INTERNATIONAL CONFERENCE

FINAL PROGRAMME AND ABSTRACT BOOK

EXCEMED

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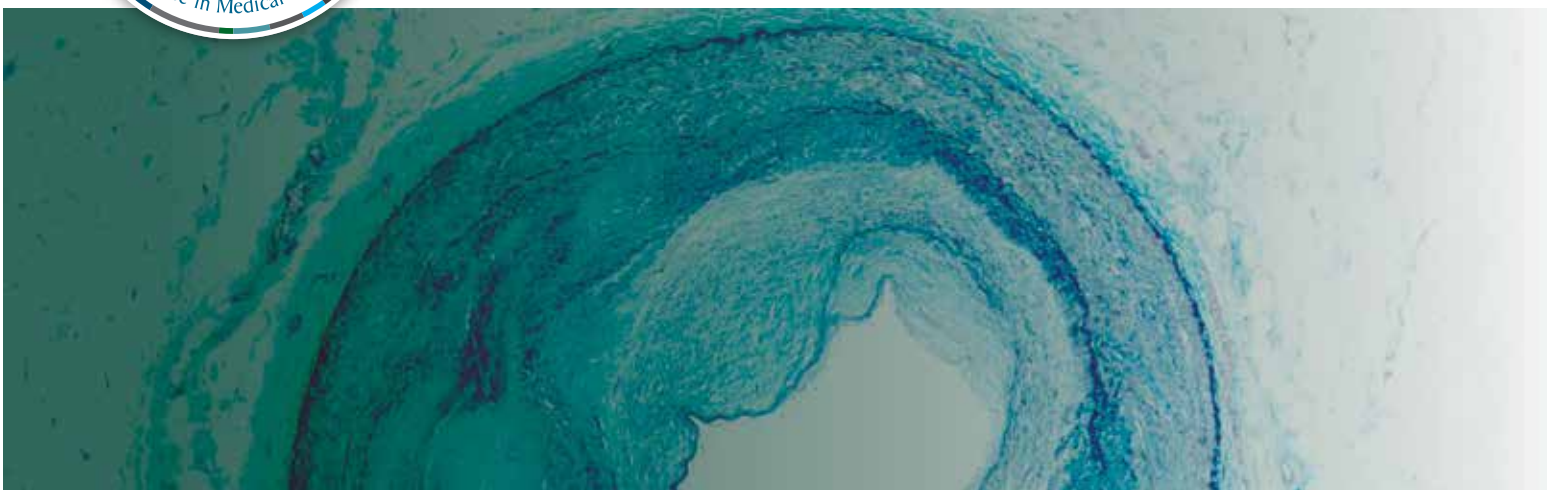
# 5th EMEA forum on cardiovascular risks

26 November 2016 - Marrakech, Morocco



# 5th EMEA forum on cardiovascular risks

## Overview

Hypertension is the primary cause of death and disability worldwide. Despite the availability of several and effective drug classes high blood pressure values still lead to serious cardiovascular pathologies such as ischemic heart disease and heart failure. Thus, the management of essential hypertension is still a challenging issue in clinical practice and a clearly unmet need in the public health system. The conference will respond to this educational necessity by examining recent evidence in the treatment of hypertension with a specific focus on the "aggressive" new blood pressure targets indicated by the results of the Systolic Blood Pressure Intervention Trial (SPRINT) study. Discussion will also focus on the different incidence and gravity of hypertension in the black population as well as the hot topic of heart rate, which, in combination with high blood pressure, can increase cardiovascular risk. Treating the main hypertension–related clinical conditions, including acute coronary syndrome and heart failure, will also be addressed.

## Learning objectives

By attending this live educational programme, participants will be able to:

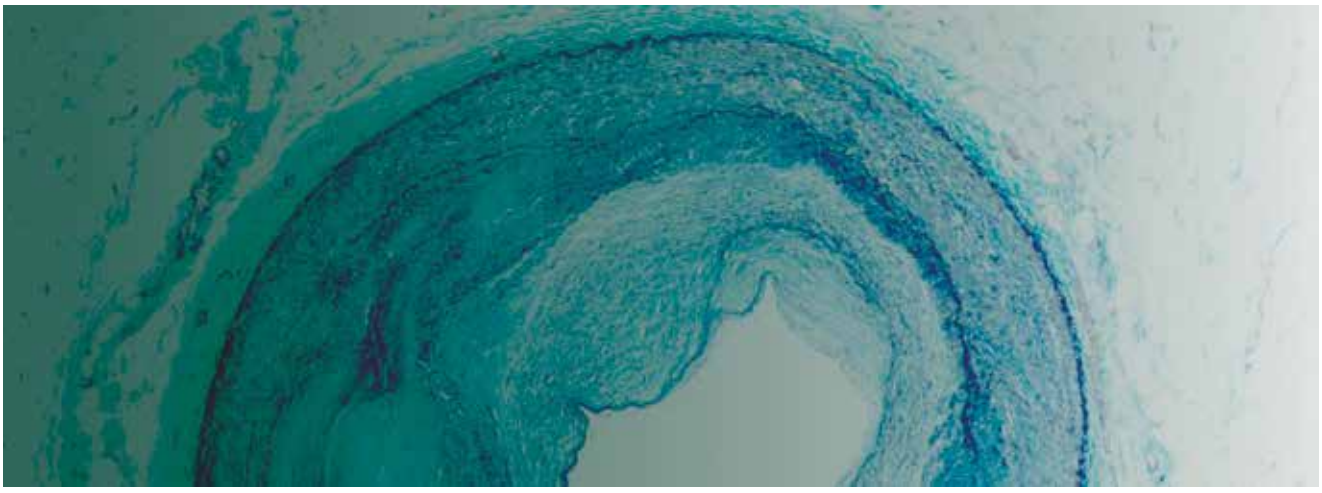
- Define blood pressure targets in hypertensive patients and the advantages/disadvantages for an eventual aggressive treatment
- Discuss the incidence, physiopathology and clinical consequences of hypertension in the black population
- Address the relevance of combination treatment in hypertension and the clinical indications for new fixed-dose combination beta-blocker/calcium antagonist
- Discuss the state of the art in the treatment of hypertensive patients with coronary artery disease
- Manage the complexity of the relationship between hypertension and heart failure with particular attention to the possible benefits of pharmacological treatments.

## Target audience

This programme is intended for cardiologists and internists involved in the prevention and management of patients with cardiovascular risk factors or who are experiencing cardiovascular diseases.

## Chair

**Giuseppe Mancia**
University of Milano Bicocca
Istituto Auxologico Italiano IRCCS and Centro di Fisiologia Clinica e Ipertensione
Milan, Italy



## CME Provider

EXCEMED is a non-profit foundation dedicated, since the last four decades, to the development of high-quality medical education programme all over the world.

EXCEMED adheres to the guidelines and standards of the European Accreditation Council for Continuing Medical Education (EACCME®) which states that continuing medical education must be balanced, independent, objective, and scientifically rigorous.

## Continuing Medical Education

The event "**5th EMEA forum on cardiovascular risks**" is accredited by the European Board for Accreditation in Cardiology (EBAC) for 5 (five) hours of External CME credits.

Each participant should claim only those hours of credit that have actually been spent in the educational activity. EBAC works according to the quality standards of the European Accreditation Council for Continuing Medical Education (EACCME), which is an institution of the European Union of Medical Specialists (UEMS).

EXCEMED adheres to the principles of the Good CME Practice group (gCMEp).

# General Information

## Venue

This educational conference will take place at the:

**Pullman Marrakech Palmeraie**
KM6 Route de Fes
BP658 40060
Marrakech, Morocco

## Language

The official language of this live educational conference will be English.

## CME Provider

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## Organising Secretariat

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## Format

This live educational event is allowing participants to express their own views and opinions through interactive workshops with clinical cases, panel discussions, real-time surveys with voting system, questions cards and dedicated website.

## Dedicated website

Access the dedicated website **www.5themeaforum.org** to:

√ View the agenda
√ Fill in the Post-event surveys
√ Get your certificate of attendance
√ Get your EBAC certificate with credits


## Any question?

You can pose your question by using the question card in your folder

# Programme

# Saturday, 26 November 2016

08.00 **Registration**

08.45 **Welcome and introduction**
G. Mancia (Italy)

## Session I

**Real-time survey**

09.00 KNL **Hypertension guidelines after SPRINT**
G. Mancia (Italy)

09.30 L1 **Managing hypertension in a black population**
B. M. Egan (USA)

09.50 L2 **Combination treatment in hypertension: what are the alternatives to RAS-blockers?**
A. Coca (Spain)

**Revisiting real-time survey**

10.10 **Panel discussion**

10.40 **Coffee break**

## Session II

**Real-time survey**

11.00 L3 **Management of stable chronic angina**
L. E. Poulimenos (Greece)

11.20 L4 **Heart failure treatment: from guidelines to clinical practice**
E. Erdmann (Germany)

**Revisiting real-time survey**

11.40 **Panel discussion**

## Session III Interactive parallel workshops with clinical cases

| From guidelines to clinical practice | |
|---|---|
| 12.00 - 12.45 | |
| **Group 1**<br>**The role of beta-blockers in hypertensive patients**<br>J. Polonia (Portugal) | **Group 2**<br>**How to optimize treatment in patients with heart failure**<br>S. Taddei (Italy) |
| 12.45 - 13.30 | |
| **Group 1**<br>**How to optimize treatment in patients with heart failure**<br>S. Taddei (Italy) | **Group 2**<br>**The role of beta-blockers in hypertensive patients**<br>J. Polonia (Portugal) |

13.30 **Take home messages from clinical cases in plenary room**
S. Taddei (Italy) and J. Polonia (Portugal)

13.50 **Closing remarks**
G. Mancia (Italy)

14.00 **End of the live educational course**

**Closing lunch**

**Legend**

**L**: Lecture; **KNL**: Keynote Lecture : Discussion : Interactive workshops

# Disclosure of faculty relationships

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The following faculty provided information regarding significant commercial relationships and/or discussions of investigational or non- EMEA/FDA approved (off-label) uses of drugs:

| | |
|---|---|
| **Antonio Coca** | Declared receipt of honoraria or consultation fees from Ferrer Int. and Menarini Int. |
| **Brent E. Egan** | Declared receipt of grants and contracts from Astra Zeneca, of honoraria or consultation fees from Medtronic Valencia and to be member of Medtronic Valencia advisory board (for device based treatment of hypertension) |
| **Erland Erdmann** | Declared receipt of honoraria or consultation fees from Merck Darmstadt and Novartis and participation in Merck Serono and Novartis speaker's bureau |
| **Giuseppe Mancia** | Declared receipt of honoraria or consultation fees from Amgen, Bayer, Boehringer Ing., CVRx, Medtronic, Merck, Menarini, Novartis, Recordati, Sanofi, Servier and participation in Boehringer Ingelheim speaker's bureau |
| **Jorge Polonia** | Declared no potential conflict of interest |
| **Leonidas E. Poulimenos** | Declared receipt of honoraria or consultation fees from Astra Zeneca, Bayer, Menarini, Merck Sharp & Dohme, Sanofi |
| **Stefano Taddei** | Declared receipt of grants and contracts from Novartis, Servier and Boehringer and participation in Servier and Pfizer speaker's bureau |

# Biographies

## Antonio Coca

Hypertension & Vascular Risk Unit
Hospital Clinic University of Barcelona
Barcelona, Spain

Antonio Coca is Professor of Internal Medicine at the School of Medicine, University of Barcelona, Spain. He serves as Senior Consultant, Chief of the Hypertension and Vascular Risk Unit of the Department of Internal Medicine at the Hospital Clinic in Barcelona, Spain. He obtained his MD and PhD degrees from the University of Barcelona, Spain. He has previously served as Research Associate Professor at the Laboratory of Cardiovascular Physiology and Pharmacology (INSERM, CNRS, Necker Hospital, Paris, France). Professor Coca is a past-President of the Spanish Society of Hypertension, honorary member of the Latin American Society of Hypertension, the Argentinian Society of Hypertension, the Venezuelan Society of Hypertension, and the Portuguese Society of Hypertension, Fellow of the Royal College of Physicians of London and Fellow of the European Society of Cardiology. In 2007, he was elected as a member of the Scientific Council of the European Society of Hypertension, where he is responsible for relationships with Latin America serving currently as "Executive-Officer", and is a past-Chair of the Working Group of Hypertension and the Brain. He is the past-Chair of the ESC Council on Hypertension and a member of the Committee for Practice Guidelines of the European Society of Cardiology. Professor Coca has been the recipient of research grants from research institutes from Spain and the European Union, scientific societies and the pharmaceutical industry from 1982 to the present. He is editor or co-editor of 58 books on various topics within the field of hypertension. He has published more than 320 papers in international journals and has presented more than 380 invited lectures at international and national meetings and universities. He has been a member of the steering committee, as well as the Spanish coordinator, of several large-scale international trials in hypertension.

## Brent E. Egan

Department of Medicine,
University of South Carolina School of Medicine Greenville,
Greenville, SC, USA

Brent E. Egan is Professor of Medicine at the University of South Carolina School of Medicine–Greenville and serves as Chief Science Officer for CCI Labs, the research arm of the Care Coordination Institute (CCI). He received his MD and training in medicine and hypertension at the University of Michigan and was among Best U.S. Doctors 1998–2013. His research in cardiovascular health has led to over 300 publications. Dr. Egan founded the Outpatient Quality Improvement Network (OQUIN) in 1999 to improve cardiovascular health in South Carolina through healthy lifestyle changes and better control of hypertension, hypercholesterolemia and diabetes. South Carolina improved from 50th (2nd only to Mississippi for the highest cardiovascular mortality) among states in the U.S. to 38th in 2013. OQUIN transitioned to become part of the CCI in 2013. CCI provides services that enable participating healthcare systems to improve the quality and cost-effectiveness provided to more than 2 million patients.

# Biographies

## Erland Erdmann

Department of Cardiology
University of Köln
Köln, Germany

Erland Erdmann, FESC, FACC, FAHA was Head of the Department of Internal Medicine of the University of Cologne. From 1993 – 2012 he served as Director of the Clinic for Cardiology, Angiology, Pneumology and Intensive Care Medicine in the Heart Centre of the university. His main scientific interests are pathophysiology and treatment options of heart failure as well as the role of diabetes in cardiovascular diseases. He has served on the steering committees of several major cardiovascular disease drug and device trials, such as CIBIS I – III, CARE-HF, PROACTIVE, SERVE-HF, all of which have been published in either New England Journal of Medicine or Lancet. Professor Erdmann is editor of the main German textbook of cardiology (Klinische Kardiologie), now in its 8th edition and is editor of the Deutsche Medizininische Wochenschrift, a weekly German medical journal.

## Giuseppe Mancia

University of Milano Bicocca
Istituto Auxologico Italiano IRCCS
and Centro di Fisiologia Clinica e Ipertensione
Milan, Italy

Giuseppe Mancia is Emeritus Professor of Medicine at the University of Milano-Bicocca, Director of the Centre of Epidemiology and Clinical Trials of the IRCSS Istituto Auxologico Italiano and President of the Hypertension Foundation of the European Society of Hypertension (ESH). His research addresses clinical and basic aspects of hypertension, metabolic abnormalities and cardiovascular diseases. He is past-President of the International Society of Hypertension (ISH), the ESH, the European Society of Clinical Investigation, the Italian Society of Hypertension, the Working Group on Hypertension and the Heart of the European Society of Cardiology (ESC) and Chairman of the 2003, 2007 and 2013 ESH/ESC Guidelines Committee on Hypertension. Professor Mancia has received many international research awards including the Heymans Award (International Pharmacology Society), Wright Award (Australian High Blood Pressure Council), Volhard and Tigersted Awards (ISH), Folkow Award (ESH), International Recordati Prize and the Invernizzi Prize for Medicine. He has received several honorary professorships and degrees *honoris causa* from several universities, and is Honorary Member of many international scientific societies. He has published more than 1500 papers in peer-reviewed journals and has edited or authored more than 20 books on hypertension, cardiovascular and metabolic diseases.
He is in Thomson Reuter's list of the "highly cited". His papers have received more than 100,000 citations with an H-index of 136.

# Biographies

## Jorge Polonia

Department of Medicine and Clinical Pharmacology
Oporto Medical School
Porto, Portugal

Jorge Polonia is Professor of Medicine at the Department of Medicine, Faculty of Medicine of Oporto University, Portugal and Full Professor of Medicine at the Health School of the University of Aveiro, Portugal. He is also Consultant of Internal Medicine and Hypertension at the Hypertension Unit, Matosinhos Hospital (ESH Centre of Excellence), Portugal and Chairman of the Northern Pharmacovigilance Unit of the Portuguese Drug Agency (Infarmed). He has been past-President of the Portuguese Association of Hypertension within the Portuguese Society of Cardiology.

## Leonidas E. Poulimenos

Department of Cardiology
"Asklepeion" General Hospital
Voula, Athens, Greece

Leonidas E. Poulimenos, FESC is head of the Catheterization Laboratory at the Department of Cardiology, Asklepeion Hospital, Athens, Greece. He is the immediate past chairperson of the working group on Valvular Heart Disease, Adult Congenital Heart Disease and Pulmonary Hypertension of the Hellenic Cardiological Society. His scientific interests are coronary artery disease (interventions and medical management), hypertension and its consequences in heart and vessels, and valvular heart disease. He is a reviewer for scientific journals and has participated in many international clinical trials. He has authored many papers in peer reviewed international journals and chapters in books mainly in the fields of hypertension and coronary artery disease.

# Biographies


## Stefano Taddei

Hypertension Unit
Department of Clinical and Experimental Medicine
University of Pisa
Pisa, Italy


Stefano Taddei was born in Pisa, Italy in 1957. He attended the State University of Pisa, where he graduated in Medicine and Surgery in 1982 and specialized in Clinical Pharmacology in 1986. He is Professor of Internal Medicine, working currently as the Director of the Hypertension Unit of the Department of Clinical and Experimental Medicine. Professor Taddei is a Fellow of the European Society of Cardiology, the European, International and American Society of Hypertension, the European Society of Clinical Investigation, the High Blood Pressure Council of the American Heart Association and the Italian Society of Hypertension. He was a councillor of the Italian Society of Hypertension between 2007 and 2009. He is a member of the editorial boards of Hypertension, Blood Pressure, Journal of Cardiovascular Pharmacology, Current Hypertension Reviews, High Blood Pressure and Cardiovascular Prevention and Journal of American Society of Hypertension. He is an international associated editor of the European Heart Journal. His main research area is local neuro-humoral control of peripheral vessels in primary and secondary forms of hypertension, with particular emphasis on the sympathetic nervous system, the renin-angiotensin system and the endothelium.

He is also interested in the assessment of target-organ damage in hypertension, including vascular and cardiac structural alterations and the clinical pharmacology of cardiovascular drugs.

Professor Taddei has participated in numerous clinical studies and is the authors of more than 270 original papers, reviews and editorials in international scientific journals (H-index: 53; impact factor: >1260).

# Abstracts

# KNL. Hypertension guidelines after SPRINT

**Giuseppe Mancia**
University of Milano Bicocca - Istituto Auxologico Italiano IRCCS - and Centro di Fisiologia Clinica e Ipertensione - Milan, Italy

A huge amount of evidence is available that antihypertensive treatment is accompanied by a reduction in the risk of cardiovascular (CV) and renal outcomes, as well as that a major portion of the beneficial effect is due to blood pressure (BP) lowering per se, regardless of how it is obtained. Despite decades of research, however, information is still not conclusive on which might be the BP values to achieve with treatment in order to maximize CV and renal protection. This presentation will address this issue by reviewing the current target BP values recommended by guidelines in the general hypertensive population and in the elderly hypertensive population, with a description of the related evidence. It will then show the modifications that may be supported by recent meta-analyses of randomized trials, as well as by post-hoc analysis of some large scale trials. It will finally focus on the results of the Systolic Blood Pressure Intervention Trial, (SPRINT)[1] that a much lower BP target may increase benefits at all ages, thereby challenging the conservative attitude of current guidelines. The point will be made that, although potentially very important, the SPRINT trial presents several aspects that are difficult to interpret, as well as with inconveniences (marked increases of serious side effects in the intensively-treated patients) that in real life may favour discontinuation and low adherence to treatment with a resulting increase of CV risk that may attenuate, if not offset, any theoretical benefit. The conclusion will be drawn that further evidence on this issue is needed and that future trials should explore, in particular, possible differences in optimal BP target according to demographic characteristics (including ethnicity) and clinical phenotypes (presence or absence of organ damage, duration of disease, type of event protected, etc). Attention will also be directed on the need to establish optimal targets for out-of-office BP and other BP effects of treatment, such as long-term BP variability.

1. The SPRINT Research Group. A randomized trial of intensive versus standard blood-pressure control. N Engl J Med 2015;373:2103-16.
2. 1. Kjeldsen SE, Lund-Johansen P, Nilsson PM, Mancia G. Unattended blood pressure measurements in the Systolic Blood Pressure Intervention Trial. Implications for entry and achieved blood pressure values compared with other trials. Hypertension, 2016, 67:808-12
3. 1. Mancia G. The SPRINT trial: cons. Accessed Dec. 3 . http://www.acc.org/latest-in-cardiology/articles/2015/12/01/10/04/the-sprint-trial-cons

# L1. Managing hypertension in a black population

**Brent M. Egan**
Department of Medicine, University of South Carolina School of Medicine Greenville, Greenville, SC, USA

Hypertension is a major problem in black patients with higher prevalence, earlier onset and greater severity than in whites and most other racial/ethnic groups. Most expert panels recommend similar blood pressure goals for hypertensive black patients compared with other patient groups. Lifestyle therapy should be offered to all black patients with hypertension. Initial antihypertensive therapy typically consists of a single drug or a single-pill combination of two drugs. If monotherapy is used for black hypertension patients, consider a dihydropyridine calcium channel blocker (dCCB), although a diuretic, e.g., chlorthalidone is a reasonable alternative, but carries a higher risk for incident diabetes. If a combination of two drugs is used initially, or if combination therapy is used because monotherapy is insufficient, a dihydropyridine calcium channel blocker combined with either an angiotensin-converting enzyme (ACE) inhibitor or angiotensin II receptor blocker (ARB) is recommended. However, in patients with oedema or other signs of hypervolemia, combination therapy with a thiazide diuretic and either an ACE inhibitor or ARB may be most effective. For black hypertensive patients not controlled on the combination of a dCCB with an ACE inhibitor or ARB, the addition of a diuretic (eg, chlorthalidone 12.5 to 25 mg daily) is suggested. Black patients are at greater risk for treatment-resistant hypertension than white patients; thus, a fourth agent may often be required. In such patients, a potassium-sparing diuretic, e.g., spironolactone or amiloride is suggested. Patients who have moderate to advanced chronic kidney disease (estimated glomerular filtration rate <45 mL/min/1.73 $m^2$) or a baseline serum potassium >4.6 meq/L have an increased risk for hyperkalemia. Monitoring of serum potassium should be performed in all patients treated with potassium-sparing diuretics or mineralocorticoid receptor antagonists, with more frequent monitoring in those at highest risk for hyperkalemia. Despite the observation that blacks are generally more responsive to calcium channel blockers than to monotherapy with ACEI or ARB, there are clear benefits to renin-angiotensin system blockade, usually in combination with other antihypertensive agents, in black patients with chronic kidney disease. Health literacy and adherence are generally lower in black than white hypertensive patients. Methods for enhancing adherence include 'teach back', patient-centered decision making, single-pill combinations and peer-based education.

1. Egan BE. Treatment of hypertension in blacks. Available from www.uptodate.com.

# L2. Combination treatment in hypertension: what are the alternatives to RAS-blockers?

**Antonio Coca**
Hypertension and Vascular Risk Unit, Department of Internal Medicine, Hospital Clinic (IDIBAPS), University of Barcelona, Spain.

The aim of antihypertensive treatment is to reduce the cardiovascular morbidity and mortality associated with high blood pressure (BP) levels. The strategies to reduce BP below 140/90 mmHg in hypertensive patients have to minimize the impact of the possible associated risk factors or co-morbidities. All recent international guidelines agree that in patients with elevated BP, or those at high cardiovascular risk, combination therapy should be the initial strategy to improve BP control, which is very low. The selection of drugs in the combination is important and should be individualized depending on the associated cardiovascular risk factors, subclinical organ damage and associated clinical conditions, such as coronary artery disease (CAD) or congestive heart failure (CHF). This is particularly important in patients with metabolic abnormalities such as metabolic syndrome or type 2 diabetes, where BP control must be achieved without worsening glucose control. One of the advantages of initiating treatment with two drugs with different mechanisms of action is that it is more likely to control BP and its complications and reduce the risk of side effects. The synergistic effect of some combinations increases the magnitude of the antihypertensive effect and maintains the circadian profile, whereas in other combinations, the main advantage is in reducing side effects. The combination of a betablocker with a dihydropyridinic calcium channel blocker, such as the combination of bisoprolol and amlodipine, avoids the chance of excessive bradycardia induced by the beta blocker and the worsening of the metabolic profile which has been observed in combinations of beta blockers with thiazide diuretics. In addition, the use of beta blockers as initial treatment in combination is recommended in all guidelines for hypertensive patients with CAD or CHF. Independently of the type of components included in the combination strategy, all guidelines recommend the use of fixed-dose combinations in a single pill to improve adherence to and persistence with treatment, which, historically, is very low. Adherence to antihypertensive treatment is crucial for reducing all cause mortality and cardiovascular mortality in hypertensive patients.
In summary, the selection of a specific drug combination should be based on pathophysiological and pharmacological considerations and the results of clinical trials. The key points in hypertensive drug selection include:

- The importance of BP reduction "per se" achieved by the treatment strategy
- The effects of the drugs included in the combination on silent organ damage and the incidence of new onset diabetes
- The improvement of treatment adherence and persistence with the fixed combinations in a single tablet compared with free combinations in two tablets
- The effect on the prevention of cardiovascular morbidity and mortality.

# L3. Management of stable chronic angina

**Leonidas E. Poulimenos**
Department of Cardiology, "Asklepeion" General Hospital, Athens, Greece

Coronary artery disease (CAD) is the leading cause of death in Europe, accounting for over 740,000 deaths per year. Stable angina is the most prevalent manifestation of coronary heart disease (CHD).

Angina occurs when there is regional myocardial ischaemia caused by inadequate coronary perfusion and is usually, but not always, induced by an increase in myocardial oxygen requirements. Myocardial ischaemia is characterized by an imbalance between coronary artery supply and demand that results in a drastic reduction in energy supply to various key proteins (i.e. Na-K ATPase of the sarcoplasmic reticulum and the sarcolemma) for the contraction-relaxation cycle of cardiac myocytes. As a consequence, myocardial ischaemia produces a cascade of complex ionic changes that result in intracellular acidosis, an increase in intracellular sodium and calcium concentrations, myocardial cellular dysfunction and, if severe and/or sustained, is followed by cell injury and death.

The management of stable angina has two major objectives: to reduce or abolish the symptoms, and to improve prognosis. Pharmacological management of stable CAD has recently been extensively reviewed, and guidelines updated.

According to the latest guidance from the European Society of Cardiology, beta-blockers and/or calcium channel blockers are the recommended first-line agents for the relief of angina and ischaemia, on the basis of data from multiple randomized clinical trials and/or meta-analyses (Class I, Level A evidence). However, many patients either cannot tolerate these conventional agents as first-line treatment or have continuing symptoms of ischaemia and angina despite their use.

For second-line treatment, the addition of long-acting nitrates, ivabradine, nicorandil, ranolazine (Class IIa, Level B), or trimetazidine (Class IIb, Level B), should be considered. Long-acting nitrates are not continuously effective if regularly taken over a prolonged period without a nitrate-free or nitrate-low interval of about 8–10 hours (tolerance). Worsening of endothelial dysfunction is a potential complication of long-acting nitrates, hence the common practice of the routine use of long-acting nitrates as first-line therapy for patients with effort angina needs re-evaluation. Ivabradine is a heart rate-lowering agent selectively inhibiting the sinus node I(f) pacemaking current, thereby decreasing the myocardial oxygen demand without effect on inotropism or blood pressure. Nicorandil is a nitrate derivative of nicotinamide that can be used for the prevention and long-term treatment of angina, and may be added after beta-blockers and calcium-channel blockers. Trimetazidine is an anti-ischaemic metabolic modulator. Ranolazine is a selective inhibitor of the late sodium current with anti-ischaemic and metabolic properties.

# L4. Heart failure treatment: from Guidelines to clinical practice

**Erland Erdmann**
Department of Cardiology - University of Köln - Köln, Germany

Treatment for heart failure (HF) depends on the underlying causes, concomitant diseases and the type and severity of HF. Furthermore, it is essential to differentiate acute and chronic HF as well as HF**r**EF and HF**p**EF (HF with **r**educed or **p**reserved ejection fraction [EF]). The goals of treatment for all stages of HF include: treating underlying causes, such as coronary heart disease, hypertension or diabetes, reducing symptoms, stopping the progression of HF and improving quality of life and survival. Treatments usually include healthy lifestyle changes, medicines and devices, such as an implantable cardioverter defibrillator (ICD) and cardiac resynchronisation therapy (CRT), depending on the EF and left bundle branch block (LBBB).

All present guidelines recommend the following medicines to treat HFrEF: diuretics, ACE inhibitors or angiotensin receptor blockers (ARBs), betablockers, aldosterone antagonists and the newly tested successful combination of sacubitril/valsartan for severe cases. Digitalis and ivabradin offer additional possibilities to slow heart rate, if needed.

To correct asynchronous beating of the heart, a CRT device may be implanted, in addition to medical therapy.

Unfortunately, there is no evidence-based treatment for HFpEF, which is seen mostly in the elderly with previous and long-lasting high blood pressure. Thus, antihypertensive and symptomatic treatment is usually indicated.

A mechanical heart pump, such as a left ventricular assist device may be used, if all other heart therapy has failed and transplantation is necessary.

Heart failure treatment will usually be a lifelong undertaking, which should be in the hands of experts, and is most successful in compliant patients.

# W1. The role of beta-blockers in hypertensive patients

**Jorge Polonia**
Department of Medicine, Faculty of Medicine of Oporto University, Portugal

Beta adrenergic receptor blockers (BB) have been used since the 1970s in the treatment of arterial hypertension (HT). During the 1980s, with diuretics, BB became the most popular drug for treatment of HT, because of its relative effectiveness and tolerability, particularly when compared with older generation drugs (such as reserpine, hydralazine and guanethidine). The purposed mechanism of anti-hypertensive action of propranolol and of other BB was the reduction of cardiac output and the decrease in sympathetic outflow in conjunction with renin release. When used for secondary prevention, BB were shown to reduce mortality in post-myocardial infarction (MI) and heart failure. Thus, it was assumed that BB could also prevent primary cardiac events. However, in the late 1990s multiple randomized clinical trials (RCT) challenged the value of BB for the treatment of HT. Several studies showed clinical protection from cardiovascular events, particularly of the diuretic chlorthalidone, but also of lisinopril and amlodipine (ALLHAT) and of nifedipine (INSIGHT), whereas such evidence was lacking for BB. Other multiple RCTs suggested that the use of BB (particularly of atenolol) provided no additional protection against first MI than other drugs, and was associated with a significant 16% increase in the incidence of stroke. Also, a meta-analysis published in The Lancet in 2004 claimed that BB (particularly atenolol, but probably also pindolol and propranolol) were less effective than other anti-hypertensive medications in reducing the risk of stroke (relative risk 1.13; 95% CI 1.02–1.25).[1] Such an unfavourable tendency against BB was confirmed in more recent meta-analyses, particularly in elderly people. Faced with this evidence, some international guidelines (UK, NICE, 2011 and USA, JNC-8, 2014) relegated BB to a second-line therapy for the treatment of high blood pressure, behind thiazide diuretics (TZ), calcium channel blockers (CCB), angiotensin-converting enzyme inhibitors (ACEi), and angiotensin II receptor blockers (ARBs). Several mechanisms have been suggested to explain the observed higher risk of stroke with BB. It appears that BB, and particularly atenolol, despite reducing brachial systolic blood pressure similarly to other anti-hypertensive agents, do not lower central aortic pressure as well as other drugs. As atenolol lowers heart rate and increases the length of systole with no reduction in peripheral vascular resistance, the arterial wave reflection from the periphery returns faster, reaching the aortic pulse wave during systole (augmenting blood pressure during systole) rather than during diastole. However, not all BB are equal in their metabolic properties and mechanism of reducing blood pressure. Newer generation BB, such as bisoprolol, carvedilol and nebivolol may have some additional favourable effects on peripheral vascular resistance. For example, carvedilol and nebivolol may decrease peripheral vascular resistance either through alpha-1 blockade (carvedilol) or by promoting nitric oxide release (nebivolol). There are some studies showing that, beyond other benefits, both carvedilol and nebivolol may be able to reduce peripheral vascular resistance and central aortic pressure more than atenolol. In contrast to NICE and JNC-8 guidelines, European guidelines (ESH/ESC, 2013) have suggested one drug of any of the five families of anti-hypertensive drugs (TZ, BB, CCB, ACEi and ARBs) as the first choice for treatment of HT. Such a choice should depend predominantly on the concomitant comorbidities of the patient, target organ damage and risk of specific cardiovascular events rather than on the differences of anti-hypertensive efficacies. Thus, it appears that at least some long-acting and more cardioselective BB still have a place in the anti-hypertensive armamentarium and might continue to be appropriate options and preferentially recommended for some hypertensive patients with concomitant heart failure, tachyarrhythmias and coronary disease, particularly after MI.

1. Carlberg B, Samuelsson O, Lindholm LH. Atenolol in hypertension: is it a wise choice? Lancet 2004;364:1684-9.

# W2. How to optimize treatment in patients with heart failure

**Stefano Taddei**
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A 73-year-old male patient was admitted from home with a progressive increase in breathlessness, orthopnoea and ankle oedema over the previous 3 weeks. His general practitioner had increased his dosage of oral furosemide. Ongoing treatment included irbesarta, digoxin, nitroglycerin and warfarin.
At admission he was apyrexic yet tachypnoeic (25 beats/min) with widespread vesicular murmur reduction and crepitation and a low volume pulse. Sitting blood pressure was 110/70 mm Hg and heart rate (HR) was 44 beats/min. The apex beat was in the anterior axillary line and a parasternal lift was prominent. A pansystolic murmur was audible and late inspiratory crackles were heard throughout both lung fields. There was sacral oedema.
The ECG confirmed atrial fibrillation with bradycardia (HR 40 beats/min), counterclockwise rotation around the longitudinal axis, EAS with diffuse alterations in ventricular repolarization, ventricular bigeminism. The chest X-ray confirmed cardiomegaly and interstitial oedema. Routine chemistry showed Na+ 137 mEq/l, K+ 3.7 mEq/l, urea 0.88 g/l, creatinine 1.26 mg/dl.
Echocardiography showed the following parameters:

- Left ventricle: moderate-to-severe dilatation, moderate increase in thickness, widespread ventricular hypokinesia, no evidence of wall motion abnormalities. Reduction in global systolic function
- FE% LV: 37% - LVMI = 148 gr/m2
- Left atrium and right section: moderate dilation
- Aorta: thickened valve, moderate bulb dilation of the ascending aorta and arc
- Mitral: posterior fibrotic ring
- Doppler: moderate aortic failure, moderate mitral failure, moderate tricuspid failure
- Right ventricular pressure: 40–45 mmHg
- E/A ratio in transmitral Doppler: 1.03 with E/E' ratio=20, as grade II pseudonormalized pattern of diastolic dysfunction.

The audience will discuss:

- What could the cause of heart failure be?
- Is the treatment qualitatively and quantitatively adequate?
- What further investigations are essential to establish a diagnosis?
- The best option for the treatment of this patient
- How would you follow-up after discharge?

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