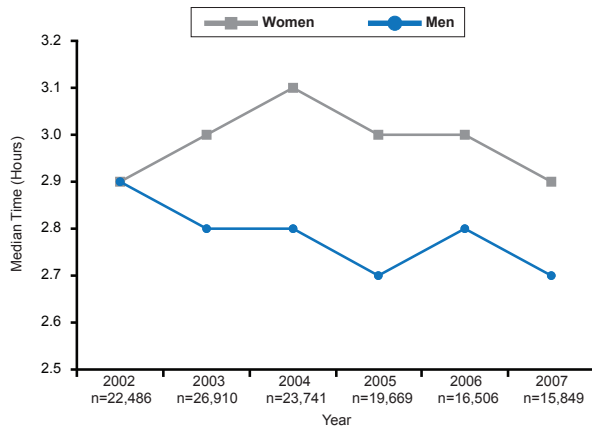


Figure 1. Women Delay Presenting to Hospital With MI



Reproduced from Diercks B et al. Gender differences in time to presentation for myocardial infarction before and after a national women's cardiovascular awareness campaign: A temporal analysis from the Can Rapid Risk Stratification of Unstable Angina Patients Suppress Adverse Outcomes with Early Implementation (CRUSADE) and the National Cardiovascular Data Registry Acute Coronary Treatment and Intervention Outcomes Network-Get with the Guidelines (NCDR ACTION Registry-GWTG). *Am Heart J* 2010;160(1):80. With permission from Elsevier.

A lower rate of obstructive atherosclerosis may have implications when diagnostic testing in women for cardiovascular disease [Shaw LJ et al. *J Am Coll Cardiol* 2009; *Circ Cardiovasc Imaging* 2010]. Exercise or bicycle testing, for example, is less useful in diagnosing women due to lower rates of obstructive epicardial disease [Montalescot G et al. *Eur Heart J* 2013]. Dr. Maas suggested use of coronary flow measurements during catheterization for diagnosis of diffuse obstructive atherosclerosis and computed tomography angiogram in the emergency room for diagnosis of ACS [Troung QA et al. *Circulation* 2013].

Optimizing Outcomes in Patients With Hypertension

Written by Nicola Parry

Arthur Liqui-Lung, MD, Stichting Teaching Hospital, Willemstad, Curaçao, Netherlands Antilles, addressed the rising problem of hypertension and its complications, especially in black patients. He discussed strategies for maximizing blood pressure (BP) control and the current BP goals as recommended by 2013 European Society of Hypertension (ESH)-European Society of Cardiology (ESC) and Joint National Committee (JNC) 7 guidelines.

Hypertension is already a major global health challenge with the prevalence only expected to increase in the coming decades. Based on a pooled analysis of regional data, an estimated 972 million adults worldwide had hypertension in 2000 with a predicted increase by 60% to 1.56 billion by 2025 [Kearney PM et al. *Lancet* 2005]. To maximize the reduction in the long-term risk of death owing to cardiovascular

consequences, prevention and control of hypertension will be critical. Even a 2-mm Hg reduction in systolic BP can lower mortality risk from ischemic heart disease and stroke by 7% and 10%, respectively [Lewington S et al. *Lancet* 2002].

Current guidelines indicate a target BP of <140/90 mm Hg for patients without diabetes mellitus, kidney disease, or cardiovascular disease, with lower targets for those with one or more of these conditions (Table 1). Despite knowledge on lifestyle interventions and availability of effective medications, even countries with enviable healthcare systems report low attainment of current BP targets. A 2004 European study demonstrated that as many as 80% of patients receiving therapy for hypertension fail to reach target BP goals of <140/90 mm Hg (Figure 1) [Wolf-Maier K et al. *Hypertension* 2004].

Table 1. Current BP Guidelines

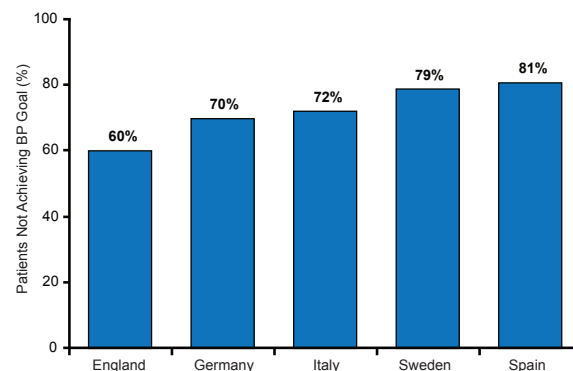
	JNC 7 ¹	ESH-ESC ²
	BP Goal (mm Hg)	BP Goal (mm Hg)
Uncomplicated	<140/90	140/90
Complicated		
Diabetes mellitus	<130/80	140/<85
Kidney disease	<130/80*	135-140/80-85
Other high risk (stroke, myocardial infarction)	<130/80	130-139/80-85

BP=blood pressure; ESC=European Society of Cardiology; ESH=European Society of Hypertension; JNC=Joint National Committee.

*Lower if proteinuria is >1 g/day.

¹Chobanian AV et al. *Hypertension* 2003; ²Mancia G et al. *J Hypertens* 2003

Figure 1. Failure to Achieve BP Goals in Europe



BP=blood pressure.

Source: Wolf-Maier K et al. *Hypertension* 2004.

Dr. Liqui-Lung highlighted that hypertension and its sequelae are more prevalent in black patients, providing an even greater challenge to regions like the Caribbean with a high proportion of patients with African ancestry [Flack JM et al. *Hypertension* 2010]. In addition, there are important differences regarding hypertension in blacks including, a greater role for hypertension in the development of



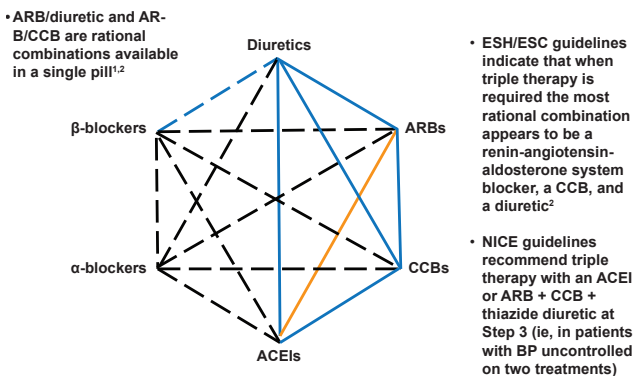
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heart failure, different responses to standard therapies, and greater difficulty in achieving current targets. In its 2010 consensus statement, the International Society on Hypertension in Blacks prioritized lifestyle education even in the setting of “normal” BP, slightly earlier initiation of pharmacologic therapy at 135/85 mm Hg in comorbidities, and rapidly switching from single to combination drug therapy if BP does not decrease quickly.

Medication compliance and persistence can significantly BP as well as overall medical costs significantly [Sokol MC et al. *Med Care* 2005]. Realizing these benefits, however, is a considerable challenge in an era of polypharmacy and with adequate hypertension therapy often requiring more than one agent [Düsing R. *Vasc Health Risk Manag* 2010; Mancia G et al. *Blood Press* 2009; Chobanian AV et al. *Hypertension* 2007; Milani RV. *Am J Manag Care* 2005; Materson BJ et al. *N Engl J Med* 1993; Düsing R. *Vasc Health Risk Manag* 2010; Mancia G et al. *Blood Press*. 2009]. One study also showed that when a drug from a second class of BP-lowering agents is combined with a patient’s first antihypertensive drug, BP is reduced 5 times more than if the dose of the first drug was doubled [Wald DS et al. *Am J Med* 2009].

Dr. Liqui-Lung discussed evidence demonstrating that patients receiving combination drug therapy (ie, in a single pill) were significantly ($p < 0.0001$) more likely to adhere to therapy than those receiving free-combination therapy [Germino PP, Shoheiber O. *Am J Health Syst Pharm* 2007]. The ESH–ESC and JNC 7 guidelines recommend initiation of combination drug therapy in all patients with BP $> 20/10$ mm Hg above goal or in patients with a high risk of CVD (Figure 2) [Lenfant C et al. *Hypertension* 2003; Mancia G et al. *Blood Press* 2009].

Figure 2. ESH-ESC Guidelines for Combining Antihypertensive Drugs]



Solid lines represent preferred drug combinations in patients with hypertension. ACEI=angiotensin-converting enzyme inhibitor; ARB=angiotensin receptor blocker; CCB=calcium channel blocker; ESH=European Society of Hypertension; ESC=European Society of Cardiology. ¹Mancia et al. *J Hypertens* 2007; ²Mancia et al. *J Hypertens* 2013

Reproduced from Mancia G et al. 2013 ESH/ESC Guidelines for the management of arterial hypertension: The Task Force for the management of arterial hypertension of the European Society of Hypertension (ESH) and of the European Society of Cardiology (ESC). *Eur Heart J* 2013;34(28):2159-2219. With permission from Oxford University Press.

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