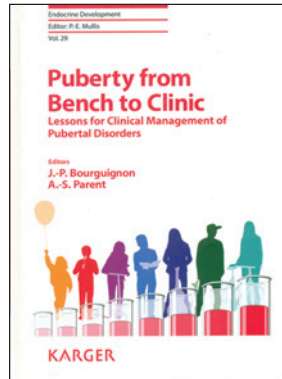


Book Reviews

Puberty from Bench to Clinic: Lessons for clinical management of pubertal disorders. J.P. Bourguignon, A.S. Parent (eds). Karger, Basel, 2016. 264pp, price not mentioned. ISBN 978-3-318-02788-4.



Puberty is a confusing period, often frightening for the adolescent, parents and other family members, and sometimes society at large. It is a time of physical, emotional, hormonal, intellectual and psychosocial upheaval, resulting in unpredictable and risk-taking behaviours. The extreme plasticity of the adolescent brain can result, on the one hand, in making revolutionary discoveries or apps, or even laying the foundation for Facebook or, on the other hand, in the act of

suicide due to a trivial argument or a feared examination result. This subject is a great challenge to scientists and clinicians, as they try to fit together the pieces of this daunting jigsaw puzzle. The past few decades have seen several discoveries, including that of the Kiss 1 system which controls the gonadotrophic pathways, the role of kisspeptin, neurokinin B and leptin... the list goes on. Our understanding of not just genetics, but also epigenetics is deepening. In addition, factors such as our rapidly changing food habits and activity patterns, changes in the availability of food, rising obesity and increasing levels of endocrine disruptors are having an impact on pubertal development. A book that brings together the latest information would be attractive for researchers in this field and for paediatric endocrinologists (and other clinicians looking after adolescents, including paediatricians, adult endocrinologists and gynaecologists).

The editors aim to update readers with concepts from animal and human physiology and pathology to give us a better understanding of pubertal disorders and how to manage them. They state that an 'added value of this book... [is that] different experts share views on similar critical issues weight of genetic versus environmental factors [I wonder if a pun was intended here!], impact of environmental factor in relation to critical periods in development, etc.'. The book is logically arranged in three parts, dealing with genetic, environmental and therapeutic issues.

The age of reaching puberty can be quite variable, but we know it is highly heritable. Genome-wide association studies (GWAS) and whole-exome sequencing are being used to explain the variance, and to understand what triggers puberty and which mutations might cause precocity or delay. Distinguishing constitutional delay of puberty (CDP) from idiopathic hypogonadotrophic hypogonadism has always involved much head-scratching and agonized wringing of the hands: a chapter explores the hope that genetics would help to improve diagnostic capabilities, the success with which has been limited so far. Another chapter describes the attempts being made to understand rare complex neurodevelopmental disorders to gain a greater insight into the role of ubiquitin and other pathways.

Weight gain during early infancy and childhood results in the

earlier onset of puberty, especially among girls, but also among boys. The timing and progression of puberty are influenced by the child's nutritional status and consequent weight changes: interestingly, among both sexes, the trend seems to be towards early signs of pubertal onset, but late occurrence of the final stages. The effects of adiposity and undernutrition are discussed by several authors in different chapters. The effect of prematurity and low birth weight, especially with rapid weight gain later, and its epigenetic consequences are of particular interest in India. Illnesses and other events can also have a profound effect. For example, another relevant chapter discusses pubertal alterations among patients with anorexia nervosa and other eating disorders, childhood obesity and female athlete triad, as well as among survivors of childhood cancer; and gives information on how to deal with them.

Dietary components such as phytoestrogens and environmental endocrine disruptors (for example, polychlorinated biphenyls, pesticides such as endosulfan, phthalates) have been studied in animal models and by epidemiological studies. The studies suggest a complex situation that is influenced by the chemical nature of the substances, the timing and degree of exposure, gender (different responses among men and women), and of course, differences across species.

The section on therapeutic issues is naturally more straightforward and more 'useful' for clinicians like me. The treatment of delayed puberty (constitutional delay of puberty, hypogonadotrophic, hypergonadotrophic) among men and women, including the newly recognized role that pubertal androgen replacement could possibly play among girls, is discussed in detail. The authors also discuss GnRH analogue therapy for central precocity and the difficult topic of treating peripheral precocity. Several successful therapeutic options now available for a rare genetic disorder—familial men-limited precocious puberty—are also dealt with.

The final chapter on consultation for disordered puberty is particularly useful, as it reminds us that puberty is a time that involves not only physical and reproductive growth and maturation, but also psychological and social autonomy, besides the formation of one's identity. Disordered pubertal development, whether early or delayed, can result in altered cognitive and social development, having an impact on the self-image and self-esteem, perhaps even for a lifetime. It is, therefore, crucial for healthcare personnel dealing with adolescents to have not just medical knowledge, but also emotional and psychological skills. Their approach must respect the patient's needs and autonomy, and they must remember that the adolescent is an independent entity whose ideas and choices may not match those of the parents.

The editors have partly fulfilled their aim to bridge the research laboratory and the clinic. There is a fair amount of repetition, which they justify in the preface as adding value, but it gets somewhat tiresome. The information presented is complex, so it is not surprising that at times it is also difficult to wade through. Most chapters end with a section on 'lessons for clinical management' to link basic research with clinical management. As is mostly the case with Karger, the book is beautifully printed, with clear diagrams and tables, so it is a joy to read and to display it. However, as I think is usual with Karger, the book confines itself to the 'western' world—mainly the USA and Europe (apart

from contributors from Brazil and Turkey, which is still not quite European!)—with little or no attention given to the implications in developing countries. It is a good addition to a library and valuable for a researcher in reproductive biology.

ANJU VIRMANI
Endocrinologist
New Delhi