Safety of Intravenous and Oral Ascorbic Acid in Pregnancy

Prepared as Data for Safe use of Ascorbic Acid in Human Research

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Much conjecture and mythology surrounds the use of vitamin C during pregnancy. A review of clinical use and safety as well as the limited data regarding this topic leads to a different safety profile for vitamin C in pregnancy than often reported.

Of anecdotal note is the statement by the author “I have observed no ill effects in pregnant patients receiving IVC at 5 to 50 gram doses in all three trimesters in my private practice patients.” [1] Case reports by Klenner (using oral and injectable doses of 4 to 15 grams) report the same safety. This quote comes from a 1971 paper: [2]

> “Observations made on over 300 consecutive obstetrical cases using supplemental ascorbic acid, by mouth, convinced me that failure to use this agent in sufficient amounts in pregnancy borders on malpractice. The lowest amount of ascorbic acid used was 4 grams and the highest amount 15 grams each day. (Remember the rat-no stress manufactures equivalent "C" up to 4 grams and with stress up to 15.2 grams). Requirements were roughly 4 grams first trimester, 6 grams second trimester and 10 grams third trimester. Approximately 20 percent required 15 grams, each day, during last trimester. Eighty percent of this series received a booster injection of 10 grams, intravenously, on admission to the hospital. Hemoglobin levels were much easier to maintain. Leg cramps were less than three percent and always was (sic) associated with "getting out" of Vitamin C tablets.”

Additionally in an observational study Javert [3] showed less spontaneous abortion (SAB) in humans with higher plasma ascorbate.

The often quoted caution "vitamin c as abortifacient' info emanates from the Rat study by Ovcharov [4] seemingly showing altered Corpus leuteum function with increased Rat ascorbate levels - however Vobecky et. al [5] seemed to discount a causal relationship between vitamin C and potential for SAB.

Of course in pregnancy the clinician should be much more conservative with all therapies, considering risks and benefits carefully. Appropriate patient education and informed consent is crucial. With the inability to do interventional studies on pregnant women you would have to consider the FDA "pregnancy risk classification" in respect to the use of vitamin C. Based on the data available vitamin C would be considered pregnancy class "B". This class is considered safe to use if the patient and clinician believe the benefits to exceed any theoretical risks.

From the FDA: [6] “Animal studies have revealed no evidence of harm to the fetus, however, there are no adequate and well-controlled studies in pregnant women. OR Animal studies have shown an adverse effect, but adequate and well-controlled studies in pregnant women have failed to demonstrate a risk to the fetus in any trimester.”

Cautions and contraindications commonly listed in lay and professional publications typically list the implausible basic science data [5] and ignore the higher grade human data. Therefore it is plausible to assume that such cautions or contraindications are based on erroneous data or incomplete data. In summary the use of vitamin C in pregnancy based upon available data is a safe intervention. As with all interventions in pregnancy it should be considered with regard to all risks and benefits before implementation.

References:

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