

About the Editor



Samy I McFarlane

Samy I McFarlane is Professor of Internal Medicine, Emergency Medicine and Radiology. He joined SUNY-Downstate Medical Center (NY, USA) in 1990 where he completed his internal medicine residency, endocrinology fellowship and chief medical residency. He is certified in Internal medicine, endocrinology, emergency medicine and hypertension. He served as Program Director and Chief, Division of Endocrinology, Department of Medicine and as Medical Director of Clinical Research in the College of Medicine and as Director for Medicine Clerkship at SUNY-Downstate. As a researcher, his projects included investigator-initiated studies that are nationally and internationally funded in the area of diabetes and cardiovascular disease as well as osteoporosis. He also served as the site PI on several landmark clinical trials, and has been extraordinarily successful in recruiting a large number of patients in these trials that included the DREAM study, which is an international trial to determine whether or not commonly prescribed drugs could prevent diabetes, and the ORIGIN trial that is aimed to answer the question whether insulin-mediated euglycemia would reduce cardiovascular disease in high-risk populations. He serves on national committees including the National Kidney Foundation's Kidney Early Evaluation Program (KEEP) and was recently appointed for the second 4-year term for the National Institute of Health, National Institute of Diabetes and Digestive and Kidney Diseases. As a scholar, he has authored or coauthored over 250 publications in major scientific journals. He has also edited or served as a co-editor of several books in the area of diabetes, hypertension and cardiovascular disease and the First Aid for Medicine Clerkship. He served as a founding Associate Editor for *Endocrine Today* and as Associate Editor for *Nutrition and Metabolism*, *CardioRenal Medicine* and a senior guest/section Editor several times for *Current Diabetes Reports*, *Current Hypertension Reports* and *International Journal of Hypertension* and he was the Editor-In-Chief for *Therapy* that is relaunched as *Clinical Practice* by Future Medicine.

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Foreword

Management of hypertension in diabetes

Samy I McFarlane

Diabetes has evolved as a major public health problem worldwide. According to the WHO diabetes fact sheet published in August 2011, diabetes affects 346 million people worldwide. In 2004, an estimated 3.4 million people died from the consequences of the disease. This number is expected to double between 2005 and 2030. The major cause of mortality in the diabetic population is cardiovascular disease (CVD). Risk factors for CVD among diabetic patients include hypertension, central obesity, hyperinsulinemia/insulin resistance, endothelial dysfunction, microalbuminuria, dyslipidemia, increased fibrinogen levels, increased plasminogen activator inhibitor-1 levels, increased C-reactive protein and other inflammatory markers. Among these risk factors, hypertension is twice as common in the diabetic population compared with those without diabetes, and accounts for nearly 80% of CVD risk. Conversely, patients with hypertension are more likely to have diabetes compared with normotensive individuals. In Type 2 diabetes, hypertension usually occurs in the context of the cardiometabolic syndrome that includes insulin resistance, central obesity and low high-density lipoprotein and high triglyceride levels. In Type 1 diabetes, the occurrence of hypertension generally heralds the onset of diabetic kidney disease.

Characteristic features of hypertension in patients with diabetes

Compared with the nondiabetic population, hypertension in people with diabetes has unique characteristics that contribute to the increased CVD in this patient population. These features include:

- Salt sensitivity and volume expansion. Increased salt intake has heterogeneous effects on blood pressure in normotensive, as well as hypertensive populations. Not all hypertensive subjects are salt sensitive. People with diabetes, obesity, chronic kidney disease, African–Americans and the elderly are among the most salt-sensitive subjects. This is particularly important and has therapeutic implications, including low-salt diet and diuretic use;
- Isolated systolic hypertension. With the progression of atherosclerosis in diabetes, arterial stiffness occurs in large arteries leading to isolated systolic hypertension that is more common and occurs relatively early in diabetic populations, increasing the risk of CVD and making it more difficult to control blood pressure in diabetes;
- Loss of nocturnal decline in blood pressure. In normotensive subjects and in some hypertensive patients, blood pressure typically decreases by 10–15% during sleep, a pattern that is called nocturnal ‘dipping’. Patients with diabetes have loss of nocturnal dipping (‘nondippers’), as measured by 24-h ambulatory blood pressure monitoring. Loss of nocturnal dipping conveys excess risk of stroke and myocardial infarction and is more predictive of CVD than left ventricular hypertrophy. In fact, 30% of myocardial infarctions and 50% of strokes occur in the early morning hours in the nondippers, including diabetic patients. This highlights the need to strategize for 24-h blood pressure control with proper therapeutic agents;
- Microalbuminuria. In people with diabetes, microalbuminuria correlates with insulin resistance, salt sensitivity, loss of nocturnal dipping and left ventricular hypertrophy. Elevated systolic blood pressure is a significant determinant of the progression of microalbuminuria in diabetes with significant increase in CVD, calling for select agents that target both hypertension and microalbuminuria such as the renin–angiotensin–aldosterone system inhibitors;
- Orthostatic hypotension. Another characteristic feature of hypertension in diabetes, particularly among those with autonomic dysfunction, orthostatic hypotension occurs as a result of excessive venous pooling and can lead to intermittent lightheadedness, fatigue, unsteady gait and syncope. This is important to recognize and also has therapeutic implications such as discontinuation of diuretics and avoiding the use of α -adrenergic receptor blockers.

In this book, we provide our readers with an overview of imminently relevant information supported by evidence and pathophysiologic insights and therapeutic rationale for hypertension in diabetes in an integrated approach with five chapters written by an assortment of prominent international

scholars in the field. We highlight cutting-edge information on the risk of hypertension and its prevalence in diabetes, the nonpharmacologic approach to blood pressure control, the pharmacologic therapy with the various antihypertensive classes of drugs available to date. Chapter 4 is dedicated to a rather modern, safe and effective class of drugs, the angiotensin receptor blockers and its role in cardiorenal protection in diabetes. Finally, recommendations and management guidelines by major international societies are also discussed. These societies include the European Society of Hypertension, the European Society of Cardiology, the UK NICE, the Canadian Hypertension Educational Program and the American Diabetes Association.

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Information resources

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Website

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