

## PREFACE

Lymphoma is a group of lymphoid neoplasms originating from B or T lymphocytes, spreading during its course to lymphatic organs and frequently disseminating to extranodal sites. It is one of the most frequent cancers in the Western world, with an increased incidence of approximately 80% since the 1970s. Lymphoma is now the fifth most common cancer in the United States, with a chance of affecting 1:41 men and 1:52 women in their lifetime. The reason for this increase is poorly understood and could be attributed to immunodeficiency, various infections, familial aggregation, blood transfusion, genetic predisposition, diet, and chemical exposures to pesticides and solvents. However, very important, the pathobiology of this group of lymphoproliferative disorders could be considered paradigmatic for many aspects of cancer research.

Important advances have been achieved in the diagnosis and treatment of lymphoma, and cancer in general, after the millennium turnaround. Our understanding of the molecular biology and genetics of Hodgkin and non-Hodgkin lymphoma has increased exponentially, and new imaging techniques have revolutionized our overall clinical approach to the disease, from an earlier diagnosis through a more precise portrayal of tumor spread to a more accurate evaluation of treatment response.

In Chapters 1-4, the authors focus on select lymphoma subsets which could be considered representative of the pathogenesis of this disease through the interaction of the host with environmental factors such as viruses, chemicals or drugs being a consequence on innate molecular DNA alterations.

In chapter 5, a special emphasis is dedicated to “Radiomics”, a new lymphoma imaging technique able to select morphologic characteristics specific for certain lymphoma subsets, from a large number of lymphoma images (big data) with a known on unknown meaning, extracted either from CT or PET/CT scans. The idea in principle is fascinating: to check whether some recurrent morphologic aspects from a large array of tumor images could shed light on the physiopathology, clinical course and prognosis of a given lymphoma entity. Recently, from PET/CT fused images obtained during lymphoma staging, some computational parameters such as Total Metabolic Tumor Volume (TMTV) and Tumor Spread (Dmax) portraying tumor burden and spread proved to be very useful prognostic/predictive parameters on treatment outcome. Others, such as curtosity, density, necrosis still have unclear meaning.

Chapter 6 recapitulates the new achievements in diagnostic, prognostic and therapeutic approach to a specific lymphoma subset, Hodgkin lymphoma. Since the original proposition for lymphoma staging half a century ago during the Ann Arbor Conference in 1971, it has been the archetype for lymphoma staging, restaging and prognostication. The introduction of advanced diagnostic tools along with the multidisciplinary approach to lymphoma management in the last two decades have become a true challenge for lymphoma care in low- or

middle-income economies. Chapter 7 reports the controversies between clinicians and healthcare stakeholders in the non-western world, with emphasis on challenges, advances, and sustainability of implementing these new diagnostic techniques for the welfare of patients in daily clinical management of lymphoma.

We thank the authors for their contribution, diligence, and dedication for making this project possible. This book is aimed primarily at clinicians and scientists, but many areas will also be of interest to the layperson. We still have much to learn about the lymphoma. We hope this book enhances the reader's knowledge in an informative and enjoyable way.

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