

## Stroke Treatment and Prevention

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Stroke is the third most common cause of death in the world, and a major source of a disability. This invaluable reference will provide clinicians caring for stroke patients with ready access to the optimal evidence for best practice in acute stroke treatment and secondary prevention. The author, who is a Member of the Editorial Board of the Cochrane Stroke Review Group, describes all available treatments for acute stroke and secondary prevention, the rationale for using them, and, where available, the highest-level evidence (level 1) for their safety and effectiveness.

Where level 1 evidence is not available, he offers advice on reasonable practice and information about current research. The evidence for each treatment is followed by the author's interpretations, and the implications of the evidence in the care of stroke patients.

This is therefore an essential resource for clinicians, translating into practice advances that have been made in the treatment and prevention of stroke, and suggesting the most appropriate interventions.

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Graeme J. Hankey  
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# Stroke Treatment and Prevention

An Evidence-Based Approach

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This book is dedicated to my wonderful and  
loving parents (Jean and John)  
and  
daughters (Genevieve and Michelle)

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# Preface

Stroke is an enormous public health problem. It is the third most common cause of death (causing 4.4 million deaths worldwide in 1990) and the most important cause of disability among adults (with an estimated prevalence of 0.6% population) in the world. It also imposes an enormous cost on the community, accounting for about 5% of all health service costs.

During the past decade, several promising treatments for stroke have been evaluated by means of the most reliable methods – the randomised-controlled trial (RCT) and the systematic review and meta-analysis of RCTs – providing a reasonably reliable body of evidence for the efficacy and safety of several treatments for stroke. In order for these advances to make an important difference to patient outcome and the health of nations, they need to be translated into practice. One way to facilitate this is by increasing the access to best evidence for stroke care practitioners and consumers. At present, these data are available at several sites including the *Cochrane Library*, MEDLINE, and Evidence-Based Medicine publications and web sites such as Clinical Evidence <http://www.clinicalevidence.org/>, EBM Guidelines <http://www.ebm-guidelines.com/> and the Scottish Intercollegiate Guidelines Network <http://www.sign.ac.uk/guidelines/index.html>. Furthermore, they are regularly updated to incorporate new evidence as it arises. However, none are dedicated in a single corpus specifically for clinicians who manage stroke patients and their families.

The aim of this book is to provide stroke clinicians (and their patients and families), with ready access to the optimal evidence to guide best practice in acute stroke treatment and (secondary) prevention of recurrent serious vascular events. Where available, I have quoted the highest level of evidence (level 1) to guide practice – RCTs and systematic reviews and meta-analyses of RCTs – and have predominantly sourced the *Cochrane Library*, to whom I am grateful for allowing me to reproduce their work. Of course, by the time you read this book, there will have been further updates in the *Cochrane Library* every quarter, with new reviews and updated earlier reviews, which I would encourage you to ‘visit’. After each section describing the evidence, I have made a comment about my interpretation of the

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evidence, and the implications of the evidence for clinical practice and research. As level 1 evidence is not (yet) available for many areas of stroke management, I have tried to define which areas are ‘evidence-poor’ and even ‘evidence-free’, what might be reasonable practice under these circumstances (acknowledging that absence of evidence of effectiveness does not necessarily mean evidence of absence of effectiveness (Alderson, 2004)), and what research is ongoing and needed.

Ultimately, in order to translate evidence into practice, clinicians must be aware of, and prescribe, the most appropriate interventions for their patients based on effectiveness, safety, affordability and patient preferences. And patients must be adequately informed and consent to comply with the prescription. Since most strokes are first-ever strokes and sudden in onset, it is commonly a shock for previously healthy people with a first-ever stroke or transient ischaemic attack (TIA) to be suddenly impaired neurologically, to be asked to consider sometimes risky and costly investigations and treatments (e.g. catheter angiography, thrombolysis, decompressive neurosurgery, carotid surgery or stenting), and prescribed at least three drugs (e.g. antithrombotic, statin and antihypertensive) for life. Consequently, all the options must be presented sensitively, simply and repeatedly by clinicians who know the risks (large and small) and benefits (large and small) of the treatments. And this must be done quickly, on the day of presentation or as soon as possible thereafter, because of the high risk of early recurrent stroke. Perhaps the drugs should be introduced one at a time so that any early adverse effects can be correctly attributed. Stroke medicine therefore remains an art as well as a science. It cannot be undertaken solely by ‘robots’ according to a ‘cook-book’ or protocol; the results of RCTs and meta-analyses have to be interpreted accurately, and coupled with clinical experience, acumen and common sense, in order to be applied optimally to individual patients (Warlow *et al.*, 2003).

I am grateful to Professors Charles Warlow and Peter Sandercock (Edinburgh, Scotland) and Jan van Gijn (Utrecht, The Netherlands) for introducing me to evidence-based stroke medicine, and to John Wiley and Sons Limited for granting me permission to reproduce many of the figures in this book from the *Cochrane Library*.

**Graeme Hankey**