SOME CHEMICAL ASPECTS OF THE CANCER PROBLEM

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In the lectures on chemotherapy I have attempted to bring out the importance of the study of the selective action of chemotherapeutic agents on specific cells. There is no doubt that the ultimate understanding of the mode of action of chemotherapeutic agents will depend on knowledge concerning the interaction between drug and cells, with particular reference to the physiological and biochemical changes resulting from this interaction. It is quite evident too that progress in this difficult field will depend on more extensive knowledge of the physiology and biochemistry of the cells concerned in the chemotherapeutic process.

To-day, I wish to discuss briefly certain chemical problems in cancer research. You may wonder what connection chemotherapy has with cancer research. In reply it can be stated that many phases of fundamental cancer research deal with the study of normal and malignant cells and their reactions to chemical changes in their environment. As in chemotherapy, some of these problems are concerned with the selective action of certain chemical agents on specific types of cells. In fact, I am convinced that work along these fundamental chemical lines holds out hope for a gradual solution of certain important aspects of the cancer problem. The purpose of the following discussion is to describe the experimental evidence upon which this belief is based.

For better orientation the subject can be divided into three topics: first, chemical carcinogenesis, that is, the transformation by chemicals of normal cells into malignant cells; second, the chemical characteristics of tumors; and third, attempts to cure animals with cancer by chemical treatment.

CHEMICAL CARCINOGENESIS

It has been known for a very long time that workers engaged in certain occupations or industries are apt to develop malignant tumors in certain organs. These