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Preface

Reproductive immunology



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Guest Editor

Much has been accomplished over the last decade in the field of reproductive immunology, but even more remains to be done. There is little doubt that reproduction and immunology are intimately related, with immune cells and cytokines playing critical roles in many reproductive functions. Although the immune system is designed to eliminate foreign intruding antigens and cells, it is clearly influenced by and, in turn, influences the function of the reproductive system. It is my hope that this issue of the *Immunology and Allergy Clinics of North America* will help immunologists better understand the interaction of the immune system and reproductive physiologic and pathophysiologic processes.

The goal of this issue is to present the latest knowledge in the field of reproductive immunology. A diverse group of internationally recognized experts have come together to achieve this goal. The opening article is devoted to an overview of the reproductive system from an immunology perspective by Drs. Seli, Mahutte, and myself. We set the stage for the proper understanding of those components of the reproductive system that may both affect and be affected by the immune system. Directly or indirectly, reproductive hormones have influenced many aspects of immunology. Dr. Seli and I review the interactions of sex steroids with the immune system to further emphasize this relationship.

Immune and inflammatory cells are present in the normal human ovary throughout the menstrual cycle. The immune system has multiple known effects on ovulatory function; Drs. Brannstrom, Enskog, and Dahm-Kähler provide an outstanding review of the immunology of ovarian function in both physiologic and pathologic conditions. This is followed by an article by Dr. Bukulmez and myself that provides an update on autoimmune premature ovarian failure.

Although antisperm antibodies have been detected in the serum of both men and women, in the cervical mucus of women, and in the seminal plasma of men, their importance for fertility has been debated. Drs. Zeyneloglu and Yarali assess the relevance of antisperm antibodies to the evaluation and management of infertility.

Present contraceptive technologies work either by creating a barrier to sperm passage into the female tract or by hormonal alterations that inhibit ovulation or implantation. Immunization against pregnancy may provide advantages beyond these previous methods. Dr. Herr provides an update on sperm antigen based contraceptive vaccines.

Successful pregnancies have always fascinated immunologists. Certain discoveries made in reproductive immunology, specifically in the area of immunologic tolerance, have had great influence on the development of immunology as a whole. The fact that the fetus is a semi-allograft that does not undergo rejection has been one of the central issues in reproductive immunology. To provide some insights into the process, Drs. Simon, Polan, Olivares, and Krussel review the cytokine and growth factor network in human endometrium. This sets the stage for Drs. Mor and Abrahams to review the immunology of implantation. The role of chemokines in controlling the immune cell traffic in the context of human reproduction is then outlined by Dr. Garcia-Valesco and myself. Finally, endometriosis, a common but disabling disease in which immune cell activation plays a role in both the pathogenesis and pathophysiology, is reviewed by Drs. Lebovic, Mueller, Hornung, and Taylor.

Numerous immunologic theories have been suggested for recurrent pregnancy loss. Proposed mechanisms include both alloimmune rejection and autoimmune destruction of pregnancy. Drs. Fausett and Branch examine the autoimmune causes of recurrent pregnancy loss, and Drs. Stephenson and Ensom evaluate the role of immunotherapy in reproductive failure. Dr. Kutteh and Ghazeeri provide an excellent review of autoimmunity and assisted reproduction. Finally, Drs. Politch and Anderson provide an overview of the interaction between HIV and assisted reproduction.

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