How to read pediatric ECGs

Edited by Myung K Park and Warren G Grail

How to read pediatric ECGs is an unusual book, which harks back to the past. In this era of information overload, the quick answer to most questions—medical or otherwise—can be obtained by “Googling” or similar shortcuts. This book takes a more traditional approach.

The first chapter deals with the lost art of vectorcardiography—the application of basic physics and mathematics to the interpretation of the ECG. Read this chapter carefully and the mysteries of QRS axis and even the EP Holy Grail—pathway spotting in Wolff-Parkinson-White syndrome—become less opaque. Chapter 2 is a manual that deals with the measurement of basic intervals (PR, QRS, etc) but also adds in exotica such as JT intervals. It deals with the calculation of axis for which three methods are detailed. In chapters 3 and 4, normal values are described with copious illustrations and tables covering the premature neonate upwards. Chapter 5 deals with the complexity of ECG evaluation of chamber hypertrophy. By this stage I started to twitch at the edge of my imaginary echocardiome. Clearly, in modern medical practice, echocardiography is simpler and more accurate in the assessment of chamber size and wall thickness. Nonetheless, a good understanding of the ECG may prove helpful in confusing cases. Chapter 6 deals in great detail with bundle branch block and includes an extensive treatise on partial right bundle branch block in children. Complex vector loops are drawn, prefaced with the warning that “this is for advanced readers only!” Then there follow chapters on ST segment analysis (including the t wave), arrhythmias, AV block and chamber analysis. The book finishes with a description of a concise systematic approach which can be used to read the ECG and analyse arrhythmias and AV block.

How to read pediatric ECGs is clearly illustrated and each chapter is supplemented by excellent review questions that test knowledge of the preceding chapter. There are some very good reference tables of normal values. The book does, however, have some notable omissions. For example, the section on “reading the paced ECG” is extremely brief and omits to mention newer developments such as the biventricular pacemaker and implantable defibrillator. Similarly, the section on Wolff-Parkinson-White syndrome is short and could be improved by the inclusion of patholocalisation algorithms and a description of why the localisation of the pathway is useful in the ablation era.

Overall, this is an interesting and erudite book that will endow the reader with an improved understanding of the theoretical basis of the ECG. I am an enthusiast for endurance sports and, having recently completed the West Highland Way, I can testify to the purification of spirit that can be achieved by tramping through virgin snow across Rannoch Moor. The sense of achievement is immense and is supplemented by a deeper knowledge of oneself, one’s Creator and fellow man. At the same time, the body is propped up by muscles and relief that it is all over. This book is a bit like that. Try it!

A Graham Stuart

Childhood cancer in Britain


The National Registry of Childhood Tumours (NRCT) is an enormous, long-standing and meticulously maintained dataset, the analysis of which is presented in this book. The analysis includes all children diagnosed with cancer and leukaemia aged 0–14 years from 1962 onwards and resident in England, Scotland and Wales. The NRCT does not collect any data on older teenagers and young adults, and this book does not include data from Northern Ireland, which was first included in the NRCT in 1993.

Ascertainment of children has been by multiple sources including national and regional cancer registries, the UK Children’s Cancer Study Group, leukaemia trials and death certification. It is estimated to be around 99% complete, whilst loss to follow-up has been less than 1%. Would it be possible, one wonders, to achieve this exemplary level of completeness if the cancer registries were only being established now, in an age of data protection and complex ethics approval processes? Whilst consent and data protection are alluded to in the book, it would be useful if the processes used were more clearly described.

The body of the book presents incidence from 1966 to 2000, time trends in incidence from 1991 to 2000, time trends in survival of children diagnosed between 1991 and 2000, time trends in survival from 1966 to 2000, mortality from 1995 to 2004, and time trends in mortality from 1965 to 2004. The data are presented broken down by diagnostic group, according to the International Classification of Childhood Cancer (ICDC), and by age and sex. There is a discussion of the factors influencing the incidence patterns and time trends. At a time of great pessimism in the National Health Service (NHS), it is cheering to read of the improvements in survival from childhood cancer, in terms both of 5-year survival and of later survival, with children followed up for over 20 years from diagnosis.

The final chapter describes interesting linkages between the registry and other databases to support epidemiological research. Research possibilities for the future may include linking NRCT data to NHS computer records or to genetic data obtained from stored Guthrie cards.

Researchers will find the book a useful reference source. The oncologist designing a multicentre clinical trial could use this to estimate sample size and required geographical extent. Cancers with a low survival rate, which could form research priorities, have been identified and listed. Epidemiologists interested in possible aetiologies of childhood cancer would find this a good starting point.

The time trends in survival and mortality will assist those planning paediatric oncology services at a regional or supraregional level. Longer survival after diagnosis generates a greater need for services. And, as mortality from all causes in childhood has fallen, so cancer mortality, despite the improvements achieved in survival, has become a more important cause of childhood death.

This is a scholarly piece of work and the methods used cannot be faulted. By its nature the book is dry and dense with information and tables and can be laborious to read. But as a clean and tidy piece of epidemiology, it is admirable.

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CORRECTIONS
doi: 10.1136/adc.2006.111195corr1
C J Hobbs, J Osman. Genital injuries in boys and abuse (Arch Dis Child 2007;92:328–31). Seven “accidental injuries” should have been described in this paper to make a total of 86 cases. In table 3 the additional extra case is: “3 year old with sharply defined superficial transverse cut over dorsum of penis at base of shaft and the history that a thin plastic toilet seat fell on him”.
doi: 10.1136/adc.2006.107284corr1
M Luscombe and B Owens. Weight estimation in resuscitation: is the current formula still valid? Arch Dis Child 2007;92:412–15. The formula published in fig 1 of this paper is incorrect. The correct formula is as written throughout the remainder of the manuscript—that is, “Weight = 3(age)+7.”