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The standard of production is generally high (although the thoracic duct is not mainly composed of T cells!), but I am very disappointed by the publication delay, which detracts from the value of what could have been a most useful volume.

G. GORDON MACPHERSON

Chemotherapy, Volume 7: Cancer Chemotherapy I

K. HELLMANN and T. A. CONNORS (Editors)

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This is the published proceedings of the 9th International Congress of Chemotherapy held in London, July 1975.

The wide-ranging contents encompass new anti-tumour drugs, cytotoxicity testing in vitro, pharmacokinetics of anti-cancer drugs, hypoxic cell radiosensitizers, combination chemotherapy and *Corynebacterium parvum* for advanced cancer, and screening for carcinogenic potential in drugs. There is updating on approaches to anti-tumour selectivity of drugs and contributions on related topics, such as the drug-carrier potential of liposomes and the significance of prostaglandins in tumour growth.

There is good and critical assessment of current clinical trials with the newer combinations of agents for gastro-intestinal cancer. With combinations containing the nitrosoureas (BCNU or CCNU), mitomycin C or actinomycin D, statistically significant increases in tumour regression rate have not been accompanied by increased patient survival. Similarly, with lung cancer, although new drug combinations are now available that can induce a high percentage of objective remissions, the effect on patient survival has been disappointing. Current strategy for the chemotherapy of breast cancer, including the results with L-phenylalanine mustard, is reviewed, as is the rapid rate of progress that has been achieved in the treatment of disseminated soft tissue sarcoma by inclusion of Adriamycin in the therapy regime (an objective response rate of 40–60% can now be achieved, when up to 4 years ago there was no effective treatment for such patients).

There are four contributions on the chemotherapy of brain tumours—a neoplasm that has proved particularly frustrating to the oncologist, because of the difficulty of evaluating the efficacy of different modes of therapy and the problems of drug passage across the blood/brain barrier. The nitrosoureas remain the most active agents against gliomas, and on-going multi-institutional trials of these and other agents are discussed. Results currently available suggest that CCNU is of value in the treatment of brain tumours, increasing the objective remission rate and prolonging survival time. The novel approach of instilling BCNU or methotrexate via an indwelling catheter directly into the cavity left after surgical excision of the brain tumour has not led to any significant improvement in survival, in spite of the high drug concentrations delivered directly to the tumour site for up to 44 days. These contributions illustrate in a clear and stimulating manner the interest now developing at the experimental and clinical levels in brain tumours by the advent of suitable brain tumour models in animals and new cytotoxic drugs.

Israel and Depierre contribute a very encouraging and provocative article summarizing four randomized studies with combination cytotoxic drugs and *Corynebacterium parvum* in disseminated human cancers, including breast and lung carcinoma. The results showed unequivocally that survival was twice as long in patients receiving *C. parvum* as it was in those treated by chemotherapy alone. This applied irrespective of cell type or site of the cancer. The two agents act synergistically: *C. parvum* protects and stimulates the marrow, thus enabling cytotoxic drugs to be given in greater than usual quantities.

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New methods of enhancing the anti-tumour selectivity of drugs is the theme of several papers in the book. Included are: the new nitrosourea chlorozotocin, specifically synthesized with the cytotoxic group attached to the C-2-position of glucose, since it was found from structure-activity studies that the naturally occurring nitrosourea streptozotocin owes its unique bone-marrow-sparing activity to glucose linkage, the recently discovered protective effects of asparaginase and of thymidine for normal tissues when administered with methotrexate, and the design of new stable preactivated derivatives of cyclophosphamide that are more potent than the parent compound and may be handled differently by the detoxification enzymes in cancer cells and normal cells.

The current state of knowledge in relation to the biotransformation and mode of action of adriamycin, platinum complexes and recently developed drugs such as maytansine under study in the N.C.I. pre-clinical drug development programme is examined. Although adriamycin and the most active of the platinum compounds, cis-(Pt(NH$_3$)$_2$Cl$_2$), have activity against human solid tumours, like the established cytotoxic drugs their point of attack is via DNA, RNA and protein metabolism. The advent of these drugs therefore provides nothing specifically lethal to the cancer cell. Their ultimate value will of necessity await the outcome of clinical trials involving dose and route of administration and inclusion in the ever-increasing number of drug combinations, fashionably identified by acronyms ranging from BIKE to POMP, now vying for the attention of the therapist.

Radiotherapists and radiobiologists will find the two papers on chemical sensitization of hypoxic tumour cells to X-rays especially useful. The nitroimidazoles (metronidazole or Flagyl, and the more powerful compound RO-07-0582) have now been shown to cause X-ray sensitization in ten animal tumour systems, and are currently undergoing clinical investigation. No simultaneous increase in normal tissue damage by these sensitizers has so far been detected.

Several of the articles are 100% proof repeats of recent publications elsewhere, which is not unexpected in view of the number of books and symposium volumes on various aspects of oncology now appearing with increasing frequency. At the other extreme, two papers, one on assessing the drug sensitivity of human tumours transplanted into nude mice, and the other on the ‘homing’ of drugs attached to anti-tumour antibodies, appear only as 200-word abstracts. This is a pity, since a detailed assessment of these areas would have been valuable.

The numerous papers appear in a variety of typefaces and methods of presentation, with inevitably a fairly high rate of typographical errors. This is an acceptable price to pay for publication well within 12 months of the date of the Congress. It is unfortunate (and aggravating) that the three important references quoted by Double in his article on transplantable colonic tumours are missing.

The weakest aspect of the volume is its coverage of testing of the susceptibility of human tumours to cytotoxic agents in vitro. However, this subject is treated in depth in a recent book [Human Tumours in Short-Term Culture (1976), P. P. Dendy (Editor), Academic Press]. In association with this book and the excellent Proceedings of the 19th Annual M. D. Anderson Clinical Conference [Cancer Chemotherapy: Fundamental Concepts and Recent Advances (1975), Year Book Medical Publishers], Chemotherapy Volume 7 provides a valuable survey of the current state of the art as regards cancer chemotherapy. The book integrates the experimental and practical aspects of the subject well, and should have wide appeal for research workers and clinicians alike.

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