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INTRODUCTION

Cytotoxic drugs: past, present and future

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In developed countries, due to increasing overall longevity, the lifetime risk of a cancer diagnosis is set to rise to 1:2. Notwithstanding the increased cancer burden, cancer outcomes have improved markedly over the past 40 years, the period over which *Cancer Chemotherapy & Pharmacology* has been in print, and the likelihood of surviving more than 10 years after a diagnosis of cancer has doubled from 1:4 to 1:2. Consequently, in the UK, some 80,000 more people who are diagnosed with cancer each year can now expect to live for at least 10 years, compared to the situation 40 years ago.

There are numerous reasons for improved cancer outcomes; for example, changes in the incidence of some cancers—most notably reductions in lung cancer due to declining tobacco consumption, earlier diagnosis and, importantly, better treatments: surgical, radiotherapeutic and chemotherapeutic. Although the advent of targeted anticancer therapies which exploit our understanding of the molecular and cellular pathology of cancer will have a major impact in time, their full potential has yet to be realised and their contribution to the improved outcomes that have been achieved to date is minimal. Apart from anti-endocrine therapies for breast and prostate cancer, improvements in cancer outcomes that are due to chemotherapy can largely be credited to cytotoxic drugs: alkylating agents, platinum complexes, topoisomerase inhibitors, antimetabolites and tubulin-binding agents.

One hundred years ago, the world was embroiled in the horrors of World War I. Although, sadly, the "war to end all wars" did not give rise to lasting peace, it did give rise—indirectly—to cancer chemotherapy. Following the observation that soldiers exposed to sulphur mustard gas suffered haematological toxicity, the development of nitrogen mustard gave oncologists the first drug that reproducibly produced systemic anticancer effects, initially against haematological malignancies, and the rest is history.

This edition of *Cancer Chemotherapy & Pharmacology* contains the first of a series of perspectives on cytotoxic chemotherapeutic drugs that has been expertly co-ordinated by Professors Frits Peters and Eric Raymond. As Editors-in-Chief, we are delighted to publish these timely reminders of the importance of cytotoxic drugs, their complex pharmacology and their future potential. The contribution of cytotoxic drugs to cancer chemotherapy is clear, but whether they will be replaced completely by targeted therapies remains an open question. What is not in doubt is the fact that, for cancer patients, cytotoxic drugs can literally be a "life saver". Furthermore, as cancer pharmacologists we are beholden to understand every aspect of the pharmacology of cytotoxic drugs and to wrestle every last drop of antitumour selectivity we can out of them. In addition, in this era where novel targeted agents and immunologically based therapeutics occupy an appropriately prominent focus, novel mechanisms to cause cytotoxicity should remain a goal of cancer drug discovery. The series of perspectives that start in this edition will, we hope, help the cancer pharmacology community to maximise value from known cytotoxics and clearly define a basis for added value from novel cytotoxics, and we are extremely grateful to the expert authors for their contributions.

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