

Book Review

Cervical Cancer: From Etiology to Prevention

One might ask why we need another book about cervical cancer. The Pap smear has clearly driven the disease to near extinction and we now regard the human papillomavirus (HPV) as the first necessary cause of a human cancer ever identified. So why all the fuss? Well, for those who have not followed the literature (and even for some of us who have) there have been enormous strides in our knowledge of the molecular basis for this disease. Furthermore, clinical trials of prophylactic vaccines have been most encouraging, with several large multicentric studies planned or underway that will enroll more than 10,000 women each. The success of one or more of these vaccines will provide us with the opportunity to rid ourselves of a malignancy that at one time was the most common cancer among women worldwide and an important cause of premature death. Although it is anticipated that the initially licensed prophylactic vaccine(s) will only target two to five of the most common oncogenic HPV types, this development could potentially prevent hundreds of thousands of cancers annually.

But don't look to this book to be a comprehensive review of the literature on cervical cancer to date. Rather, it represents an insightful commentary on various aspects of the disease. Not tightly woven, this is more of an anthology than a book. Each chapter can stand on its own and can be read separately by those interested in a particular topic. Thus, although there is repetition between chapters, each sheds a different light on the subject, providing an individual perspective. The chapters are authored by a formidable cadre of research scientists, educators, and public health professionals with a wide-ranging knowledge regarding where we are presently and where we are going in the understanding of the etiology, diagnosis, and prevention of cervical cancer.

This is an ideal book for scientists who are entering the field or who want a broad overview of the state-of-the-art in cervical cancer research. The book is divided into five sections. The first section reviews the biological basis for cervical malignancy including the pathology and natural history of the disease. Chapter 1 provides a critical perspective – from the advantages and disadvantages of various collection procedures to the cyto-

pathological classification of disease. Although this chapter is principally a pathology overview, some epidemiology is covered. The natural history of cervical cancer is discussed in Chapter 2. Although this chapter does not provide an entirely balanced review of the topic – there are numerous epidemiologic studies that are not cited – the lack of objectivity does not detract from the readability.

The second section of this book reviews the literature on the association of the human papillomavirus with cervical disease. Chapters 3 and 4 provide a succinct update on the biology and molecular pathogenesis of HPV infection, with a comprehensive description of viral protein functions, regulation of viral expression and tissue specificity, and viral mechanisms for the immortalization and transformation of primary epithelial cells. In Chapter 5, HPV detection and genotyping techniques are compared, including DNA and serological assays. This chapter underscores recent technological advances rather than an historical perspective on HPV exposure measurement. The final chapter of this section is a detailed review of the epidemiology of the HPV from persistence to co-factors.

The etiologies of squamous cell cancer of the cervix, the main form of cervical malignancy, and adenocarcinoma of the cervix are the focus of the third section. Bosch and Rohan do an admirable job of synthesizing an exhaustive body of evidence on the viral etiology of cervical cancer and provide recommendations for future work in this area.

The fourth section of the book, and perhaps the most topical, reviews cervical cancer prevention efforts. This section is the largest and most comprehensive, covering public health education, screening, chemoprevention, and vaccine development. In Chapter 9, potential cervical cancer prevention strategies are discussed, including the reduction of risky behaviors and smoking cessation. This chapter may have been enhanced through an analysis of how cervical cancer prevention efforts might be integrated with a general public health strategy or how public awareness of the HPV might be augmented. Chapter 10 presents an excellent review of cervical cancer screening, with comparison of methods and discussion of the advantages and disadvantages of

each screening strategy in the context of global disparities in general health care. The somewhat disappointing progress we have made in the chemoprevention of cervical cancer is the focus of Chapter 11. Cervical cancer intervention trials conducted during the past 20 years are highlighted, with cogent commentary on trial design and feasibility, societal benefits, validation of surrogate endpoint biomarkers, and selection of appropriate outcome measures. Chapter 12 covers the present state of prophylactic vaccine development in a thoughtfully written review of different types of vaccines, ongoing clinical studies, general issues regarding vaccine development, and consideration of the impact of vaccine release in developed and developing countries. The development of therapeutic vaccines, from peptide-based approaches to live vector vaccines, are discussed in the next chapter. Although this chapter requires some knowledge of molecular biology, it provides the reader with a good sense of the complexity of this effort and highlights obstacles to the implementation of a successful therapeutic HPV vaccine.

The fifth section of the book and final chapter outlines present cervical cancer control efforts and future oppor-

tunities for effective policies. This chapter provides a broad-brush perspective, although much of the focus is on policy development in the United States.

In the preface, Rohan and Shah write that this book was motivated by the perceived need to make the advances in our understanding of the etiology and pathogenesis of cervical cancer known to a wide audience. They were clearly successful in this endeavor. Although many of the chapters concern complex subjects, they remain intelligible to a broad audience nonetheless. Cervical cancer research is evolving rapidly and this book puts us on the precipice of a public health triumph, namely the disappearance of a common malignancy.

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