

*Special Article***Min Chiu Li: A Perspective in Cancer Therapy****Emil J Freireich¹**

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Dr. Min Chiu Li was the first therapeutic scientist to demonstrate that systemic chemotherapy could result in the cure of a widely metastatic malignant disease. In 1956, he published the first report of complete regression of metastatic choriocarcinoma in the female (1). This therapeutic research discovery is to this date the most effective treatment for metastatic choriocarcinoma. At present, nearly every patient with this disease can be rendered completely disease free with virtually no risk of recurrent disease with the use of chemotherapy alone. This is particularly important because it can be accomplished without sacrificing the normal organs of origin of the tumor. As a result, women who suffer from this malignancy can be left with normal, intact, and functional reproductive organs, and several have had subsequent normal conceptions and deliveries. Dr. Li's discovery opened the era of medical oncology, which has become a major therapeutic discipline in the management of malignant disease.

An important reason for this achievement was Dr. Li's brilliant appreciation of the significance of the tumor marker, chorionic gonadotrophin, which was detected regularly in the urine of women afflicted with the metastatic malignancy. Dr. Li recognized that the tumor marker hormone was elevated, and there was a correlation between the degree of elevation and the extent of the malignancy. As a result, even when the chemotherapy with methotrexate resulted in complete disappearance of all clinical evidence of cancer, Dr. Li recognized that because abnormal concentrations of gonadotrophin persisted in the blood or urine, such patients still had micrometastatic disease and, should therapy be discontinued at that point, the malignancy would likely recur. Therefore, he realized that these patients required intensive systemic "adjuvant" treatment, despite the fact that they had no clinical evidence of disease. This has subsequently proven to be an extraordinarily important new principle in cancer treatment, *i.e.*, the treatment of patients who have no evidence of disease because of either tumor marker or other indirect evidence of a high probability of developing recurrent malignancy.

In 1960, Dr. Li published another important and highly original finding. This was the use of multiple-agent combination chemotherapy for the treatment of metastatic cancers of the testis (2). Twenty years later, it was demonstrated that combi-



nation chemotherapy, combined with techniques for local control, has virtually eliminated testicular malignancy as a major cause of morbidity and mortality in the male (3).

In recognition of these important achievements, Dr. Li was awarded the Albert Lasker Medical Research Award in 1972, in addition to his many other awards. Dr. Li remained active both in clinical research, laboratory research, patient care, and perhaps most important, teaching. One of his most important publications appeared in 1977 in which he showed that 5-fluorouracil given after colon cancer surgery could result in substantial improvement in long-term survival rates (3). This publication stimulated an intensive reinvestigation of the question of adjuvant treatment for this disease.

Dr. Li completed his medical training in China and came to this country in 1947 to study bacteriology and immunology at the Post Graduate School of Medicine of the University of Southern California. During his postgraduate medical education in this country, the revolution in his native China was responsible for his inability to return to his homeland.

I first met Dr. Li when he served as a resident in medicine at the Presbyterian Hospital in Chicago in 1952. I was also a resident in the Department of Internal Medicine at that time, and

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Dr. Li and I immediately formed a personal relationship, which survived the following 28 years. He left Chicago in 1953 to go to the Sloan-Kettering Institute to work with Dr. O. Pearson. In August 1955, Dr. Li moved to the National Cancer Institute to join the Endocrinology Branch under Dr. Hertz, and our acquaintance was promptly renewed. I had personal contact with Dr. Li both in the institution and in his home during the period of time that the important observations about the treatment of choriocarcinoma were being made. I could appreciate the total commitment and the enormous energy that Dr. Li brought to these important activities. In 1957, he returned to the Sloan-Kettering Institute, and I continued to follow his work and to maintain our personal relationship over the subsequent years.

One of the great honors in Dr. Li's career occurred in 1975 when he accepted the appointment as Chairman of the National Cancer Research Committee of the National Science Council of the Taiwan Republic of China, an activity that brought him enormous personal joy. If tragic illness had not shortened the

life of this great scientist in 1980, I think that with the improving political relationship between our country and Mainland China, he would have eventually become recognized and honored as an accomplished individual in his native land. He certainly is remembered in the United States as a pioneer, whose research opened up a new approach to the treatment of cancer.

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