A manual of neonatal intensive care, 4th edition

As an SHO, I bought the first edition of the Manual in 1982. It was a survival guide which provided safe certainties in the small hours of the night. It was small, light, and compact. There was no competition: the Robertson Manual was the book to have!

Nearly 20 years on, where has the 4th edition taken us? Bigger, certainly: a behemoth of a “small” manual with 550 pages. Not much taller or wider than its predecessors, but much thicker, the rather thin and closely typeset pages distinctly reminiscent of a Bible. Thirty four chapters and eight appendices. There’s an awful lot of information in here.

Road testing a book like this is quite a challenge. Clearly one should not ask it to perform in a manner for which it was not designed, and the authors helpfully explain in the preface that their aim “is to provide a guide for the management of the acute medical and surgical problems a resident is likely to encounter on a modern neonatal intensive care unit.” So I went for chapter 1, expecting it to plunge in where every resident is most nervous: resuscitation of the newborn.

Instead, I got “Organization of neonatal care”. Admittedly it is only six pages, but does a resident really need this in a practical manual? Especially since the big Robertson book is likely to be on hand in most neonatal units to provide this and much more detail on this subject. In the Manual, you have to wait until chapter 6 to get “Resuscitation”, with “Temperature control”, “Fluid & electrolytes”, “Enteral nutrition and parenteral nutrition”, all packed with science and physiologic detail. How much physiology do you want or need in a practical manual? Not much this, I think.

So I tried again with the oxygenation index (OI). There must be many units where the OI is used as a pragmatic threshold for starting nitric oxide or high frequency oscillation, and of course for referring for extracorporeal membrane oxygenation (ECMO). The resident will want to find the page with the formula for calculating OI, and how to deal with mm Hg versus kPa for the oxygen tension. To the index then—but no entry for oxygenation index. To the glossary of abbreviations at the front: there, sure enough, is OI. But where is it in the text? I could not find it under PPHN, or RDS, or ventilation. Eventually, by close reading, I found it mentioned under Meconium aspiration, and also under ECMO, but nowhere could I find the formula for calculating OI, from it. By this time, the luckless resident will have been called away to the next problem, and if the formula is indeed there, he/she will have lost interest in finding it.

Residents are increasingly likely to be faced with ventilators that read out the tidal volume and minute volume, and only pressure-volume curves. They want to know how to use this information. They want to know what to do when babies on trigger ventilation drop their Pco2 to embarrassingly low levels. They want the formula for calculating the fractional ventilation losses of sodium. They need to know that separate chest and abdomen radiographs give much better radiological information than “babygram” pictures. Sadly, they will be disappointed if they try to find such information in this book.

The 4th edition of the Manual seems to have lost the values of its roots. It feels like a pared down version of the big Robertson book, repackaged between smaller covers. It contains a level of detail that is unnecessary given the alternative sources of the material. It can be hard to find in a hurry the things you need, and some of the things you want are not there at all—or at any rate, I couldn’t find them when I wanted them. And the index is terrible. On the other hand, if you want a comprehensive introduction to the subject of neonatal intensive care medicine for under £20, look no further. This is your book.

M P Ward Platt
Neonatal Service, Royal Victoria Infirmary, Queen Victoria Road, Newcastle upon Tyne, NE1 4LP, UK; m.p.ward-platt@ncl.ac.uk

Neonatology & laboratory medicine

Neonatology & laboratory medicine is a novel concept and a valuable addition to our literature. The book brings together a clinical biochemist, a neonatologist, and a medical microbiologist as authors in a successful attempt to describe appropriate laboratory investigation and clinical management of the neonate. This paperback aims to provide a clinical biochemist, laboratory scientists, and neonatal nurses with background information that will help solve common neonatal problems. The chapters deal systematically with common biochemical and infective problems that may befall neonates. There are also sections on breast feeding, parenteral nutrition, and therapeutics. Best of all it finishes with appendices including normal reference ranges and a useful glossary.

The expenditure of £30 rewards the reader with more than 300 pages which are clear and well arranged. Tables and flow diagrams are easy to dip into. More senior readers may be frustrated that the book is not referenced, but recommended reading is provided at the end of each chapter.

Three small criticisms and suggestions for the next edition:
- The chapter entitled “Drugs and the neonate” is too short. The figure referring to biochemical and haematological monitoring sites only 11 drugs, ignoring commonly used drugs such as vecuronium, insulin, surfactant, salbutamol, 5-fluorocytosine, and steroids. Even those lucky 11 have curious omissions—for example, the oliguria and fluid retention associated with indomethacin.
- Secondly the book recurrently ignores the unusual demands of the extreme preterm infant—for example, dialtonal exchange for polycythaemia is said to be carried out in 10 ml aliquots, and does not recommend smaller volumes of 500 g whose total blood volume may be little more than 40 ml.
- Thirdly the section on viral disease and transmission should be more detailed. “Low risk” is not quantitated, and CMV is described variously as “largely inactivated by freezing” and (one page later) “does not survive freezing”—an inconsistency that leaves the reader feeling insecure about such an important safety issue.

Nevertheless this is a volume that is informative and attractive, from the cartoon of a neonate’s head (front cover) to the photograph of the three distinguished and pathologically cheerful authors at the end. For all professional staff there are 300 pages of clear descriptions containing information that will prove useful in organising investigations in the neonatal unit. There are also modern data which can be used to defend the embattled SHO against the demands of the consultant ward round. Every neonatal unit should purchase a copy. I predict that these valuable pages will be well thumbed within a month. I look forward to a further edition, and hope that it will extend its scope to include other laboratory disciplines such as genetics and electrophysiology. The three authors deserve success with this winner.

I A Laing
Simpson Centre for Reproductive Health, 51 Little France Crescent, Edinburgh EH16 4SU, Scotland, UK; ian.laing@luht.scot.nhs.uk

Fetal and neonatal brain injury: mechanisms, management and the risks of practice, 3rd edition

Brain injury remains a common theme in a large proportion of survivors of extreme prematurity and/or neonatal encephalopathy. The headline rates of significant disability have been largely unchanged despite the enormous advances in neonatal intensive care of the post-surfactant era, and more subtle educational difficulties are later declared in many others. It is essential that clinicians continue to strive for a deeper understanding of the mechanisms of brain injury to not only guide conventional management, but also look ahead to the future strategies in which neuroscience advances may translate into plausible clinical strategies—for example, promoting the regrowth of damaged cerebral cortical neurones across an area of periventricular leukomalacia.

The strength of a textbook such as this is to give an in depth overview of many aspects of brain injury. This is accomplished well by a distinguished list of mostly United States based contributors, who consider the many aspects of neonatal brain injury in terms of aetiology, epidemiology, diagnosis, management, and...
long term outcome. A section on medico-legal issues makes interesting reading, although is not directly applicable to the British judicial system. Surprisingly little although is not directly applicable to the British judicial system. Surprisingly little

British judicial system. Surprisingly little although is not directly applicable to the British judicial system. Surprisingly little

obstetricians, neonatologists, and paediatric neurologists. It should prove to be a useful reference for specialists in these fields.

In summary, this is a comprehensive account of an area of vital importance to obstetricians, neonatologists, and paediatric neurologists. It should prove to be a useful reference for specialists in these fields.

References


Linear IgA bullous dermatosis in a neonate

We encountered a neonatal case of linear IgA bullous dermatosis. Only one other case of the disease diagnosed in the neonatal period has been reported, so we felt that it was important to describe this case.

Small vesicles first appeared on the face, hands, and legs of a Chinese full term baby boy on day 3 of life, which evolved into bullae on day 13. New bullae continued to erupt into respiratory failure requiring intubation. On day 30, bronchoscopy revealed a swollen middle of a three week course of prednisolone. After extubation, stridor gradually subsided, and ciprofloxacin and cefotaxime was continued, and ciprofloxacin and cefotaxime was discontinued, and ciprofloxacin and cefotaxime started for a three week course. Serial cranial ultrasound and computed tomography scans showed no evidence of intracranial abscess or ventriculitis. At 1 year of age the infant is neurodevelopmentally normal.

Neonatal infection with Citrobacter freundii

An infant developed early respiratory distress after delivery at 34 weeks gestation after prolonged rupture of membranes. Citrobacter freundii was cultured from a maternal mid-trimester urine sample at delivery. C freundii, resistant to ampicillin but sensitive to gentamicin, cephalosporins, and ciprofloxacin, was isolated from neonatal blood cultures taken on admission. Gram negative rods were seen on microscopy of cerebrospinal fluid (CSF), with no white cells and 730 red cells per high power field. CSF protein was 1.26 g/l and glucose 3.0 mmol/l, with blood glucose of 4.9 mmol/l. No organisms grew on CSF culture. Ampicillin and gentamicin were discontinued, and ciprofloxacin and cefotaxime started for a three week course. Serial cranial ultrasound and computed tomography scans showed no evidence of intracranial abscess or ventriculitis. At 1 year of age the infant is neurodevelopmentally normal.
replicate within brain capillary epithelium, perhaps accounting for the propensity of this organism for causing cerebral abscesses. However, including this case, this complication appears to be confined to late onset disease, with possible explanations being the early use of antibiotics, and absence of a putative virulence factor.

The combination of cefotaxime and an aminoglycoside is recommended for neonatal Gram negative meningitis, but CSF concentrations of gentamicin may only be marginally above the minimum bactericidal concentration of Gram negative organisms. Ciprofloxacin has been shown to be effective in Gram negative meningitis, and should be considered in the treatment of this condition.

T J Malpas, J J Munoz
Department of Paediatrics, The General Hospital, Jersey JE1 3QS, Channel Islands; t.malpas@gov.je

I Muscat
Department of Pathology, The General Hospital, Jersey
doi: 10.1136/adc.2003.043398

References

Recruitment failure in early neonatal research
Rates of neurodevelopmental handicap are high among extremely low birthweight survivors, and the first 48 postnatal hours probably give the greatest opportunity for preventing damage. However, at this time, families are in turmoil and may have difficulty in coming to terms with a small baby in intensive care. We recently had to abandon an observational, non-invasive study because of practical difficulties arising from the new Research Governance Framework, and we would like to share this experience, and its implications, with the research community.

We needed parental consent for the study, which had local research ethics committee approval. Babies had to be <1500 g birth weight, >25 weeks gestation, <48 hours old, ventilated, with an arterial line, and no prior intervention for circulatory compromise. The last two requirements meant that, in reality, babies had to be recruited within the first 12 hours. A non-invasive measurement of peripheral oxygen consumption was to be made regularly over 24 hours. We aimed to recruit 50 babies over two years.

When an eligible baby was admitted, the parent(s) were given further information before consent was sought a minimum of four hours later. Postnatal recruitment proved difficult. The need to give parents time to consider their decision meant that the opportunity for starting the study was often missed because of changes in the baby’s clinical condition.

With additional local research ethics committee permission, we tried to recruit women at high risk of delivering before term from 25 weeks gestation. The consent process was more complex in this group, as the explanation had to include information about standard neonatal care and procedures. Parents in this group were given 24 hours to come to a decision. Figure 1 shows that, of 28 eligible babies, only five were recruited. Eight out of nine mothers approached antenatally gave consent, but only two of their babies were studied, as three did not meet the entry criteria and the other three were born elsewhere.

What went wrong? Since the Griffiths report, the emphasis has been on obtaining fully informed parental consent, and the research team has to ensure that the parents thoroughly understand the research and its implications. Research where parents signed consent forms, but later claimed that they did not understand the research, was heavily criticised. Consequently researchers are reluctant to approach parents who are in any way distressed, because of the difficulty in ensuring valid consent. If it is important for early neonatal research to continue, we urgently need agreement on a sensitive, humane, and realistic framework that is acceptable to both parents and clinical researchers alike.

S Nicklin, S A Spencer
Neonatal Unit, University Hospital North Staffordshire (NHS) Trust, Newcastle Road, Stoke on Trent ST4 5GG, UK, andy.spencer@uhsnhs.uk

doi: 10.1136/adc.2003.043711

Gestational age in the literature
In neonatology, the correct gestational age (GA) is extremely important, as the viability and survival of the premature baby depend on it. A difference of a few hours or a day can have a substantial impact on the survival and long term morbidity of premature babies.

Doctors are trained to report the GA of a premature baby in exact days—for example, 26+4 (GA = 26 completed weeks and 4 days). Reporting the GA in this format helps in understanding and assessing the postnatal and maturational age of premature babies. One would therefore expect GA to be reported exactly in the literature, especially in articles, studies, and trials dealing with survival and morbidity in premature babies. In fact, descriptions of GA are extremely ambiguous in most articles. An example of this ambiguity is survival at 26 weeks GA is...
62.6%. This description of GA is open to interpretation. It could mean 25\(^{+}\) to 26\(^{+}\) or 26\(^{+}\) to 26\(^{+}\). Every extra day improves the survival of the premature baby by 2%. Therefore, for the above GA, survival could change by 12% on either side of 26%. This could have a large effect not only on survival but also on long-term morbidity.

Many large studies and articles published on survival, viability, and ethical issues of resuscitation in extremely premature babies have used this ambiguous description of GA. The EPICure study is a good example of a large, single-facility study that uses the ambiguous description of GA.\(^1\) Such large studies have a major impact on doctors and parents, as the results and interpretation are used by neonatologist for counselling, teaching, and research.

For those dealing with ethical issues, especially resuscitation in extremely premature babies, exact GA can be of immense help.\(^2\) As the limits of viability and survival are stretched, doctors need to be very clear in their minds about the exact age of the premature baby.

In view of the above, we propose that the reporting of GA in the literature should be uniform. It should be described in exact days—that is, weeks.\(^3\)

**Fever in the neonatal period**

This is in reference to the recent article by Maayan-Metzger et al.\(^1\) The clinical implication of the study is questionable. It is difficult to make a prospective decision on retrospective data. What should a clinician do if a febrile 5 day old baby has a fever of 37.9˚C? There is no problem in fever with antibiotics on the basis of the treatment being offered was not novel. Between February and August 2002, 28 families were offered home phototherapy in Tayside: six refused (difficulties with feeding, distance from home to hospital, and parental choice). The mean birth weight was 3245 g (range 2240–4220), with a median gestation of 38 weeks (range 35–41). Mean maternal age was 30 years (range 17–41). Twenty (91%) infants were breast fed. Ten were first born. Seven families lived in affluent areas and two in areas of high deprivation.\(^4\) Phototherapy started at a median age of 5.5 days (range 1–13). Eight infants received all their phototherapy at home. Mean treatment duration was 47.3 hours (range 17.5–97.0) with a median decrease in SBR of 16 µmol/l per day (ranging from a fall of 50 µmol/l to a rise of 53 µmol/l in one case). Community midwives spent about 60 minutes on the first home visit. Subsequent visits were shorter. Poor compliance, without compromise to either infant, was identified in two families and rectified quickly. No other adverse incidents were reported, and there was no equipment failure. All parents preferred home phototherapy to inpatient treatment. Community midwives have been happy to continue the programme.

We believe this is the first report of a home phototherapy programme in the United Kingdom. With appropriate training and enthusiastic community support, it appears to be feasible, safe, and well accepted by families and staff. We would encourage others to consider establishing such programmes.

We are grateful to the rest of the Tayside Home Phototherapy Project Team (J. Dalzell, A. Jarvis, M. Meldrum, V. Samson) and the community midwives who contributed to the success of the project. This project was supported by a grant from the Scottish Executive Health Department – Innovative Fund for Children’s Services.

**References**


4. Royal Sussex County Hospital, Brighton, Sussex, UK; binopai@hotmail.com
doi: 10.1136/adc.2003.034868
Recruitment failure in early neonatal research

S Nicklin and S A Spencer

Arch Dis Child Fetal Neonatal Ed 2004 89: F281
doi: 10.1136/adc.2003.043711

Updated information and services can be found at:
http://fn.bmj.com/content/89/3/F281.1

These include:

References
This article cites 1 articles, 0 of which you can access for free at:
http://fn.bmj.com/content/89/3/F281.1#BIBL

Email alerting service
Receive free email alerts when new articles cite this article. Sign up in the box at the top right corner of the online article.

Notes

To request permissions go to:
http://group.bmj.com/group/rights-licensing/permissions

To order reprints go to:
http://journals.bmj.com/cgi/reprintform

To subscribe to BMJ go to:
http://group.bmj.com/subscribe/