
Preface

Male infertility presents a spectrum of phenotypes often with a complex etiology. About 15% of couples worldwide suffer from infertility, and male factors contribute to roughly one third, female factors contribute to another one third, and the remaining are due to combined male and female factors. In-depth physical and physiological examinations reveal exact etiology in only a few cases, resulting in the classification of the remaining as idiopathic. Due to complex and partially understood etiology, the treatment of male infertility is not straightforward. In the cases with a defined etiology, specific treatments offer hope, but in the cases with idiopathic infertility, empirical and generalized treatments are advised often. This puts impetus on a thorough understanding of the process of spermatogenesis and fertility to craft new avenues for infertility treatment.

This book aims at providing a comprehensive coverage of male infertility. It is divided in three sections; the first section introduces the reader to spermatogenesis and male fertility to provide a reasonable understanding of spermatogenic failure and male infertility. This covers the overview of the male reproductive system, its genesis, sperm production, maturation, and post-ejaculation changes that are necessary for male fertility. The second section deals with a thorough coverage of the known and plausible causes of male infertility. The foremost among these are genetic causes, such as Y deletions and other gene mutations, cytogenetic defects, and congenital syndromic forms of male infertility. Among environmental and lifestyle factors, obesity, oxidative stress, and sexually transmitted infections are discussed. The latest developments in the genetic, epigenetic, and proteome-related causes of male infertility have been covered toward the end of this section.

The third section of the book is dedicated to the management of male infertility. Since the etiology of infertility is complex, a number of different therapeutic or prophylactic measures are advised depending upon the severity of the disorder and the depth of investigation. This section entails nutritional, lifestyle, and other prophylactic measures that can be adopted to avoid loss of fertility. Other chapters in this section emphasize on specific and empirical treatments of male infertility. Toward the end, fertility preservation options for cancer patients are detailed. Upon failure of most of the treatments, ARTs are suggested, which have revolutionized the field of infertility treatment. A detailed description of ARTs is beyond the scope of this book; however, an overview of these techniques with opportunities and challenges has been discussed.

The book has been composed and designed to serve a broad reader base from basic scientists and postgraduate students to doctors in reproductive medicine. Most of the material is composed in a way that even the patients can read and understand it to benefit their fight against infertility. A thorough understanding of the disease is the key to successful treatment; therefore, the first section is highly relevant for clinicians and patients. The second section is largely related to the causes and would be apt for the researchers and postgraduate students who aim a career in the field of reproductive medicine. Since the third section largely deals with the therapeutic and prophylactic measures, it would cater to the patients and layman for adopting measures (nutritional, lifestyle, and prophylactic) to delay or avoid the development of infertility and to clinicians for offering counseling to infertility patients.

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