BURKITT'S LYMPHOMA: A HUMAN CANCER MODEL

INTERNATIONAL AGENCY FOR RESEARCH ON CANCER

WORLD HEALTH ORGANIZATION

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The International Agency for Research on Cancer (IARC) was established in 1965 by the World Health Assembly, as an independently financed organization within the framework of the World Health Organization. The headquarters of the Agency are at Lyon, France.

The Agency conducts a programme of research concentrating particularly on the epidemiology of cancer and the study of potential carcinogens in the human environment. Its field studies are supplemented by biological and chemical research carried out in the Agency's laboratories in Lyon and, through collaborative research agreements, in national research institutions in many countries. The Agency also conducts a programme for the education and training of personnel for cancer research.

The publications of the Agency are intended to contribute to the dissemination of authoritative information on different aspects of cancer research.

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FOREWORD

The Agency's interest in Burkitt's lymphoma dates back early in its history. Following the establishment of a relationship between infection by the Epstein-Barr virus and the development of infectious mononucleosis, the suggestion was made in 1968 that the Agency was well placed to organize studies, including sero-epidemiological surveys in Africa, to investigate the relationship between infection with that virus and the development of Burkitt's lymphoma. Thus, a large survey was initiated in Uganda to determine the serological patterns preceding the development of Burkitt's lymphoma and to make comparisons with serological profiles of controls. A study of the relationship between malaria and Burkitt's tumour was also set up. These studies led to the establishment at the Agency of a large number of cell lines, which are available to scientists all over the world, enabling them to carry out laboratory investigations that may help to elucidate the mechanisms by which this tumour develops.

The primary reason for carrying out research on Burkitt's lymphoma is that it represents the major tumour for children between 0 and 14 years in equatorial Africa. It has also been shown to be a model for the study of other human cancers, because the induction and evolution of lymphoid neoplasms, as tumours of the immune system, are strongly influenced by those environmental factors, such as infection and nutrition, which affect the immune response.

The Agency therefore felt it of great importance that a Symposium be organized to review current knowledge in the field of this tumour and is pleased to be able to publish these proceedings with the goal of preventing not only this cancer but others of similar type.

L. Tomatis
Director,
IARC

INTRODUCTION

The first description of the tumour now called Burkitt's lymphoma (BL) was published exactly 25 years ago. Its recognition by workers in Uganda as a distinct clinical and pathological entity that occurs with high frequency in African children led to epidemiological observations that suggested a possible viral etiology and an association with holendemic malaria. Subsequently, in 1963, the Epstein-Barr virus (EBV) was discovered; and its relationship to endemic BL, and its association with other neoplastic and non-neoplastic diseases, has been the subject of intensive study involving many scientific disciplines during the last two decades.

BL occurs throughout the world with varying frequency, but everywhere it represents a significant proportion of malignant lymphomas in children. In non-endemic areas, the association with EBV is infrequent, but specific karyotypic anomalies characterize the tumour wherever it is found. Recently, these chromosomal rearrangements have been related to key molecular events involving certain genes, and these studies have provided further insight into mechanisms of malignant transformation at the subcellular level.

Advances in the clinical management of BL have paralleled those made in basic laboratory investigations, so that what was primarily a rapidly fatal disease in virtually all cases can now be considered curable in well over 50% of patients receiving appropriate therapy.

The very rapid progress in the many disciplines relevant to the study of this tumour created a need to bring clinical and laboratory scientists together in order to review the disease in its entirety; and there has not been a major international conference dealing with all aspects of Burkitt's lymphoma for more than ten years.

The proceedings of this Symposium represent a comprehensive 'state-of-the-art' reference source for this tumour and provide information on the recent developments in molecular biology and in clinical management and give recommendations for future work.

The Editors

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I. HISTORICAL BACKGROUND