

Oral Megadose Ascorbate (Vitamin C)

Received.....1/27/91 Scientific Review.....2/1/91 IAOMT Board Review.....1/18/92 Reevaluation.....9/01/00	<h2 style="margin: 0;">Scientific Review Biological Support</h2>	Approval Provisional Approval.....1/20/92 No Opinion No Approval
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Explanation of IAOMT position:

<p>Name of Scientific Review: Oral Megadose Ascorbate (Vitamin C)</p>
<p>Alternative name(s) of Scientific Review: Ascorbic Acid, Sodium Ascorbate</p>
<p>This Scientific Review is related to Medicine & Dentistry</p>
<p>This Scientific Review is a Product & Procedure</p>
<p>Purpose of the Scientific Review: To instruct the proper use and concerns in the oral use of Vitamin C</p>
<p>Scientific Review History: Megadose oral vitamin C was commonly given in the 1940's and 1950's to protect against overdose of mercurialdiuretics,^{7,8} which were routinely employed then (and occasionally today) as a treatment for high blood pressure. The mechanism of action has been explained partly to the ascorbate anion's ability to form a partnership with ionic mercury (being excreted in the urine as mercury ascorbate), and partly by the ability of ascorbate to reduce Hg^{++} to Hg^+, which is much less likely to attach to and interfere with biologically essential SH groups.⁹ In support of this theory, it has been reported that in patients who had clearly overdosed on mercurial diuretics, megadose Vitamin C caused their symptoms to entirely disappear.</p>
<p>A brief description of the Scientific Review: To protect against the effect of mercury during the routine removal of dental amalgam a patient should be instructed to consume foods high in vitamin C and to supplement with 3 grams of vitamin C daily, beginning a week or so before amalgam replacement and continuing for at least a month afterwards.</p>
<p>A specific description of this Scientific Review:</p> <ul style="list-style-type: none"> • Instruct the patient to take their vitamin C in 500 mg to 1 gram increments throughout the day³. • This allows the free radical scavenging activity of vitamin C to be available at the moment the free radicals appear. Ascorbic acid, sodium ascorbate, and naturally-occurring vitamin C are the preferred sources of vitamin C⁴. • To minimize the potential for kidney stones, total calcium intake should be maintained within a narrow range (800-1,000mg daily), magnesium intake should be increased to 500 mg per day, and vitamin B6 intake should be increased to 30 mg per day.¹ This amount of calcium and magnesium is ideally obtained from 3 servings of cultured dairy foods per day, but to obtain the desired dosage of vitamin B6, a supplement will be required. In addition, since megadose Vitamin C may enhance the excretion of zinc, a 15 mg supplement of chelated zinc per day is recommended. • In those people with serious health problems, a consultation with a physician is necessary and they may wish to consider that one increase their vitamin C supplements to 5 to 10 grams of vitamin C daily and chelated zinc to 25 mg. (again, beginning a week or so before and continuing indefinitely according to their individual health status)² • When the time comes for the patient to reduce their intake of vitamin C instruct them to taper off slowly-like one gram per week, and if they insist on going off vitamin C all together instruct them to maintain a minimum of 250 mg per day for three weeks before quitting. This guards against the risk of rebound scurvy.
<p>Manufacturer(s)/Source: (care should be taken in selecting products) Tablets and/or powder of ascorbic acid and sodium ascorbate are available from many sources, e.g.</p> <ul style="list-style-type: none"> • Bronson Pharmaceuticals; 4526 Rinetti Lane; La Canada, CA 91012-0628; Telephone (800) 521-3322 • Klaire Laboratories; 1573 W. Seminole St.; San Marcos, CA 92069; Telephone (619) 744-9680; FAX (619) 744-9364.5)
<p>Scientific Literature: I refer you to Appendix A of this report and to the book, "Chronic Mercury Toxicity: New Hope Against an Endemic Disease", by H.L. "Sam" Queen</p>

Legal Aspects of this Scientific Review: Vitamin C has been used safely and effectively as adjunct therapy in a wide array of dental related diseases. Yet, there remains the extremely rare individual who may be harmed by megadose vitamin C. Predictably, the high risk patient will have impaired kidney function or a deficiency of enzyme, G-6-PD (which causes chronic anemia, red cell fragility, and a slightly jaundiced appearance). It is essential to inquire from all patients as to whether or not the patient has had a history of either of these conditions. If the patient response is affirmative, referral to a physician is essential. Vitamin C should not be prescribed for any patient who has a history of kidney stones!⁶

References:

1. Gershoff, S.N., and Prein, E.L., "Effects of daily MgO and Vitamin B6 Administration to Patients with Recurring Calcium Oxalate Kidney Stones," *ALCN* 20(5):393-99, May, 1967.
2. As a vitamin, only 65 mg of vitamin C per day is required to prevent the symptoms of scurvy. Beyond this essential function, however, ascorbate (formed naturally from ascorbic acid) is the body's premier free radical scavenger. Carrying out this antioxidant function calls for significantly higher dosage of ascorbate than what is required to satisfy its vitamin role, and an even higher dosage is required following chronic exposure to mercury-an important catalyst of free radical oxidation. (Cathcart, R.F., "A Unique Function for Ascorbate," *Medical Hypothesis*, 35:32-7, 1991).
3. If you prefer to evaluate your patient's vitamin C status beforehand, you can easily do this by the "lingual ascorbic acid test" method. (Test kits are available through Dental Diagnostic Services, Inc., P.O. Box 1441; Brandon, FL 333509; Tele 813/681-3935.)
4. Do not prescribe calcium ascorbate (Ester C, for instance), for two reasons: 1) Vitamin C as calcium ascorbate remains in the blood for a much longer period than any other source of vitamin C, which is believed by Cathcart (*Medical Hypothesis* 35:32-7, 1991) to indicate that the vitamin C from this source is unavailable as a free radical scavenger. 2) One gram of vitamin C as calcium ascorbate provides 124 mg free calcium. When one considers the findings of Galin and Ostbaum (*Annals of Ophthalmology*, 1257-61, Dec 1974) that free calcium in the presence of mercury is capable of denaturing ocular protein and proteins of other cells as well, then it is best to avoid giving this and other calcium supplements to mercury toxic people.
5. If the patient is hypersensitive to vitamin C, which is indeed rare, you might suggest a natural vitamin C from citrus or sago palm (available in most any health food store.)
6. The legal aspect can be carried to extreme, but to dispel the fear of kidney stones among normal, low risk patients, leading authorities recommend that, in addition to the instructions in reference 5, they consume 8 or more glasses per day (Robertson, W.G., et al., *Urinary Calculus*, in Prockin, PSG Publishing Company, p.3-12, 1981); add a tablespoon of lemon juice daily to the water - an excellent source of protective, potassium citrate (Meyer and Thomas, *J. Urol*, 128:1376-8, Dec 1982); eat a daily tablespoon of pumpkin seeds - an excellent source of protective pyrophosphate (Suphakam, et al., *AJCN* 45, 115- 21, 1987); and encourage them to urinate as often (and as soon) as they have the urge, which discourages aggregation of stone-forming particles (Tschope, et al., *Proc EDTA*, 20:407-9, 1983).
7. Chapman, D.W., and Shaffer, C.F., "Mercurial Diuretics," *Arch Intern Med*, 79:449-56, 1947.
8. Ruskin, A., and Ruskin, B., "Effect of Mercurial Diuretics upon Respiration of Rat, Heart and Kidney," *III Texas Reports on Biology and Medicine* 10:429, 1952
9. Lewin, Sherry, In: "Vitamin C: Its Molecular Biology and Medical Potential", Academic Press, page 90, 1976.

APPENDIX A

Literature citations and clinical use of megadose oral vitamin c in protecting patients from the effects of mercury and in the treatment of chronic mercury toxicity submitted for IAOMT Treatment Protocol consideration by H.L. "Sam" Queen, B.S., M.T.(ASCP), M.A., D.Sc. (Hon.) Health Care Educator

RE: I contend that megadose oral Vitamin C Should be included in the protocol now being developed by IAOMT for protecting patients and dental personnel from the health risks imposed by dental mercury.

BACKGROUND INFORMATION: Oral megadose vitamin C has been used successfully to treat nearly every disease condition (regardless of the diagnosis) that commonly afflicts humankind, whether mercury was the cause or not. (Dental patients especially have experienced improvement .1,2) It is this fact that led Cameron and Pauling to speculate that megadose vitamin C assists in utilizing the basic ground substance glycosaminoglycans necessary for the physical and chemical integrity of all cells and tissues,³ and vital to the healing mechanism in disease in general. Cathcart, on the other hand, attributes the general healing properties of megadose vitamin C to the fact that vitamin C is the premier free radical scavenger.⁴

Evidence of the positive effects of megadose oral vitamin C and IV-C in reducing the body burden of mercury:

- Mavin, J.V., "Experimental Treatment of Acute Mercury Poisoning of Guinea Pigs with Ascorbic acid," *Revista de la Sociedad Argentina de Biología* (Buenos Aires) 17:581-6, 1941
- Mokranjac, M., and Petrovic, C., "Vitamin C as an Antidote in Poisoning by Fatal Doses of Mercury," *Comptes Rendus Hebdomadaires des Seances de l'Academie des Sciences*, 258:1341-2, 1964.

- Chatterjee,G.C., and Pal, D.R. "Metabolism of L-Ascorbic Acid in Rats under in vivo Administration of Mercury: Effect of L-Ascorbic Acid Supplementation," Intenat J. Vit Nutr Res,45: 282-92,1975
- Levandar, O.A., "Nutritional Factors in Relation to Heavy Metal Toxicant," Federation Proceedings, 36(5): 1683-7, April 1977.
- Hill, C.H., "Interactions of Vitamin C. with Lead and Mercury," NY Acad Sci, 263-266, 1980.

1. Jacob, R.A., et al., "Experimental Vitamin C. Depletion and Supplementation in Young Men: Nutrient Interactions and Dental Health Effects, " Ann NY Acad Sci 498:333-46, 1988.
2. Fullmer, H.M., Martin, G.R. and Burns, J.J., "Role of Ascorbic Acid in the Formation and Maintenance of Dental Structures, "Ann NY Acad Sci 498:286-95,1988.
3. Cameron, E., and Pauling, L., "Ascorbic Acid and the Glycosaminoglycans: an Orthomolecular Approach to Cancer and Other Diseases,"Oncology 27:181-92,1975.
4. Cathcart, R.F., "Vitamin C, Titrating to Bowel Tolerance, Anascorbemia, and Acute Induced Scurvy,"Medical Hypotheses, 14:423-33,1984.

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