

Preface

Stroke is a major cause of death and disability worldwide. In the United States, it is the third leading cause of death, after heart disease and cancer. There are approximately 600,000 ischemic strokes each year and up to one-third of these individuals remain permanently disabled. Globally, stroke is projected to be the fourth most common cause of premature death and disability by the year 2020. Since the 1970s, several large international cohort studies have provided a wealth of information about stroke risk factors, many of which may be modified by lifestyle changes or medical therapies. During the same epoch, large clinical trials have established targeted interventions for preventing stroke associated with specific high-risk conditions, such as carotid disease and atrial fibrillation. Yet, even with the risks defined and the prevention strategies proven, the incidence of stroke has not decreased significantly in recent years. Although scientifically validated and widely accepted, these strategies for stroke prevention are often not effectively implemented.

The failure to identify and treat risk factors for stroke contributes to the high rates of recurrent stroke and vascular death seen in patients with cerebrovascular disease. Although issues related to vascular protection are not unique to the cerebrovascular circulation, the failure to modify such risk factors as hypertension, hyperlipidemia, smoking, and obesity contributes to the burden of stroke. Neurologists evaluating an individual at high risk of recurrent stroke following transient ischemic attack or minor stroke are sometimes ill-prepared to assume responsibility for managing such risk factors as hypertension. In contrast, non-neurologists may feel uncomfortable localizing neurological symptoms and determining the pathophysiology for the event, which may lead to a failure to implement a mechanism-based prevention strategy tailored to that individual.

Our purpose in writing the *Handbook of Stroke Prevention in Clinical Practice* was to focus on the practical aspects of managing patients at high risk of stroke and to provide the resources that a practicing clinician might find valuable in assessing and treating these individuals. The summary statements, tables, and graphs were intended to leave sharp impressions that could be woven into the clinical discourse and shared with patients and their families. We sought to include the tools and references we use on a regular basis in our practice and to consolidate them in one text. Our intention was to provide a practical guide, rather than an exhaustive compendium of stroke epidemiology and clinical trial results. We made a determined effort to include the most up-to-date targets and interventions, recognizing that these will likely evolve over time.

Our approach is based on the pathophysiology of cerebral ischemia and infarction. The primary goal of the initial assessment of a symptomatic patient should be to determine the mechanism of ischemia. The classification schemes currently employed are useful, but not optimal, given that an individual might have multiple risk factors and potentially more than one mechanism of disease. Identifying a single cause of symptoms, be it atrial fibrillation or surgically remediable carotid stenosis, should not absolve the physician from identifying and modifying other risk factors. There is increasing evidence that conventional and novel risk factors contribute to stroke through effects on inflammation, endothelial injury, and activation of the hemostatic system. For these reasons, although we address specific mechanisms throughout the text, we chose to structure the book based primarily on states conferring increased stroke risk.

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Karen L. Furie, MD, MPH
Peter J. Kelly, MD, MS, MRCPI



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