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# Clinical Rounds in Endocrinology



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Anil Bhansali • Anuradha Aggarwal  
Girish Parthan • Yashpal Gogate

# Clinical Rounds in Endocrinology

Volume II - Pediatric Endocrinology

 Springer

Anil Bhansali  
Professor and Head  
Department of Endocrinology  
Postgraduate Institute of Medical  
Education and Research  
Chandigarh  
India

Anuradha Aggarwal  
Consultant  
Paras Hospital  
Patna  
India

Girish Parthan  
Consultant  
Renal Medicity  
Cochin  
India

Yashpal Gogate  
Consultant  
Harmony Health Hub  
Nasik  
India

ISBN 978-81-322-2813-4      ISBN 978-81-322-2815-8 (eBook)  
DOI 10.1007/978-81-322-2815-8

Library of Congress Control Number: 2015942899

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*Dedicated*

*to*

*My beloved mother late Shrimati Munna Kumari Bhansali,  
the inspiring force in my life*

*My father Shri ML Bhansali, the guiding light  
of my life*

*My wife Sandhya, my pillar of strength who always  
stood by me and*

*My loving children Shipra, Shobhit, and Akanksha*

**Anil Bhansali**



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## Foreword



I feel humbled to take this opportunity to introduce the text that follows, which I am confident, will prove to be a cerebral feast for the readers. I know Dr. Bhansali as an astute clinician and dedicated academician and have expected his textbook to be a perfect combination of theory and practical medicine. I am glad that this textbook has stood up to the expectation.

This textbook covers all the significant disorders commonly encountered in pediatric endocrinology practice in 12 chapters, which include first two chapters on growth disorders followed by one chapter each on thyroid disorders, Cushing's syndrome, delayed and precocious puberty, Turner syndrome, rickets, congenital adrenal hyperplasia (CAH), disorders of sex development (DSD), and young diabetes and multiple endocrine neoplasia syndromes. Each chapter begins with a clinical case vignette followed by detailed description of the topic, presented as answers to questions of clinical relevance.

I feel the details covered in case vignette represents the proverbial "Well begun is half done." The cases are replete with complete details about clinical features, examination, diagnosis, and management. However, the outstanding feature is the discussion of differential diagnosis, with pertinent arguments for and against each differential, which will immediately make both the practicing endocrinologists and trainees to feel familiar with the essential logical navigation. I am sure; it would definitely enhance their clinical approach to these disorders.

The patients' photographs are well representative and give a lively clinical experience to readers. The discussion of the topic is enriched with well-illustrated diagrams and informative algorithmic flowcharts. Moreover, the underlying physiology is explained at such places that relevance of clinical findings is enhanced. The contrasting features in related disorders are brought out well in tabulated forms for easy understanding. To name a few, there are good tables comparing features of different growth charts, merits and demerits of different GH stimulation tests, and differential features of various DSDs. Most importantly, Indian normative references are given, for example, those on age-specific reference range for testicular volume and stretched penile length to suit the readers in Indian scenario. This text is abreast with updated information on recent developments like discussion on suitability of IAP 2015 growth charts. Practical information on certain topics like that on neonatal screening of CAH and management of CKD-MBD is particularly helpful.

On the whole, I believe this book is a “must have” for endocrine trainees and practicing pediatric endocrinologists alike. It provides a well-abridged quick referral which will certainly enhance clinical approach to pediatric endocrine disorders and benefit the patients at large.

I would like to complement and thank Dr. Bhansali and his colleagues whose relentless efforts have fructified into such a well-written book.

Nalini Shah  
Professor and Head,  
Department of Endocrinology,  
KEM Hospital,  
Mumbai, India



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## Foreword



It is with great pleasure that I write a foreword to this book on Pediatric Endocrinology as part of the *Clinical Rounds in Endocrinology* series. This book is comprised of an impressive series of chapters covering growth disorders, puberty, thyroid, adrenal, rickets, Turner syndrome, endocrine neoplasia, and diabetes. Adult manifestations of pediatric endocrine disorders are also covered. The structure of the chapters is unusually lively with a case vignette, a detailed stepwise analysis, and a series of short questions/answers covering physiology, pathophysiology, diagnosis, management, and treatment. Illustrative short cases are often presented as part of the chapters. The chapters are richly illustrated by patient photos, imaging, figures, tables, and decision algorithms, helping the reader to rapidly grasp the key messages. Some but not all the chapters also have pros and cons of the various treatment options, for instance management of hypogonadism at puberty. This book will be of interest to all those interested in pediatric endocrinology. For the beginner, this book escapes the traditional textbook format, but its wide series of questions covers all aspects of the topics covered and allow a comprehensive overview. For those who are already acquainted with pediatric endocrinology, this book is up to date with recent references, and I am positive that there will be something for everyone there. Dr. Anil Bhansali and his colleagues are to be commended for achieving such a comprehensive and richly illustrated book that will be of interest not only to the endocrine community in India but also in other areas of the world.

Pr Jean-Claude Carel

March 2016

University Paris Diderot, Sorbonne Paris Cité, F-75019,  
Paris, France

Department of Pediatric Endocrinology and Diabetology,  
and Centre de Référence des Maladies  
Endocriniennes Rares de la Croissance  
Assistance Publique-Hôpitaux de Paris (AP-HP),  
Hôpital Universitaire Robert-Debré



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## Foreword



It is a pleasure to introduce this book on Pediatric Endocrinology to you. Its unique informal question-answer style sets it apart from the routine medical text. The questions asked are full of insight and reflect the years of teaching experience of the authors. Most chapters start off with a case vignette and relevant issues in pathology and physiology are woven around the cases. Management issues are taken up in great depth. Growth, puberty, and disorders of sex development, including congenital adrenal hyperplasia, the core areas of pediatric endocrinology, are covered in minute detail. Other relevant chapters include most issues of importance to those treating not only children and adolescents but also those caring for the young patient in transition to adulthood. The rich collection of patient photographs and flowcharts makes for easy clinical learning. This book will provide useful and refreshing reading for practitioners and teachers of pediatric endocrinology, endocrinology, pediatrics, and also clinical genetics and gynecology.

Vijayalakshmi Bhatia  
Professor,  
Department of Endocrinology,  
SGPGI,  
Lucknow, India



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## Preface

Postgraduate Institute of Medical Education and Research (PGIMER), Chandigarh, is the premier medical and research institute in India. This tertiary health-care center, right from its days of inception, has always been at the forefront in the field of medical sciences. The concept of endocrinology in India was originated from this institute, and endocrinology as a super-specialty department was established way back in 1964 at this institute by Professor G.K. Rastogi.

This department has an age-old tradition of grand academic rounds. Detailed discussions pertaining to every aspect of patient's care include right from analysis of symptoms, demonstration and interpretation of signs, critical appraisal of differentials, judicious use of investigations and their appropriate analysis, and finally optimal treatment strategies. This legacy of clinical rounds was inherited from my great teacher, Professor R.J. Dash, who had in-depth and enormous knowledge of the subject with a great ability to critically analyze it. Several thought-provoking questions were spontaneously generated during these interactive sessions, with inputs and suggestions by residents and views and counter-views by the faculty members making these clinical rounds a "sea of knowledge." Further, this continuous process of exchange of knowledge helped us in providing the best possible medical care to our patients and growth of this super-specialty in India.

I had a long-cherished dream to compile these clinical rounds in text form with precise information, comprehensive knowledge, and critical analysis of the facts to facilitate the dissemination of the knowledge to endocrinologists, physicians, pediatricians, and gynecologists.

Recently, there is a paradigm shift in the pattern of the books available in endocrinology with a focus on molecular endocrinology rather than on clinical endocrinology. It was decided to write a book in the "question-answer" format as this pattern not only simulates clinical rounds, but will also help to the health-care professionals in dealing with challenges faced by them in day-to-day practice. Incidentally, books in such format are not readily available, particularly in endocrinology.

The idea of writing this book was conceived, conceptualized, and formatted by me, with utmost caution to present the scientific facts in the most comprehensive manner and was amply supported by my team of coauthors: Dr. Girish Parthan, Dr. Anuradha Aggarwal, and Dr. Yashpal Gogate. Dr. Soham Mukherjee and Dr. Mandeep Singla worked untiringly with me for the last 1 year in reviewing the literature, adding clinical images, tables, and illustrations, and finally editing the

text to make the book in its present shape. Further, the decision of adding the case vignette was strongly propounded by Soham; otherwise, this book would have been incomplete. The whole process in itself was a great learning experience.

This book on pediatric endocrinology includes 12 chapters covering disorders of the pituitary, adrenal, thyroid, parathyroid, gonads, and diabetes. Most chapters begin with a case vignette, followed by a stepwise analysis of the case including diagnosis and management, and subsequently a series of question and answers. Another salient feature of this book is a multitude of clinical images, illustrations, tables, and algorithms for better understanding of the clinical problem.

We hope this endeavor will help health-care professionals to conceptualize the subject of endocrinology and will translate into better patient management.

Anil Bhansali  
Anuradha Aggarwal  
Girish Parthan  
Yashpal Gogate

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## Acknowledgements

We are grateful to all those who have helped us in accomplishment of this endeavor. It is indeed difficult to name all who have contributed to this book, though a few names with a lion's share in the completion of this mammoth task are mentioned.

We are grateful to all of our patients who have helped us in learning clinical endocrinology, for without them this book would have never been written.

I, Dr. Anil Bhansali, thank all my colleagues including Dr. Sanjay Kumar Bhadada, Dr. Pinkai Dutta, Dr. Rama Walia, Dr. Ashu Rastogi, Dr. Soham Mukherjee and Dr. Naresh Sachdeva for their valuable suggestions and continuous support throughout this journey. I heartily appreciate the relentless and selfless efforts made by Dr. Soham Mukherjee to accomplish this dream and without his support, this would not have been achieved.

I also sincerely appreciate the effort of my coauthors Dr. Girish, Dr. Anuradha, and Dr. Yashpal for their untiring and immense contribution in making this book in the present form. They have indeed inculcated the "soul" into it.

My sincere and heartfelt thanks to Dr. Mandeep Singla for his relentless support and continuous encouragement during the entire period. I thank all my other residents including Dr. Abhishek Hajela, Dr. Suja P Sukumar, Dr. Kushdev Jariyal, Dr. Vikram Shekhawat, Dr. Pawan, and Dr. Anshita for their help and encouragement. I also thank Prof. B.R. Mittal and Dr. Anish Bhattacharya from the Department of Nuclear Medicine and Dr. Chirag Ahuja from the Department of Radiodiagnosis for their suggestions and worthy contributions.

We are grateful to our family members for their continuous support and perseverance; without that it would have been impossible to fulfill this dream. I, Dr. Anil Bhansali, sincerely express my gratitude and appreciation to my wife Sandhya and my children Shobhit, Shipra, and Akanksha who have supported me throughout this long journey to accomplish this venture. I am also thankful to my all brothers, Sunil, Raj Kumar and Aniruddh, and sisters, Madhu, Manju and Menu for their wholehearted support to accomplish this work. I really admire my friends, justice Hari Pal Verma and Harish Singla, for their continuous encouragement and support. I, Dr. Anuradha, sincerely thank my husband Dr. Vaibhav for his continuous support and cooperation in writing this book. I, Dr. Girish, sincerely thank my wife Dr. Rajlakshmi Iyer who has allowed me to accomplish this work untiringly. I, Dr. Yashpal Gogate, sincerely thank my wife Dr. Ketki for her persistent encouragement.

We are also thankful to Mrs. Anjali Aggarwal and Sanjay Kumar for designing the beautiful diagrams and editing the images. We appreciate the kind help extended by Mr. Abhijeet and Mr. Paramjeet for acquisition of the clinical images. We also thank Mrs. Rama Puri, Mrs. Usha Sharma, Mr. Mahabir Singh, and Mr. Surinder Pandey for their uninterrupted assistance throughout the period of writing this book.

We are also thankful to our publisher Springer and their team members Dr. Naren Aggarwal, Mrs. Teena Bedi, and Mr. Pradeep Kumar. Without them this book would have never been in the present form.

Finally, we are thankful to the Almighty for providing the wisdom, courage, and strength to complete this endeavor and for the fulfillment of this long-cherished dream.

Anil Bhansali  
Anuradha Aggarwal  
Girish Parthan  
Yashpal Gogate



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## About the Authors

**Anil Bhansali** Dr. Anil Bhansali is the Professor and Head of the Department of Endocrinology and Metabolism at the Postgraduate Institute of Medical Education and Research, Chandigarh, India. He has published 400 articles in indexed, peer-reviewed international and national journals of repute in the field of diabetes and endocrinology. His pioneer work on stem cell therapy in type 2 diabetes and diabetes complications, particularly in diabetic foot and diabetic retinopathy, is widely recognized. Dr. Bhansali has been the recipient of numerous awards and fellowships, prominent among these are the Fellow of Royal College of Physicians (Glasgow), Prof. M.N. Sen ICMR Award for Pituitary Disorders, Prof. M. Viswanathan Award for Stem Cell Therapy in T2DM, Prof. Shurvir Singh Award for Research in Diabetes, and Dr. P.N. Shah Memorial Award for Metabolic Bone Disease. He was the Ex-President of the Endocrine Society of India and the Founder President of the Punjab and Chandigarh Chapter of Research Society of Study of Diabetes in India.

**Anuradha Aggarwal** Dr. Anuradha Aggarwal did her DM from the prestigious Postgraduate Institute of Medical Education and Research, Chandigarh, India. Currently, she is working as a Consultant endocrinologist at Paras Hospital, Patna, India. She is actively involved in research activities particularly in pediatric endocrinology.

**Girish Parthan** Dr. Girish Parthan did his DM from the prestigious Postgraduate Institute of Medical Education and Research, Chandigarh, India. Currently, he is working as Consultant endocrinologist at Renal Medicity, Cochin, India. He has interest in diabetes, particularly in clamp studies.

**Yashpal Gogate** Dr. Yashpal Gogate did his DM in endocrinology from the prestigious Postgraduate Institute of Medical Education and Research, Chandigarh, India, and is currently working at Harmony Health Hub at Nashik, Maharashtra, India. He is actively involved in patient care and research and is a prolific writer.