

# Editorial

Vitamin C and Cancer - A Workshop  
Montreal, May 31 and June 1, 1999

New ideas that eventually become part of medical practice do not spring forth fully-formed from someone's mind. They usually begin with simple observations by one person and later by several, until someone crystallizes these ideas and observations into a coherent hypothesis.

This is the case with vitamin C and cancer. The first observations were made by many clinicians who were using vitamin C to treat a number of conditions that were not part of scurvy. During the golden age of vitamin discovery, between 1930 and 1940, physicians used these vitamins as soon as they became available, encouraged by the companies which synthesized them. Several clinicians observed or thought they had observed that their patients with cancer lived longer when they were given vitamin C in quantities substantially larger than those needed to prevent scurvy. These observations were summarized by Irwin Stone in his book, "The Healing Factor - Vitamin C Against Disease". I am very proud of this book because Dr. Stone published it after I had been urging him for two years to summarize his vast collection of vitamin C papers so that the medical world would know something about these early clinical studies. But his book was not taken seriously by the medical establishment, which adhered to the vitamin-as-prevention paradigm. This was the paradigm which looked upon vitamins as having value only in the prevention of the classical vitamin deficiency diseases such as scurvy or pellagra. In this paradigm using large doses and/or using them for treating conditions not accepted as vitamin deficiency conditions was contraindicated. One of my medical colleagues lost his medical license because he gave large doses of vitamin C intravenously.

Dr. Stone's book suggested two major possible roles for vitamin C. The first was its use in preventing cancer and the sec-

ond as a possible treatment. The first possibility was accepted much more readily and has been studied for several decades. There is little doubt that a diet rich in vitamin C does tend to have preventive properties. This idea was not anathema to the current paradigm. The second possibility was rejected except by a slowly growing school of physicians who were interested in the optimum use of vitamins, in small or large dosages, for conditions not known to be deficiency diseases such as hypercholesterolemia, schizophrenia, or arthritis. This school represented the new paradigm, the vitamin-as-treatment paradigm, which originated in 1954 with the discovery in which I participated that niacin lowered cholesterol levels. At that time Dr. W. Kaufman was using megadoses of vitamin B<sub>3</sub> for arthritis, Drs. Wilfrid and Evan Shute were treating large numbers of heart patients with vitamin E, and Dr. Fred Klenner was treating enormous numbers of patients with serious infections and cancer with very large doses of vitamin C.

Dr. Stone's review of vitamin C used in large doses excited Dr. Linus Pauling's interest. But he was spurred to action only after a meeting he addressed where he suggested that vitamin C in large doses might be useful in the treatment of cancer. He was attacked by Victor Herbert who challenged him to provide some evidence. Pauling thought Herbert was right and that he should present some evidence, and this led to his enduring interest in the use of vitamin C. He encouraged Ewan Cameron in Scotland to investigate what were then enormous doses with 10 grams intravenously in a series of failed cancer patients. The results were very encouraging and led to a large number of reports in the medical literature and in their book "Vitamin C and Cancer". This is one of the most important books, in my opinion, published in the field of cancer treatment.

In Canada, the discourse between Quebec and the rest of Canada about Quebec's

role in the Confederation has been described as two solitudes. The discourse between the two vitamin paradigms has been very similar. Orthomolecular physicians continued to use optimum doses of vitamins for a variety of conditions including cancer and the vast body of current medicine continued to consider that this paradigm was of no value, even dangerous. The medical journals would not carry the reports prepared by the second paradigm, nor invite them to their meetings, and the second paradigm found it could only publish in their own specialty journals usually not reviewed nor abstracted by the standard medical journals. Physicians supporting the modern vitamins-as-treatment paradigm emerged from the vitamin-as-prevention paradigm, i.e., they are familiar with both. I do not know of any who moved in the reverse direction.

One of the first attempts to build a link between these two groups was made by Patrick Quillin who organized a meeting in Tulsa, Oklahoma in 1992. The participants included a wide array of academics and a smaller number of clinicians who were already using vitamin C as part of the treatment of cancer. This was a formal meeting and there was little discussion between these groups, but they listened to each other respectfully. Linus Pauling was the main participant. This was good beginning. Several additional similar meetings were held, resulting in some very good books. But there was no serious attempt of the various groups to work out what they had in common and whether the vitamin C treatment paradigm was strong enough that further research in which both parties were involved should be started.

On May 31 and June 1, 1999, a research workshop was held that brought together academic mainstream clinical scientists and orthomolecular practitioners who have used vitamin C in cancer therapy. The workshop was organized jointly by Dr. M. A. Richardson and Dr. C. Tamayo of the Uni-

versity of Texas Center for Alternative Medicine Research in Houston, Texas and Dr. L. J. Hoffer, of the Lady Davis Institute for Medical Research, McGill University, and was co-chaired by Dr. L. J. Hoffer and Dr. C. Tamayo. The workshop was made possible by a grant by the Lotte and John Hecht Memorial Foundation of Vancouver, B.C.

This meeting marks the first time, as far as I know, of a meeting of a few very competent scientists from various fields actually talking to each other for one and a half days and as a result coming to some conclusions. It represented a major effort to end the two solitudes and initiate a real, collegial and scientific effort to examine what role vitamin C plays, how it should best be used, and what types of designs ought to be followed to properly answer the question, "Does vitamin C when used in optimum doses, large or small, intravenously or orally, play a role in the treatment of cancer?" If it does play a role, should it be used for all cancers, or are there some which respond better and some which do not respond at all.

Eleven physicians and scientists participated from mainstream medicine, from medical research, from oncology and from complementary medicine. They were Gerald Batist, oncologist and Director of the McGill Centre for Translational Research in Cancer, Jewish General Hospital, Montreal; Igor Espinoza-Delgado, oncologist and Associate Director, Immunotherapy Program, Stanley Scott Cancer Center, Louisiana State University Medical Center, New Orleans, LA; John Hoey, Editor-in-Chief, Canadian Medical Association Journal; Abram Hoffer, psychiatrist and biochemist, Victoria, BC; Freddie Ann Hoffman, oncologist, United States Food and Drug Administration Office of Health Affairs; Mark Levine, endocrinologist, National Institutes of Health, Bethesda, Maryland; Hugh Riordan, psychiatrist, Director, Bio-Communications Research Institute, Wichita, KS; and Neil Riordan,

physician assistant, Project Director, Project RECNAC, Bio-Communications Research Institute, Wichita, KS. The goals of this meeting were: to examine the evidence that high doses of vitamin C, possibly together with other nutrients, could have objective benefits for treating some human cancers; to consider the mechanisms by which such benefits might occur, and predict which patients are most likely to respond; to consider the biology, pharmacology and toxicology of high dose vitamin C; and to consider the best future clinical research strategies to be used to determine whether vitamin C can have useful role in cancer therapy.

We are pleased to publish five papers from this workshop in this issue of JOM. These reports and the resulting discussion represent the view that the evaluation of complementary medicine (I prefer this to alternative because the vitamin C studies have always been a part of an overall treatment program), should be encouraged. They were not alternative in the sense that standard treatment was not used. They were combined with—and in my opinion must be combined with—the best of modern cancer therapeutics whether it is surgery, radiation, oncology or any combination of these three. The public demands this with increasing passion and governments are listening to their constituents with much greater interest.

It is very important and worth repeating that we must know how best to carry on these therapeutic trials so that they are convincing to skeptical physicians, and that the treatment must be defined so that when these physicians want to examine the treatment they will know how best to use it, how much to use, and for what indications. For example Dr. Hugh Riordan's extremely important work with large doses of intravenous vitamin C is already being examined very carefully and seriously by one university, and shows enormous potential. He finds that under stress we rapidly lose so

much vitamin C that our blood levels reach zero. His work suggests that as important as it is to obtain the optimum blood vitamin C levels for killing cancer cells, the need to prevent these zero stress levels from occurring is equally important.

In my opinion, of all the suggestions made by complementary physicians, the high dose vitamin C procedure remains one of the most important and best investigated. Finally, this meeting showed that it is possible to break the impasse of two solitudes and for us all to become collegial to work together for the common goal of increasing the therapeutic treatment response of the cancers. Linus Pauling would have been as happy as I was to have participated at our meeting.

As editor of this journal, I thank all the participants and especially Dr. M. A. Richardson, Dr. C. Tamayo and Dr L. J. Hoffer for their many hours of hard work and for the many hours of discussion they participated in which made this meeting possible.

—Abram Hoffer, M.D., Ph.D., FRCP(C)