book reviews

Basic concepts of fluid and electrolyte therapy

By Dileep N Lobo, Andrew JP Lewington and Simon P Allison. Bibliomed Medizinische Verlagsgesellschaft mbH: Melsungen, 2013. 135pp.
Available online, free of charge, at: www.bbraun.com/documents/Knowledge/Basic_Concepts_of_Fluid_and_Electrolyte_Therapy.pdf.

Every junior doctor has been daunted at some point by the task of fluid prescription. Indeed, the evidence (both historical[1] and more recent[2,3]) also points toward educational deficits in this area. The book *Basic Concepts of Fluid and Electrolyte Therapy* (available free online at www.bbraun.com/documents/Knowledge/Basic_Concepts_of_Fluid_and_Electrolyte_Therapy.pdf) does an excellent job of helping to demystify this process. Written by an expert team representing gastrointestinal surgery, nutrition and renal medicine, the book provides a handy reference guide to everyday matters involving fluid prescription and electrolyte management. Theoretically, it spans 135 pages, but the online ebook is formatted for smaller mobile device screens, so text is large and easy to read. Although its self-stated aims are to provide 'a pocket book for students, nurses and young doctors', some of the information found therein would challenge the daily clinical practice of many more senior physicians and surgeons.

The book begins with a nice revision tour of the normal physiology and anatomy of fluid balance maintenance, keeping reference to how it would be altered in disease. Highlights include a table for comparison of contents of the commonly used intravenous fluids (with a plasma column for easy reference) and a further comparison of 'where fluid goes' after administration. For example, in order to raise the plasma volume by 1,000 ml, 12,000–14,000 ml of 5% dextrose must be infused (compared to 4,000–5,000 ml of Hartmanns/normal saline or 1,500 ml of succinylated gelatin [Gelofusine]). This brings new quantitative colour to traditional cautions regarding dextrose use in volume resuscitation.

The authors then move on to provide rationale for their preferred fluid maintenance regimens, which, despite their sound basis, result in almost radical changes from standard ward practice. The book briefly compares routes of fluid provision, including enteral and subcutaneous, then discusses acid/base balance and interpretation of arterial blood gas (ABG). The remainder of the book is devoted to the explanation and basic management of related clinical scenarios, including oliguria, acute kidney injury (together with its complications like hyperkalaemia and pulmonary oedema), diabetes mellitus with ketoacidosis and electrolyte disorders like refeeding syndrome. Though individual hospital policies will no doubt vary, this clinical scenario listing reads like a list of urgent medical on-call jobs, so a thorough understanding of those scenarios is of vital relevance.

In my opinion, the only potential shortcoming of the book was the lack of any inline (or even chapter-based) referencing. In the era of evidence-based medicine, the keen reader is left to sift through 100 references (dated from 1882 to 2012) looking for articles which seem relevant to the topic at hand.

Overall, this book is concise (but clinically adequate), with instant delivery to the reader in a small volume or portable PDF package (less than 1 MB in size). I would highly recommend it to both medical students and junior doctors as a great 'real-world' introduction to fluid and electrolyte management. The book could easily form the basis of many case-based teaching scenarios for ward-based student attachments. Moreover, even the more experienced physician with limited time for a cover-to-cover read would undoubtedly find it a worthy reference in times of clinical quandary.

References

1 Lobo DN, Dube MG, Neal KR *et al.* Problems with solutions: drowning in the brine of an inadequate knowledge base. *Clin Nutr* 2001;20:125–30.
2 Powell AG, Paterson-Brown S. Safety through education. FY1 doctors still poor in prescribing intravenous fluids. *BMJ* 2011;342:d2741.
3 Lim CT, Dunlop M, Lim CS. Intraveneous fluid prescribing practices by foundation year one doctors – a questionnaire study. *JRSM Short Rep* 2012;3:64.

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