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Book Reviews

Calcium and bone disorders in children and adolescents, 2nd revised edition. J. Allgrove, N. J. Shaw, editors (Karger, Basel, Switzerland) 2015. 434 pages. Price: USD 291.00/CHF 247.00/EUR 231.00

ISBN 978-3-318-05466-8

Edited by two leading paediatric endocrinology experts from UK, the second edition of this book is a one stop exhaustive compendium of updated information related to bone and mineral physiology and related disorders in children and adolescents. This field has witnessed a rapid gain in information during the last decade, which should now translate it into better clinical practice. This multi-author book is a valuable tool to meet this requirement.

The book begins with an in-depth review of calcium-phosphate-magnesium metabolism, describing elegantly the complex interplay between various humoral factors involved in mineral homeostasis. Appropriate references are made to the pathological basis for various related disorders of bone and mineral metabolism, making the chapter clinically relevant. Current understanding of bone physiology including molecular mechanisms and pathways regulating bone cell function are discussed in the third chapter, which presents comprehensively the various genes associated with skeletal disorders in children. The chapter also identifies potential strategies for enhancing bone strength and provides the rationale for newer approaches to treat disorders related to bone cell dysfunction. Bone densitometry has increasingly been used in paediatric disorders, and chapter 5 has been devoted to the current status of various techniques including the DEXA, quantitative CT and MRI available for quantification of bone strength in children.

After these initial chapters, the subsequent chapters are devoted to practical approaches to various disorders related to mineral metabolism in children and adolescents. Hypocalcemia is commonly encountered in paediatric practice. A practical diagnostic approach to hypocalcemia based on serum parathyroid hormone (PTH) levels has been discussed in chapter 6, followed by a review of various disorders leading to hypocalcemia and its management. Hypercalcemia, a less frequently encountered derangement is discussed next. Aetiology of hypercalcemia is different in children as compared to adults, encompassing a wide range of conditions, many of these with genetic basis. Approach to rickets is presented in chapters 8 and 9, the first dealing with calciopenic rickets and the other with phosphopenic rickets. The chapter 9 further reviews phosphate metabolism and its key determinants namely PTH and fibroblast growth factor (FGF) 23, before discussing various hypophosphataemic and hyperphosphataemic states.

The subsequent chapters deal with paediatric osteoporosis, another area that has been a focus of attention in recent times. Current understanding of pathophysiology and genetics of primary osteoporosis in children are discussed in chapters 10 through 12, followed by a step-wise diagnostic approach including clinical, radiological and biochemical evaluation of a child with osteoporosis. The management strategies to optimize bone strength and physical mobility in children with these disorders are also discussed. The chapter on secondary causes of osteoporosis outlines principles of bone strength development and risk factors for childhood osteoporosis followed by management strategies for osteoporosis associated with various systemic disorders in children. One chapter is devoted exclusively to monogenic causes of osteoporosis. A practical approach to a child with recurrent fractures is presented in chapter 13 discussing different scenarios of recurrent fractures encountered clinically.

The book also has chapters on skeletal aspects of non-accidental injuries, approach to skeletal

dysplasias and finally, one on miscellaneous bone disorders including disorders associated with high bone density. A chapter providing brief overview of drugs commonly used in paediatric bone and calcium disorders including newer drugs is also included.

A chapter comprising of 95 illustrative case summaries showcasing various disorders discussed in the book is of particular interest. Each case is followed by learning points and linked to an appropriate section of the book where the related topic is discussed.

Covering rickets under two different chapters misses out on the initial clinical approach to a child presenting with features of rickets, and the differentiating clinical and laboratory clues that facilitate initial segregation in the two main categories. Likewise, the chapter on skeletal dysplasia deals exclusively with radiological approach to diagnosis. A discussion on clinical approach to this group of disorders would have been a welcome addition to the book.

Despite some shortcomings, the writing style is crisp and focussed and uniformity has been maintained across different chapters contributed by different authors. Care has been taken to cover all aspects of bone and mineral metabolism and the entire spectrum of disorders related to it. Thus, the book is a complete reference offering up-to-date information on all aspects of paediatric bone and mineral disorders. The contents are well organised and presented in a logical sequence. There is liberal use of tables, appropriate figures, illustrative radiographs and each chapter carries recent references.

Overall, this book is a must have for endocrinologists/ paediatric endocrinologists. It would also be a useful reference tool for paediatricians, neonatologists, orthopaedic surgeons and radiologists dealing with children with bone disorders. Besides, it would also help academicians and researchers in these fields in identifying current gaps in knowledge and developing new research protocols.

Anju Seth
Division of Pediatric Endocrinology,
Pediatric Center of Excellence in HIV
Lady Hardinge Medical College &
Kalawati Saran Children's Hospital,
New Delhi 110 001, India
anju_seth@yahoo.com