocardial Infarction with Nonobstructive Coronary Arteries (MINOCA)

18.6.8 Takotsubo Cardiomyopathy

18.6.9 Spontaneous Coronary Artery Dissection (SCAD)

19 Acute Cardiac Care

19.1 Resuscitation

19.2 Prehospital and Emergency Department Care

19.3 Cardiac Care Unit (CCU), Intensive, and Critical Cardiovascular Care

19.4 Cardiogenic Shock

19.5 Cardiac Arrest

F VALVULAR, MYOCARDIAL, PERICARDIAL, PULMONARY, CONGENITAL HEART DISEASE

20 Valvular Heart Disease

20.1 Pathophysiology and Mechanisms

20.2 Epidemiology, Prognosis, Outcome

20.3 Diagnostic Methods

20.3.1 Imaging

20.3.1.1 Echocardiography

20.3.1.2 Cardiac Computed Tomography (CT)

20.3.1.3 Cardiac Magnetic Resonance (CMR)

20.3.1.4 Nuclear Imaging

20.3.2 Invasive Haemodynamic Assessment

20.4 Treatment

20.4.1 Pharmacotherapy

20.4.2 Intervention

20.4.2.1 Aortic Valve Stenosis

20.4.2.2 Aortic Valve Regurgitation

20.4.2.3 Mitral Valve Stenosis

20.4.2.4 Mitral Valve Regurgitation

20.4.2.5 Pulmonary Valve Stenosis

20.4.2.6 Pulmonary Valve Regurgitation

20.4.2.7 Tricuspid Valve Stenosis

20.4.2.8 Tricuspid Valve Regurgitation

20.4.3 Surgery

20.5 Prevention

20.6 Clinical

20.6.1 Aortic Valve Stenosis

20.6.2 Aortic Valve Regurgitation

20.6.3 Aortic Valve Disease, Other

20.6.4 Mitral Valve Stenosis

20.6.5 Mitral Valve Regurgitation

20.6.5.1 Primary Mitral Valve Regurgitation

20.6.5.2 Secondary Mitral Valve Regurgitation

20.6.6 Mitral Valve Prolapse

20.6.7 Mitral Valve Disease, Other

20.6.8 Tricuspid Valve Disease

20.6.9 Pulmonary Valve Disease

20.6.10 Rheumatic Heart Disease

20.6.11 Prosthetic Heart Valves

21 Infective Endocarditis

21.1 Pathophysiology and Mechanisms

21.2 Epidemiology, Prognosis, Outcome

21.3 Diagnostic Methods

21.3.1 Imaging

21.3.2 Microbiology

21.4 Treatment

21.4.1 Pharmacotherapy

21.4.2 Surgery

21.5 Prevention

21.6 Clinical

21.7 Cardiac Implantable Device-Related Endocarditis

22 Myocardial Disease

22.1 Pathophysiology and Mechanisms

22.2 Epidemiology, Prognosis, Outcome

22.3 Diagnostic Methods

22.3.1 Imaging

22.3.1.1 Echocardiography

22.3.1.2 Cardiac Computed Tomography (CT)

22.3.1.3 Cardiac Magnetic Resonance (CMR)

22.3.1.4 Nuclear Imaging

22.4 Treatment

22.4.1 Pharmacotherapy

22.5 Prevention

22.6 Clinical

22.6.1 Myocarditis

22.6.2 Hypertrophic Cardiomyopathy

22.6.3 Dilated Cardiomyopathy

22.6.4 Restrictive Cardiomyopathy and Loeffler´s Disease

22.6.5 Arrhythmogenic Right Ventricular Cardiomyopathy

22.6.6 Hypertensive Heart Disease

- 22.6.7 Infiltrative Myocardial Disease
  - *22.6.7.1 Cardiac Amyloidosis*
  - *22.6.7.2 Cardiac Sarcoidosis*
  - *22.6.7.3 Fabry´s Disease*
  - *22.6.7.4 Mucopolysaccharidosis (MPS)*
- 22.6.8 Chagas' Disease
- 22.6.9 Takotsubo Cardiomyopathy
- 22.6.10 Peripartum Cardiomyopathy
- 22.6.11 Ventricular Noncompaction

23 Pericardial Disease

- 23.1 Pathophysiology and Mechanisms
- 23.2 Epidemiology, Prognosis, Outcome
- 23.3 Diagnostic Methods
  - 23.3.1 Imaging
    - *23.3.1.1 Echocardiography*
    - *23.3.1.2 Cardiac Computed Tomography (CT)*
    - *23.3.1.3 Cardiac Magnetic Resonance (CMR)*
    - *23.3.1.4 Nuclear Imaging*
- 23.4 Treatment
  - 23.4.1 Pharmacotherapy
  - 23.4.2 Intervention and Surgery
- 23.5 Prevention
- 23.6 Clinical
  - 23.6.1 Pericarditis
  - 23.6.2 Pericardial Effusion
  - 23.6.3 Pericardial Constriction

24 Tumours of the Heart

- 24.1 Pathophysiology and Mechanisms
- 24.2 Epidemiology, Prognosis, Outcome
- 24.3 Diagnostic Methods
  - 24.3.1 Imaging
    - *24.3.1.1 Echocardiography*
    - *24.3.1.2 Cardiac Computed Tomography (CT)*
    - *24.3.1.3 Cardiac Magnetic Resonance (CMR)*
    - *24.3.1.4 Nuclear Imaging*
- 24.4 Treatment
- 24.5 Prevention
- 24.6 Clinical
  - 24.6.1 Myxoma

25 Congenital Heart Disease and Paediatric Cardiology

- 25.1 Pathophysiology and Mechanisms
- 25.2 Epidemiology, Prognosis, Outcome
- 25.3 Diagnostic Methods
  - 25.3.1 Imaging
    - *25.3.1.1 Echocardiography*
    - *25.3.1.2 Cardiac Computed Tomography (CT)*
    - *25.3.1.3 Cardiac Magnetic Resonance (CMR)*
    - *25.3.1.4 Nuclear Imaging*
  - 25.3.2 Invasive Haemodynamic Assessment
- 25.4 Treatment
  - 25.4.1 Lifestyle Modification
  - 25.4.2 Pharmacotherapy
  - 25.4.3 Intervention
  - 25.4.4 Surgery
- 25.5 Prevention
- 25.6 Clinical
  - 25.6.1 Foetal Heart Disease
  - 25.6.2 Adult Congenital Heart Disease (ACHD)
- 25.7 Paediatric Cardiology

26 Pulmonary Circulation, Pulmonary Embolism, Right Heart Failure

- 26.1 Pathophysiology and Mechanisms
- 26.2 Epidemiology, Prognosis, Outcome
- 26.3 Diagnostic Methods
- 26.4 Treatment
  - 26.4.1 Pharmacotherapy
  - 26.4.2 Intervention
  - 26.4.3 Surgery
- 26.5 Prevention
- 26.6 Clinical
  - 26.6.1 Pulmonary Embolism (PE)
    - *26.6.1.1 Acute Pulmonary Embolism*
    - *26.6.1.2 Long-Term Pulmonary Thromboembolic Disease*
  - 26.6.2 Venous Thromboembolism
  - 26.6.3 Pulmonary Hypertension

G DISEASES OF THE AORTA, PERIPHERAL VASCULAR DISEASE, STROKE

27 Diseases of the Aorta

- 27.1 Pathophysiology and Mechanisms
- 27.2 Epidemiology, Prognosis, Outcome
- 27.3 Diagnostic Methods
  - 27.3.1 Imaging
    - *27.3.1.1 Echocardiography*
    - *27.3.1.2 Cardiac Computed Tomography (CT)*
    - *27.3.1.3 Cardiac Magnetic Resonance (CMR)*
    - *27.3.1.4 Nuclear Imaging*
- 27.4 Treatment
  - 27.4.1 Lifestyle Modification
  - 27.4.2 Pharmacotherapy
  - 27.4.3 Intervention
  - 27.4.4 Surgery
- 27.5 Prevention
- 27.6 Clinical
  - 27.6.1 Aortic Dissection, Acute Intramural Haematoma
    - *27.6.1.1 Dissection Thoracic Aorta*
    - *27.6.1.2 Dissection Abdominal Aorta*
  - 27.6.2 Aortic Aneurysm, Thoracic
  - 27.6.3 Aortic Aneurysm, Abdominal
  - 27.6.4 Inflammatory Diseases of the Aorta
  - 27.6.5 Traumatic Injury of the Aorta

28 Peripheral Vascular and Cerebrovascular Disease

- 28.1 Pathophysiology and Mechanisms
- 28.2 Epidemiology, Prognosis, Outcome
- 28.3 Diagnostic Methods
- 28.4 Treatment
  - 28.4.1 Lifestyle Modification
  - 28.4.2 Pharmacotherapy
  - 28.4.3 Intervention
  - 28.4.4 Surgery
- 28.5 Prevention
- 28.6 Clinical
  - 28.6.1 Peripheral Artery Disease
  - 28.6.2 Carotid Disease
  - 28.6.3 Venous Disease

29 Stroke

- 29.1 Pathophysiology and Mechanisms
- 29.2 Epidemiology, Prognosis, Outcome
- 29.3 Diagnostic Methods
- 29.4 Treatment
  - 29.4.1 Lifestyle Modification
  - 29.4.2 Pharmacotherapy

29.4.3 Acute Intervention
29.4.4 Surgery
29.5 Prevention
29.6 Clinical
29.6.1 Carotid Stenosis
29.6.2 Patent Foramen Ovale and Patent Foramen Ovale (PFO) Closure
29.6.3 Cardiogenic Embolism
29.6.3.1 Atrial Fibrillation
29.6.3.2 Left Atrial Appendage (LAA) and Left Atrial Appendage (LAA) Closure
29.7 Heart and Brain Interaction

H INTERVENTIONAL CARDIOLOGY AND CARDIOVASCULAR SURGERY

30 Interventional Cardiology

30.1 Invasive Imaging and Functional Assessment
30.1.1 Right Heart Catheterisation
30.1.2 Coronary Angiography
30.1.3 Peripheral Angiography
30.1.4 Intracoronary Ultrasound
30.1.5 Optical Coherence Tomography
30.1.6 Near Infrared Spectroscopy
30.1.7 Angioscopy
30.1.8 Intracoronary Flow and Pressure Measurements
30.1.8.1 Fractional Flow Reserve (FFR)
30.1.8.2 Non-hyperaemic Coronary Pressure Indices
30.1.8.3 Coronary Flow Reserve
30.1.9 Coronary Vasoreactivity Testing
30.2 Percutaneous Coronary Intervention (PCI)
30.2.1 Adjunctive Pharmacotherapy
30.2.2 Vascular Access
30.2.3 Technique
30.2.4 Devices
30.2.4.1 Balloons
30.2.4.2 Stents
30.2.4.3 Rotablation
30.2.4.4 Orbital Atherectomy
30.2.4.5 Intravascular Lithoplasty (IVL)
30.2.5 Complications
30.2.6 Primary Percutaneous Coronary Intervention (PCI)
30.2.7 Chronic Total Occlusion (CTO)
30.2.8 Protected Percutaneous Coronary Intervention (PCI)
30.2.9 Restenosis
30.2.10 Stent Thrombosis
30.2.11 Outcome
30.3 Noncoronary Cardiac Intervention
30.3.1 Aortic Valve Intervention
30.3.2 Mitral Valve Intervention
30.3.3 Tricuspid Valve Intervention
30.3.4 Pulmonary Valve Intervention
30.3.5 Patent Foramen Ovale (PFO) / Atrial Septal Defect (ASD) Closure
30.3.6 Left Atrial Appendage (LAA) Closure
30.3.7 Closure of Paravalvular Leaks

31 Cardiovascular Surgery

31.1 Coronary Arteries
31.2 Valves
31.3 Congenital Heart Disease
31.4 Aorta
31.5 Carotid and Peripheral Arteries
31.6 Ventricular Assist Devices and Artificial Heart
31.7 Circulatory Support
31.8 Transplantation
31.9 Arrhythmias

31.10 Minimally Invasive Surgery

I HYPERTENSION

32 Hypertension

32.1 Pathophysiology and Mechanisms
- 32.1.1 Target Organ Damage/Left Ventricular Hypertrophy
- 32.1.2 Renin-Angiotensin System
- 32.1.3 Secondary Hypertension
  - *32.1.3.1 Renal and Renovascular Hypertension*
  - *32.1.3.2 Autonomic Nervous System*
  - *32.1.3.3 Endocrine Hypertension*
  - *32.1.3.4 Drug Induced Hypertension*
  - *32.1.3.5 Pregnancy-induced Hypertension*

32.2 Epidemiology, Prognosis, Outcome

32.3 Diagnostic Methods
- 32.3.1 Blood Pressure Measurement

32.4 Treatment
- 32.4.1 Lifestyle Modification
- 32.4.2 Pharmacotherapy
- 32.4.3 Device Treatment and Intervention
  - *32.4.3.1 Renal Denervation*

32.5 Prevention

32.6 Clinical

J PREVENTIVE CARDIOLOGY

33 Risk Factors and Prevention

33.1 Epidemiology

33.2 Cardiovascular Risk Assessment
- 33.2.1 Scores
- 33.2.2 Biomarkers
- 33.2.3 Imaging

33.3 Secondary Prevention

33.4 Lipids
- 33.4.1 Drug therapy

33.5 Tobacco

33.6 Obesity

33.7 Diabetes and the Heart
- 33.7.1 Pathophysiology
- 33.7.2 Metabolic Syndrome, Insulin, Insulin Resistance
- 33.7.3 Pharmacotherapy
- 33.7.4 Percutaneous Coronary Intervention (PCI) and Surgery

33.8 Environmental and Occupational Aspects of Heart Disease
- 33.8.1 Environmental Aspects of Heart Disease
- 33.8.2 Occupational Aspects of Heart Disease

33.9 Stress, Psychosocial and Cultural Aspects of Heart Disease

33.10 Depression and Heart Disease

33.11 Nutrition, Malnutrition and Heart Disease

33.12 Physical Inactivity and Exercise
- 33.12.1 Physical Inactivity
- 33.12.2 Exercise

33.13 Sleep Disorders
- 33.13.1 Sleep Apnoea

34 Rehabilitation and Sports Cardiology

34.1 Exercise Testing
- 34.1.1 Spiroergometry

34.2 Cardiovascular Rehabilitation
- 34.2.1 Exercise Programmes
- 34.2.2 Education
- 34.2.3 Outcomes

34.3 Sports Cardiology
- 34.3.1 Athlete´s Heart
- 34.3.2 Electrocardiography (ECG)

34.3.3 Arrhythmias
34.3.4 Sudden Death in Sports
34.3.5 Pre-Competition Screening and Sports Eligibility
34.3.6 Cardiovascular Effects of Substance Abuse/Doping

K CARDIOVASCULAR DISEASE IN SPECIAL POPULATIONS

35 Cardiovascular Disease in Special Populations

35.1 Cardiovascular Disease in Primary Care
35.2 Cardiovascular Disease in Women
35.3 Cardiovascular Disease in Special Populations: Paediatric Cardiology
35.4 Noncardiac Surgery / Presurgical Assessment
35.5 Cardiovascular Disease in the Elderly
35.6 Cardio-Oncology
35.7 Pregnancy and Cardiovascular Disease
35.8 HIV and Cardiovascular Disease
35.9 Renal Failure and Cardiovascular Disease
35.10 Neurologic Disorders and Heart Disease
35.11 Psychiatric Disorders and Heart Disease
35.12 Autoimmune/Chronic Inflammatory Disorders and Heart Disease
35.13 Substance Abuse and Cardiovascular Disease

L CARDIOVASCULAR PHARMACOLOGY

36 Pharmacology and Pharmacotherapy

36.1 Cardiovascular Pharmacotherapy
36.1.1 Aldosterone Antagonists
36.1.2 Antiarrhythmic Pharmacotherapy
36.1.3 Angiotensin-Renin-Bradykinin System
36.1.4 Anticoagulants
36.1.5 Antiplatelet Drugs
36.1.6 Beta-Blockers
36.1.7 Calcium Channel Blockers
36.1.8 Diuretics
36.1.9 Nitrates
36.1.10 Lipid-Lowering Agents
36.1.10.1 Statins
36.1.10.2 Cholesterol Resorption Antagonists
36.1.10.3 LDL-Receptor Antagonists
36.1.10.4 PCSK9-Antagonists
36.1.11 Antidiabetic Pharmacotherapy
36.2 Pharmacogenetics
36.3 Biotherapies
36.4 Cardiotoxicity of Drugs

M CARDIOVASCULAR NURSING AND ALLIED PROFESSIONS

37 Cardiovascular Nursing and Allied Professions

37.1 Acute Nursing Care
37.2 Chronic Nursing Care
37.3 Advanced Clinical Practice
37.4 Allied Professions in Cardiovascular Care

N e-CARDIOLOGY / DIGITAL HEALTH, PUBLIC HEALTH, HEALTH ECONOMICS, RESEARCH METHODOLOGY

38 e-Cardiology/Digital Health

38.1 Cardiovascular Image Processing
38.2 Cardiovascular Signal Processing
38.2.1 Electrocardiogram (ECG) and Arrhythmia Analysis
38.3 Artificial Intelligence (Machine Learning, Deep Learning)
38.4 Big Data and Digital Twin
38.5 In-Silico Medicine and Virtual Physiologic Patient
38.6 Hospital Information Systems, Electronic Medical Records, Clinical Decision Support
38.6.1 Hospital Information Systems
38.6.2 Electronic Medical Records
38.6.3 Clinical Decision Support
38.7 Remote Patient Monitoring and Telehealth
38.7.1 Remote Patient Monitoring
38.7.2 Telehealth
38.7.3 Remote Consultation
38.8 Mobile Apps
38.9 Patient Engagement and Personalised Health

38.10 Interoperability, Standards and System Integration

39 Public Health and Health Economics

39.1 Public Health
39.2 Health Policy
39.3 Health Economics

40 Research Methodology

40.1 Biostatistics
40.2 Big Data Analysis
40.3 Cardiovascular Epidemiology
40.4 Trial Design
40.5 Research Ethics

O BASIC SCIENCE

41 Basic Science

41.1 Cardiovascular Development and Anatomy
- 41.1.1 Stem Cells, Cell Cycle, Cell Senescence, Cell Death
- 41.1.2 Genetics, Epigenetics, ncRNA

41.2 Cardiac Biology and Physiology
- 41.2.1 Stem Cells, Cell Cycle, Cell Senescence, Cell Death
- 41.2.2 Genetics, Epigenetics, ncRNA
- 41.2.3 Signal Transduction, Mechanotransduction
- 41.2.4 Ion Channels, Electrophysiology
- 41.2.5 Mitochondria
- 41.2.6 Microvesicles, Exosomes
- 41.2.7 Metabolism
- 41.2.8 Leukocytes, Inflammation, Immunity
- 41.2.9 Biomaterials, Tissue Engineering

41.3 Cardiac Diseases
- 41.3.1 Ischaemia, Infarction, Cardioprotection
- 41.3.2 Cardiac Hypertrophy
- 41.3.3 Heart Failure
- 41.3.4 Arrhythmias
- 41.3.5 Cardiomyopathies
- 41.3.6 Valvular Heart Disease
- 41.3.7 Congenital Heart Disease
- 41.3.8 Leukocytes, Inflammation, Immunity
- 41.3.9 Fibrosis
- 41.3.10 Drugs, Drug Targets
- 41.3.11 Gene Therapy, Cell Therapy
- 41.3.12 Biomarkers

41.4 Vascular Biology and Physiology
- 41.4.1 Stem Cells, Cell Cycle, Cell Senescence, Cell Death
- 41.4.2 Genetics, Epigenetics, ncRNA
- 41.4.3 Signal Transduction, Mechanotransduction
- 41.4.4 Vascular Tone, Permeability, Microcirculation
- 41.4.5 Ion Channels, Electrophysiology
- 41.4.6 Mitochondria
- 41.4.7 Microvesicles, Exosomes
- 41.4.8 Lipids, Metabolism
- 41.4.9 Platelets, Haemostasis, Coagulation
- 41.4.10 Leukocytes, Inflammation, Immunity
- 41.4.11 Biomaterials, Tissue Engineering

41.5 Vascular Diseases
- 41.5.1 Microcirculation, Angiogenesis, Arteriogenesis
- 41.5.2 Atherosclerosis, Cerebrovascular Diseases, Aneurysm, Restenosis
- 41.5.3 Hypertension, Pulmonary Hypertension
- 41.5.4 Thrombosis, Bleeding
- 41.5.5 Lipid Metabolism, Metabolic Syndrome, Diabetes
- 41.5.6 Leukocytes, Inflammation, Immunity
- 41.5.7 Vascular Diseases: Fibrosis
- 41.5.8 Drugs, Drug Targets
- 41.5.9 Gene Therapy, Cell Therapy
- 41.5.10 Biomarkers