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Intravenous ascorbic acid protocol for cancer patients: scientific rationale, pharmacology, and clinical experience

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ABSTRACT:

Background: Ascorbic acid (vitamin C, ascorbate) has been shown to protect cells against various types of oxidant injury at physiologically relevant concentrations. Vitamin C has been suggested as having both a preventative and therapeutic role in a number of pathologies when administered at much higher-than-recommended dietary allowance levels**.** This article reviews the scientific rational for intravenous vitamin C as a potential treatment for cancer.

Many mechanisms of action for ascorbate efficacy against cancer have been proposed over the years. Cancer patients are often deficient in vitamin C, and require large doses to replenish depleted stores. It has been demonstrated *in vitro* and in animal studies that vitamin C is preferentially toxic to tumor cells at millimolar concentrations; moreover, pharmacokinetic data suggest that these concentrations are clinically achievable when ascorbate is administered intravenously. Data suggests that ascorbate may serve as a biological response modifier, affecting inflammation and angiogenesis as well as improving immune function parameters.

While Phase II clinical trials using ascorbate in cancer therapy are under way, vitamin C is not subject to the regulations that synthetic drugs are and therefore has been used clinically for decades to treat cancer patients. This clinical experience suggests the therapy is safe, and may be effective in some instances. Attached to this article is the Riordan IVC Protocol, which details an intravenous vitamin C protocol that can be safely administered to cancer patients.

Keywords: Cancer, inflammation, C-reactive protein, inflammatory cytokines, high-dose vitamin C