1
Introduction

CHAPTER MENU

1.1 Introduction to the first edition

1.1.1 Aims and scope of the book

We, the authors of this book, regard ourselves as practising – and practical – doctors who look after stroke patients in very routine day-to-day practice. The book is for people like us: neurologists, geriatricians, stroke physicians, radiologists and general internal physicians. But it is not just for doctors. It is also for nurses, therapists, managers and anyone else who wants practical guidance about all and any of the problems to do with stroke – from aetiology to organization of services, from prevention to occupational therapy, and from any facet of cure to any facet of care. In other words, it is for anyone who has to deal with stroke in clinical practice. It is not a book for armchair theoreticians, who usually have no sense of proportion as well as difficulty in seeing the wood from the trees. Or, maybe, it is particularly for them so that they can be led back into the real world.

The book takes what is known as a problem-orientated approach. The problems posed by stroke patients are discussed in the sort of order that they are likely to present themselves. Is it a stroke? What sort of stroke is it? What caused it? What can be done about it? How can the patient and carer be supported in the short term and long term? How can any recurrence be prevented? How can stroke services be better organized? Unlike traditional textbooks, which linger on dusty shelves, there are no '-ology' chapters. Aetiology, epidemiology, pathology and the rest represent just the tools to solve the problems – so they are used when they are needed, and not discussed in isolation. For example, to prevent strokes one needs to know how frequent they are (epidemiology), what types of stroke there are (pathology), what causes them (aetiology) and what evidence there is to support therapeutic intervention (randomized controlled trials). Clinicians mostly operate on a need-to-know basis, and so when a problem arises they need the information to solve it at that moment, from inside their head, from a colleague – and we hope from a book like this.

1.1.2 General principles

To solve a problem one obviously needs relevant information. Clinicians, and others, should not be making decisions based on whim, dogma or the last case, although most do, at least some of the time – ourselves included. It is better to search out the reliable information based on some reasonable criterion for what is meant by reliable, get it into a sensible order, review it and make a summary that can be used at the bedside. If one does not have the time to do this – and who does for every problem? – then one has to search out someone else's systematic review. Or find the answer in this book. Good clinicians have always done all this intuitively, although recently the process has been blessed with the title of 'evidence-based medicine', and now even 'evidence-based patient-focused medicine'! In this book we have used the evidence-based approach, at least where it is possible to do so. Therefore, where a systematic review of a risk factor or a treatment is available we have cited it, and not just emphasized single studies done

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by us or our friends and with results to suit our prejudices. But so often there is no good evidence or even any evidence at all available, and certainly no systematic reviews. What to do then? Certainly not what most doctors are trained to do: 'Never be wrong, and if you are, never admit it!' If we do not know something, we will say so. But, like other clinicians, we may have to make decisions even when we do not know what to do, and when nobody else does either. One cannot always adopt the policy of 'if you don't know what to do, don't do it'. Throughout the book we will try to indicate where there is no evidence, or feeble evidence, and describe what *we* do and will continue to do until better evidence becomes available; after all, it is these murky areas of practice that need to be flagged up as requiring further research. Moreover, in clinical practice, all of us ask respected colleagues for advice, not because they may know something that we do not but because we want to know what they would do in a difficult situation.

1.1.3 Methods

We were all taught to look at the 'methods' section of a scientific paper before anything else. If the methods are no good, then there is no point in wasting time and reading further. In passing, we do regard it as most peculiar that some medical journals still print the methods section in smaller letters than the rest of the paper. Therefore, before anyone reads further, perhaps we should describe the methods we have adopted.

It is now impossible for any single person to write a comprehensive book about stroke that has the feel of having been written by someone with hands-on experience of the whole subject. The range of problems is far too wide. Therefore, the sort of stroke book that we as practitioners want – and we hope others do too – has to be written by a group of people. Rather than putting together a huge multi-author book, we thought it would be better and more informative, for ourselves as well as readers, to write a book together that would take a particular approach (evidence-based, if you will) and end up with a coherent message. After all, we have all worked together over many years, our views on stroke are more convergent than divergent, and so it should not be too terribly difficult to write a book together.

Like many things in medicine, and in life, this book started over a few drinks to provide the initial momentum to get going, on the occasion of a stroke conference in Geneva in 1993. At that time, we decided that the book was to be comprehensive (but not to the extent of citing every known reference), that all areas of stroke must be covered, and who was going to start writing which section. A few months later, the first drafts were then commented on in writing and in detail by all the authors before we got back together for a general discussion – again over a few drinks, but on this occasion at the Stockholm stroke conference in 1994. Momentum restored, we went home to improve what we had written, and the second draft was sent round to everyone for comments in an attempt to improve the clarity, remove duplication, fill in gaps and expunge as much remaining neurodogma, neurofantasy and neuroastrology as possible. Our final discussion was held at the Bordeaux stroke meeting in 1995, and the drinks that time were more in relief and celebration that the end was in sight. Home we all went to update the manuscript and make final improvements before handing over the whole lot to the publisher in January 1996.

This process may well have taken longer than a conventional multi-author book in which all the sections are written in isolation. But it was surely more fun, and hopefully the result will provide a uniform and coherent view of the subject. It is, we hope, a 'how to do it' book, or at least a 'how we do it' book.

1.1.4 Using the book

This is not a stroke encyclopaedia. Many very much more comprehensive books and monographs are available now, or soon will be. Nor is this really a book to be read from cover to cover. Rather, it is a book that we would like to be used on stroke units and in clinics to help illuminate stroke management at various different stages, both at the level of the individual patient and for patients in general. So we would like it to be kept handy and referred to when a problem crops up: how should swallowing difficulties be identified and managed? Should an angiogram be done? Is raised plasma fibrinogen a cause of stroke? How many beds should a stroke unit have? And so on. If a question is not addressed at all, then we would like to know about it so that it can be dealt with in the next edition, if there is to be one, which will clearly depend on sales, the publisher, and enough congenial European stroke conferences to keep us going.

It should be fairly easy to find one's way around the book from the chapter headings and the contents list at the beginning of each chapter. If that fails, then the index will do instead. We have used a lot of cross-referencing to guide the reader from any starting point and so avoid constant reference to the index.

As mentioned earlier, we have tried to be as selective as possible with the referencing. On the one hand, we want to allow readers access to the relevant literature, but on the other hand we do not want the text to be overwhelmed by references – particularly by references to unsound work. To be selective, we have tried to cite recent evidence-based systematic reviews and classic papers describing important work. Other references can probably mostly be found by those who want to dig deeper in the reference lists of the references we have cited.

Finally, we have liberally scattered what some would call practice points and other maxims throughout the book. These we are all prepared to sign up to, at least in early 1996. Of course, as more evidence becomes available, some of these practice points will become out of date.

1.1.5 Why a stroke book now?

Stroke has been somewhat of a Cinderella area of medicine, at least with respect to the other two of the three most common fatal disorders in the developed world – coronary heart disease and cancer. But times are gradually changing, particularly in the last decade when stroke has been moving up the political agenda, when research has been expanding perhaps in the slipstream of coronary heart disease research, when treatments to prevent, if not treat, stroke have become available and when the pharmaceutical industry has taken more notice. It seems that there is so much information about stroke that many practitioners are beginning to be overwhelmed. Therefore, now is a good time to try to capture all this information, digest it and then write down a practical approach to stroke management based on the best available evidence and research. This is our excuse for putting together what we know and what we do not know, what we do and why we do it.

1.2 Introduction to the second edition

Whether we enjoyed our annual 'stroke book' dinners at the European stroke conferences too much to abandon them, or whether we thought there really was a lot of updating to do, we found ourselves working on this second edition four short years after the first. It has certainly helped to have been so much encouraged by the many people who seemed to like the book, and find it useful. We have kept to the same format, authors, and principles outlined above in the introduction to the first edition. The first step was for all of us to read the whole book again and collect together any new comments and criticisms for each of the other authors. We then rewrote our respective sections and circulated them to all the other authors for their further comments (and they were not shy in giving them). We prepared our final words in early 2000.

A huge technical advance since writing the first edition has been the widespread availability of e-mail and the use of the Internet. Even more than before, we have genuinely been able to write material together; one author does a first draft, sends it as an attachment across the world in seconds, the other author appends ideas and e-mails the whole attachment back to the first author, copying to other authors for comments perhaps, and so on until it is perfect. Of course, we still do not all agree about absolutely everything all of the time. After all, we want readers to have a feel for the rough and ragged growing edge of stroke research, where there is bound to be disagreement. If we all knew what to do for stroke patients there would be no need for randomized controlled trials to help us do better – an unrealistic scenario if ever there was one. So where there is uncertainty, and where we disagree, we have tried to make that plain. But, on the whole, we are all still prepared to sign up to the practice points.

In this second edition, we have been able to correct the surprising number of minor typographical errors and hope not to have introduced any more, get all the X-rays the right way up, improve on some of the figures, remove some duplication, reorder a few sections, put in some more subheadings to guide the readers, make the section on acute ischaemic stroke more directive, improve the index, and generally tidy the whole thing up. It should now be easier to keep track of intracranial venous thrombosis and, in response to criticism, we have extended the section on leukoaraiosis, even though it is not strictly either a cause or a consequence of stroke. We have also introduced citations to what we have called 'floating references' – in other words, published work that is constantly being changed and updated as new information becomes available. An obvious example is the *Cochrane Library*, which is updated every 3 months and available on CD-ROM and through the Internet. There are no page numbers, and the year of publication is always the present one. We have therefore cited such 'floating references' as being in the present year, 2000. But we know that this book will not be read much until the year 2001 and subsequent years, when readers will have to look at the contemporary *Cochrane Library*, not the one published in 2000. The same applies to the new *British Medical Journal* series called 'Clinical Evidence' which is being updated every 6 months, and to any websites that may be updated at varying intervals and are still very much worth directing readers towards.

Rather to our surprise, there is a lot of new information to get across on stroke. Compared with 4 years ago, the concept of organized stroke services staffed by experts in stroke care has taken root and has allowed the increasingly rapid assessment of patients with 'brain attacks'. It is no longer good enough to sit around waiting 24 h or more to see if a patient is going to have a transient ischaemic attack or a stroke, and then another 24 h for a computed tomography brain scan to exclude intracerebral haemorrhage. These days we have to assess and scan stroke patients as soon as they arrive in hospital, perhaps give thrombolysis to a few, and enter many more into clinical trials, start aspirin in ischaemic stroke, and get the multidisciplinary team involved – and all of this well within 24 h of symptom onset. Through the *Cochrane Library*, which was in its infancy when the first edition was published, there is now easy, regularly updated electronic access to systematic reviews of most of the acute interventions and secondary prevention strategies for stroke, although the evidence base for rehabilitation techniques is lagging behind. Catheter angiography is giving way to non-invasive imaging. Magnetic resonance techniques are racing ahead of the evidence as to how they should be used in routine clinical practice. For better or worse, coiling cerebral aneurysms is replacing clipping. The pharmaceutical industry is still tenaciously hanging on to the hope of 'neuroprotection' in acute ischaemic stroke, despite numerous disappointments. Hyperhomocysteinaemia and infections are the presently fashionable risk factors for ischaemic stroke, and they may or may not stand the test of time. So, in this second edition, we have tried to capture all these advances – and retreats – and set them in the context of an up-to-date understanding of the pathophysiology of stroke and the best available evidence of how to manage it. Of course, it is an impossible task, because something new is always just around the corner. But then 'breakthroughs' in medicine take time to mature – maybe years until the evidence becomes unassailable and is gradually accepted by front-line clinicians. And then we can all sit back doing what we believe to be 'the right thing' for a few more years until the next 'breakthrough' changes our view of the world yet again.

We hope that the ideas and recommendations in this book will be sufficient 99% of the time – at least for the next 4 years, when we will have to see about a third edition.

1.3 Introduction to the third edition

Six years have gone quickly by since the second edition, much has happened in stroke research and practice in the meantime, and two of the authors are on the edge of retirement – so it is time for this third edition of what we fondly refer to as 'the book'. Maybe because the original authors were feeling tired, or increasingly unable to cover in depth all we wanted to, or perhaps because we wanted to ensure our succession, we have recruited four new and younger authors, all of whom have worked closely with us over many years, and whose help we acknowledged in the earlier editions – Gabriel Rinkel, Peter Langhorne, Cathie Sudlow and Peter Rothwell. But, even with their help, the rewriting has had to compete with all the far less interesting things which we have to do these days to satisfy managers, regulatory authorities and others keen to track and measure our every move. And maybe there is less imperative to write books like this which are out of date in at least some ways even before they are published. But then searching the Internet for 'stroke' does not come up with a coherent account of the whole subject of managing stroke patients using the best available evidence, which is what this book is all about. So, with the help and encouragement of Blackwell Publishing, here is the third edition of 'the book' at last.

We have written the book as before with most of the authors commenting on most of the chapters before all the chapters were finally written in the form you can read them in now. Again, you will have to guess who wrote what because we can all lay claim to most of the book in some sense or another. There has been a slight change in the arrangement of the chapters, but loyal readers of the earlier editions will not find this too upsetting – they will still find what they want in more or less its familiar place, and as ever we hope the index has been improved. The practice points we all sign up to and our day-to-day practice should reflect them. The uncertainties we all share – they will be gradually resolved as more research is done, and more uncertainties will then be revealed. The biggest change in this edition is succumbing to the space saving offered by a numbered reference system, and a change in the colour scheme from a pastel green to various shades of purple.

As with the second edition, much has changed and there has been more updating than we originally anticipated – what we know about stroke has moved on. Neuroprotection is even less likely to be an effective treatment for ischaemic stroke than it was in the 1990s, we still argue about thrombolysis, clopidogrel cannot very often be recommended, carotid stenting has still to prove its worth, routine evacuation of intracerebral haemorrhage is definitely not a good idea, and hormone replacement therapy far from protecting against vascular disease actually seems to increase the risk. But on the positive side, much has improved in brain and vessel imaging, it is now clear how much blood pressure lowering has to offer in secondary stroke prevention, and cholesterol lowering too. Carotid surgery can now be targeted on the few who really need it, not recommended for the greater number who may or may not need it. Coiling has more or less replaced clipping of intracranial aneurysms, an astonishing change in practice brought about by a large trial energetically led by an interventional neuroradiologist and neurosurgeon. And it is not just acute stroke that needs urgent attention nowadays, transient ischaemic attacks must be assessed and managed very quickly to minimize the early high risk of stroke. Stroke services continue to improve all over the world, stroke has moved up the political agenda as we have managed to wrench it out of the rubric of 'cardio-vascular' disease which always emphasized the cardiac rather than the cerebral, and more and more people are involved in stroke research, which is now a much more crowded and competitive field than it was when some of us started in the 1970s.

Will there be a fourth edition? We don't know; this will be in the hands of the remaining authors as Charles Warlow and Jan van Gijn dwindle into retirement of a sort, or at least a life that will not require the relentless battle to keep up with all the stroke literature, critique it, absorb anything that is worthwhile, and then put it into the context of active clinical practice. No one can write well about stroke unless they can connect research with their own active clinical practice – we are not, we hope, armchair theoreticians; we try to practise what we preach.

1.4 Introduction to the fourth edition

This edition of *Warlow's Stroke* sees a "changing of the guard" with a fresh complement of authors. The first two editions, published in 1996 and 2001, were written by Charles Warlow, Martin Dennis, Jan van Gijn, Graeme Hankey, Peter Sandercock, John Bamford, and Joanna Wardlaw. The third edition, published in 2007, was boosted by the addition of Gabriel Rinkel, Peter Langhorne, Cathie Sudlow, and Peter Rothwell to the writing team. All three editions were the product of collaborative training and research in evidence-based stroke medicine in Oxford, Edinburgh, and Utrecht, inspired and led by Charles and Jan. Since the third edition, Charles and Jan have retired from stroke medicine and the collaborative group has retired from writing stroke books.

Meanwhile, loyal readers and the publisher of the first three editions have requested that the legacy of "*Warlow's Stroke*" book continue. Hence, a team of international stroke experts from around the world has assembled to update the original chapters and add additional chapters dedicated to cognition and rehabilitation. We thank our coauthors and trust that the transition from the third to the fourth edition is seamless and satisfactory.

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