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High Doses of Antioxidants Including Vitamin C Do Not Decrease the Efficacy of Chemotherapy **by Abram Hoffer, M.D., Ph.D.**

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The idea that the use of antioxidants decreases the efficacy of chemotherapy is being used more and more by orthodox oncologists. It is based upon their hypothesis that anything which decreases the oxidant effect of drugs will decrease the efficacy of chemotherapy. More and more I hear this from my patients after they are diagnosed and chemotherapy is discussed with them by their oncologists. This opinion is not universal, but my guess is that about 75% of oncologists hold this view.

Their view is that chemotherapy destroys tumor tissue because it introduces powerful oxidation products, free radicals, and that anything which decreases that must interfere with treatment. They know they are using sub-lethal amounts of toxic compounds which would never pass FDA standards in any different context. The aim is to kill all the tumor tissue without killing all the other tissues in the body. This is always a close call. Therefore, since vitamin C is a good antioxidant it must not be given with chemotherapy. One of my patients was told by his oncologist that if he took vitamin C he would not be given any chemotherapy.

Well, what are the facts? The first fact is that there are no clinical series which show that patients given vitamin C and chemotherapy fare worse than those not given this vitamin. On the contrary, all the published series show just the opposite. I have treated over 1,100 cases with large doses of vitamin C and most of them had chemotherapy.(1-4) I have examined the follow up data and find that the mean difference on prolongation of life was heavily in favor of the use of the vitamins. In the first series I published with Linus Pauling those patients on my program lived 10 to 20 times as long as the patients not receiving the vitamin.

Recently Kedar N. Prasad et al. (5) after reviewing 71 scientific papers, found no evidence that antioxidants did interfere with the

therapeutic effect of chemotherapy and, on the contrary, suggest the hypothesis that it would increase the efficacy. He is properly cautious, but anyone reading his paper knows that it is clear the probability that these antioxidants prevent the therapeutic activity of chemotherapy is very low, and the probability that they do the opposite, i.e. enhance the action of these toxic drugs, is relatively high. Prasad et al. (6) concluded, "Antioxidants such as retinoids, vitamin E, vitamin C and carotenoids inhibit the growth of cancer cells. These antioxidants individually, and in combination, enhance the effects of x-irradiation, chemotherapeutic agents, and certain biological response modifiers such as hyperthermia, sodium butyrate and interferon, on cancer cells. Antioxidants individually protect normal cells against some of the toxicities produced by these therapeutic agents. Therefore, the fear of oncologists and radiation therapists that these antioxidants may protect cancer cells against free radicals that are generated by these agents is unfounded. It should be pointed out that other antioxidants such as sulfhydryl compounds will protect cancer cells at least against radiation damage. This is not true for any of the proposed antioxidant vitamins and carotenoids."

Even earlier Charles B. Simone et al. (7) on the basis of a large number of clinical studies (he also examined 71 scientific papers) came to the same conclusion. He reported, "In a recent study of 50 patients with early-stage breast cancer I evaluated the treatment side effects of radiation alone, or radiation combined with chemotherapy, while the patients took therapeutic doses of nutrients. Patients also followed the Simone Ten Point Plan. Patients were asked to evaluate their own response to the treatment in terms of its impact on their quality of life. The results of the study were impressive: "More than 90% of both groups noted improvement in their physical symptoms, cognitive ability, performance, sexual function, general well-being and life satisfaction. Not one subject in either group reported a worsening of symptoms." He concluded, "...cancer patients should modify their lifestyles using the Ten Point Plan, which included modifying nutritional factors and taking certain vitamins and minerals especially if they are receiving chemotherapy, and/or radiation." (my emphasis)

Labriola et al. (8) concluded that vitamin C may prevent the therapeutic effect of chemotherapy if given concurrently and recommended that antioxidants be withheld until after the chemotherapy is completed. It is not clear whether they meant that the antioxidants should be withheld throughout the entire series of chemotherapy sessions or that it should be withheld only for the day that chemotherapy is being given. If the latter is his suggestion, there is no harm done to the patients. Most of them cannot take anything, including vitamins, during these sessions. He based his conclusion on one case which suggested this had happened and upon a

hypothetical examination of the role of free radicals and antioxidants on the action of chemotherapy on cancer cells.

His report elicited two rebuttals, Reilly (9) and Gignac. (10) I will not repeat the arguments, but it was evident that Dr. Labriola was not convinced by the points put forward by Reilly and Gignac. I think the factoid repeated by Dr. Labriola would have a much better chance of becoming a fact if he had considered the following points:

ONE: What is the therapeutic value of chemotherapy without any antioxidants? Even within the field of standard oncology there is a debate whether chemotherapy has any merit except for a small number of cancers (Moss). (11) Before one can claim that a treatment has been inhibited, surely there must be pretty good evidence that the treatment has any merit to begin with. It is possible (we do not know the probability for this) that chemotherapy interferes with the therapeutic value of the antioxidants. Almost all the studies testing large doses of vitamin C yielded positive results while there is no such unanimity with respect to chemotherapy.

TWO: The difference between possibility and probability. Most people do not distinguish between these two. Theoretically anything is possible, and it is certainly possible that taking vitamin C might prevent the toxic "beneficial" effect of chemotherapy. In the same way when one buys a lottery ticket, it is possible they may win. People confuse these two terms, which is why lotteries are so popular. The real statistic is the probability. What is the probability that patients receiving vitamin C during their chemotherapy will not fare as well? The lottery ticket may give one a probability of winning of one in a million, and the possibility that vitamin C may prevent the therapeutic effect of chemotherapy may be equally low. We can only assume from the literature reviewed by Simone, by Prasad, by Lamson and Brignall, and more recently by Moss (12) that the real probability must be extremely low. As I have pointed out earlier, I have seen no evidence that adding vitamin C inhibited the therapeutic effect of chemotherapy. Just the opposite. Patients on my orthomolecular program live substantially longer and about 40% achieved over four year cure rates.(13)

THREE: If he had not tried to bolster his argument by referring so frequently to the peer-reviewed journal in which his paper appeared. This is certainly no guarantee of fact. The first factoid that vitamin C caused kidney stones appeared in eminently peer-reviewed journals. All the factoids regarding vitamins appeared first in peer-reviewed journals. You may recall Linus Pauling's joke that peers are people who pee together. I can assure you that articles attacking the use of vitamins have very ready access to peer-reviewed journals, but they

would not have accepted their report had they tried to conclude from one patient that vitamin C taken during chemotherapy was therapeutic. This would not even be sent to the peer review committee because they do not accept anecdotes - unless of course they become scientific when they contain something adverse against vitamins.

FOUR: Moss points out that oncologists have no objection to using xenobiotic antioxidants during chemotherapy. This includes Amifostine which decreases the toxicity of radiation but is too toxic on its own and is not used; Mesna, a drug used around the world to protect against the toxic side effects of ifosfamide which damages the urinary system; and Cardiozane, which counters Adriamycin's toxicity. There are over 500 papers showing the safety of the latter drug. In one clinical trial using a drug similar to Adriamycin, one-quarter of the patients suffered damage to their hearts. When given Cardiozane concurrently only 7% did. Thus it appears that only orthomolecular or natural antioxidants are potentially dangerous. Synthetic antioxidants protect against the toxic effect of drugs but do not increase their therapeutic value. In sharp contrast, natural antioxidants not only protect against the toxic effect of drugs but also increase their efficacy in destroying cancer cells.

FIVE: Dr. Labriola emphasizes that long term studies must be used. I agree, and for this reason I followed up my patients since 1977. In my series, hardly any patients receiving chemotherapy but not antioxidants survived very long. But chemotherapy is used by many oncologists who know it will not extend life, because there is nothing else that they can do and they feel they have to do something.

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References

1. Hoffer A & Pauling L: Hardin Jones biostatistical analysis of mortality data for cohorts of cancer patients with a large fraction surviving at the termination of the study and a comparison of survival times of cancer patients receiving large regular oral doses of vitamin C and other nutrients with similar patients not receiving those doses. J Orthomolecular Medicine 5:143-154, 1990. Reprinted in, Cancer and Vitamin C, E Cameron and L Pauling, Camino Books, Inc. P.O. Box 59026, Phil. PA, 19102, 1993.
2. Hoffer A & Pauling L: Hardin Jones biostatistical analysis of mortality data for a second set of cohorts of cancer patients with a

large fraction surviving at the termination of the study and a comparison of survival times of cancer patients receiving large regular oral doses of vitamin C and other nutrients with similar patients not receiving these doses. J of Orthomolecular Medicine, 8:1547-167, 1993.

3. Hoffer A: Orthomolecular Oncology. In, Adjuvant Nutrition in Cancer Treatment, Eds. P Quillin & RM Williams. 1992 Symposium Proceedings, Sponsored by Cancer Treatment Research Foundation and American College of Nutrition. Cancer Treatment Research Foundation, 3455 Salt Creek Lane, Suite 200, Arlington Heights, IL 60005-1090, 331-362, 1994.

4. Hoffer A. One Patient's Recovery From Lymphoma. Townsend Letter for Doctors and Patients #160:50-51, 1996.

5. Prasad KN, Kumar A, Kochupillai V & Cole WC. High Doses of Multiple Antioxidant Vitamins: Essential Ingredients in Improving the Efficacy of Standard Cancer Therapy. Journal American College of Nutrition 18:13-25, 1999.

6. Prasad KN, Cole WC & Prasad JE. Multiple Antioxidant Vitamins as an Adjunct to Standard and Experimental Cancer Therapies. Z.Onkol/J. of Oncol 31:1201-1078, 1999.

7. Simone CB, Simone NL & Simone CB. Nutrients and Cancer Treatment. International Journal of Integrative Medicine 1:20-24, 1999.

8. Labriola D & Livingston R. Possible Interactions Between Dietary Antioxidants and Chemotherapy. Oncology 13:1003-1008, 1999, and Editorial to Townsend Letter for Doctors and Patients, November 1999.

9. Reilly P. Dr. Labriola's Editorial on Antioxidants and Chemotherapy, Townsend Letter for Doctors and Patients Feb/Mar 2000, 90-91.

10. Gignac MA. Antioxidants and Chemotherapy. What You Need to Know Before Following Dr. Labriola's Advice. Townsend Letter for Doctors and Patients Feb/March 2000, 88-89.

11. Moss RW. Questioning Chemotherapy. Equinox Press, Brooklyn, New York.

12. Moss RW. Antioxidants Against Cancer. Equinox Presss Inc. Brooklyn, New York, 1999.

13. Hoffer A. Vitamin C and Cancer. Quarry Press, Kingston, ON 2000.



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