Catheterization and Interventional Cardiology in Adult Patients

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► Except where otherwise stated, drug doses and recommendation
are for the non-pregnant adult who is not breast-feeding.

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Preface

Diagnostic cardiac catheterization (especially coronary angiography) is one of the three most important diagnostic methods in clinical cardiology—besides electrocardiography and echocardiography. The world first *diagnostic* cardiac catheterization (in 11 patients) was performed by Dr. Otto Klein in Prague, 1930. This method has subsequently developed into one of the key subspecialties within clinical cardiology—invasive cardiology. This fascinating development enabled the growth of cardiac surgery. Currently, invasive cardiology is a routine part of daily work for practising cardiologists in many countries. In other countries it is rather a real subspecialty, practised only by selected cardiologists, licensed for this work.

Interventional cardiology as a *therapeutic* method for the treatment of coronary artery disease is dated to 1977, when Dr. Andreas Grüntzig in Zurich successfully performed the world's first percutaneous transluminal coronary angioplasty (PTCA). The 30 yrs history of interventional cardiology has two substantially different periods. During the first 15 yrs, PTCA was widely used for the *symptom relief* of patients with *chronic* stable angina pectoris, while during the last 15 yrs percutaneous coronary intervention (PCI—new name used after the introduction of coronary stents) was used predominantly to *save the lives* of patients with *acute* coronary syndromes (especially ST-elevation myocardial infarction). With the newest available evidence from the randomized clinical trials, it became evident that the more acutely ill the patient is, the more she/he benefits from emergent PCI. Chronic stable coronary artery disease thus represents just a symptomatic indication for PCI, while acute myocardial infarction represents a truly prognostic (and—of course—emergent) indication. This shift in minds of modern cardiologists and health-care providers represent a kind of 'revolution' in modern cardiology: the acute coronary care is more and more concentrated in fully equipped and appropriately staffed tertiary centres.

Interventional therapy of the valvular and congenital heart disease represents the third part of this book, focused primarily on the adult patients.

This pocket book is focused on the practical aspects of cardiac catheterization and interventions for the cardiology trainees and other interested professionals (general cardiologists, nurses, technicians, medical students). The text includes indications, periprocedural medications, techniques, interpretation of the results, prevention and treatment of periprocedural complications, and so on. The description of catheter manipulation techniques is mostly short to leave more

space for the interpretation of the results in the clinical scenario. The key reading is given in each chapter, but the book is not a scientific but rather a 'cooking' type of publication. The relevant European Society of Cardiology guidelines are quoted in the text.

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Symbols and abbreviations

↑	increased
↓	decreased
ACS	acute coronary syndrome
AP	anteroposterior
APTT	activated partial thromboplastin time
AR	aortic regurgitation
AS	aortic stenosis
ASA	acetylsalicylic acid
ASD	atrial septal defect
ASO	Amplatzer septal occluder
AV	atrioventricular
BMS	bare metal stents
BSA	body surface area
CABG	coronary artery bypass grafting
CAD	coronary artery disease
CAG	coronary angiography
CCU	coronary care unit
CTO	chronic total occlusions
CVAs	cerebrovascular accidents
DES	drug-eluting stents
ECG	electrocardiogram
ER	emergency room
HIT	heparin-induced thrombocytopenia
HOCM	high-osmolar contrast media
IABP	intra-aortic balloon pump
INR	international normalized ratio
IOCM	isomolar contrast media
IVUS	intravascular ultrasound
LA	left atrial
LAD	left anterior descending
LAO	left anterior oblique
LCX	left circumflex

LIMA	left internal mammary artery
LMCA	left main coronary artery
LMWH	low molecular weight heparin
LOCM	low-osmolar contrast media
LV	left ventricle
LVEF	left ventricular ejection fraction
LVG	left ventriculography
MR	mitral regurgitation
MS	mitral stenosis
OCT	optical coherence tomography
OTW	over-the-wire
PA	pulmonary artery
PAP	pulmonary artery pressure
PAV	percutaneous aortic valvuloplasty
PCI	percutaneous coronary intervention
PCW	pulmonary capillary wedge
PDA	patent ductus arteriosus
PFO	patent foramen ovale
PTCA	percutaneous transluminal coronary angioplasty
QCA	quantitative coronary angiography
RCA	right coronary artery
RIMA	right internal mammary artery
SAP	systemic arterial pressure
STAR	subintimal tracking and reentry
SVG	saphenous vein grafts
TAVI	transcatheter aortic valve implantation
TIAs	transient ischaemic attacks
VC	venae cavae