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Preparation of Sodium Ascorbate for IV and IM Use

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Note: some of these solutions are labeled ascorbic acid which is confusing. They are all buffered so as to really make them mostly sodium ascorbate.

Note: the following are excerpts from letters sent to physicians on the subject of IVC.

If one does not want to make their sodium ascorbate stock solutions from scratch like I recommend (and I can well understand why you might not): You can order from

Merit Pharmaceuticals, 2611 San
Fernando, Los Angeles, CA 90065,
For CA 800-696-3748 Out-of State 800-421-9657

To order the Sodium Ascorbate Fine Crystals

Wholesale Nutrition www.nutri.com
915 S. San Tomas Equino Road
Campbell, CA 95008 order 800-325-2664 or FAX 408-867-6236

The Stock Bottle of Sodium Ascorbate

Sterilize a 500 cc IV bottle along with a funnel, the rubber stopper, and a spoon.

Sterilisieren Sie eine 500 cc IV Flasche zusammen mit einem Trichter, einem Gummi-Verschlussstopfen und einem Löffel.

Then fill the bottle to the 300 cc line with sodium ascorbate fine crystals.

Dann füllen Sie die Flasche bis zur 300 cc Linie auf mit feinen Natrium-Ascorbat Kristallen.

(I weighed the sodium ascorbate out one time and 250 gm came up to the 300 cc line.)

(Ich habe mal das Natrium-Ascorbat ausgewogen und 250 Gramm ergab die Menge bis zur 300 cc Linie)

Then add 1/3 of the 20 ml bottle (6.6 cc) of edetate disodium injection, USP 150 mg/ml.

Dann fügen Sie 1/3 eines 20 ml Fläschchens (6,6 cc) EDTA-Injektionslösung hinzu, USP 150 mg/ml [USP = US Pharmacopeia]

Then add water for injection q.s. 500 cc.

Dann fügen Sie Wasser für Injektionen hinzu, bis die 500 cc aufgefüllt sind [q.s. heisst: quantum satis / 'so viel wie nötig']

Shake up the bottle and if there is 1 mm of crystals left on the bottom, add 1 mm of water to the top.

Dann schütteln Sie die Flasche und falls 1 mm Kristalle am Boden übrig sind, fügen Sie 1 mm Wasser oben hinzu.

It turns out that sodium ascorbate is soluble to almost exactly a 50% concentration at room temperature.

Es ergibt sich, dass Natrium-Ascorbat bei Raum-Temperatur exakt zu 50%iger Konzentration gelöst wird.

I do not worry about the sterility of this because this is very bacteriocidal. Perhaps it should be filtered to get out particulate matter but I have never seen this to be a problem. The pH of this has always turned out to be 7.4.

Ich bin nicht besorgt bzgl. der Sterilität dieser Lösung, weil sie sehr bakteriozid ist. Vielleicht könnte sie gefiltert werden, um Partikel herauszubekommen, aber ich habe hier nie ein Problem gehabt. Der pH-Wert ist immer 7,4.

My nurse discovered recently that if you do not shake the mixture to make it go into solution until after you refrigerate it and are ready to use it that the solution is less yellow. *Meiner*

Krankenschwester ist kürzlich aufgefallen, dass die Lösung etwas gelblich ist, wenn man sie nicht ausreichend schüttelt, um die Kristalle gut in Lösung zu bringen ...

I presume that this is good because sodium ascorbate is clear and dehydroascorbate is yellow. *Ich gehe aber davon aus, dass das gut so ist, denn Natriumaskorbat ist klar und Dehydroaskorbat ist gelb.*

The made up solutions are always a little yellow but refrigeration before mixing results in a far less yellow mixture. *Diese Lösungen sind immer ein wenig gelb, aber wenn man erst die Kühlung macht und erst dann den Mix, bekommt man eine weniger gelbe Mischung.*

Preparation of the IV Bottle

I recommend that the above stock bottle solution be added to lactated Ringer's such that 30 Gms (60 cc) to 60 Gms (120 cc) this be added to a quantity of lactated Ringer's sufficient to make 500 cc of the final solution to be injected IV.

Ich empfehle, die Lösung des o.a. Vorrats-Behälters in Ringer-Laktat-Infusionslösung zu geben, von 30 g (60 cc) bis 60 g (120 cc) so, dass im Ergebnis 500 cc Infusionslösung herauskommen.

I had been using water for injection some time ago because this solution is several times hypertonic already and I did not want to add more tonicity. However, recently I have found that lactated Ringer's feels better to patients so I use that for the final dilution (not the stock solution described above.)

IM Injections

IM injection material for infants is made from the stock solution diluted 50% in water giving a 25% solution. Generally, the size of the injection can be 2 cc in each buttocks. Ice may be applied if it hurts too much. This may be given every hour or so, frequently enough to bring the fever or other symptoms of excessive free radicals down rapidly.

General Comments

I have not had any trouble with these solutions. I hear all sorts of weird stories from patients who have gotten ascorbate elsewhere. I do not know if it is an acid problem (because ascorbic acid was used rather than sodium ascorbate) or whether some colleges get carried away with what other things they add to the intravenous solutions.

I think that there may be, at times minor troubles with commercially prepared solutions because of the following. **I understand that the U. S. Pharmacopeia specifies that the solutions be made from ascorbic acid and then buffered with sodium hydroxide or sodium bicarbonate to a pH between 3.5 and 7.0. I worry that 60 grams of ascorbate at a pH of 3.5 is too acid.** I know that **Klenner** (the first physician who used high dose intravenous ascorbate by vein) **also made his solutions from sodium ascorbate powder.**

I watch patients for hypocalcemia (although I have not seen it), hypoglycemia (I encourage patients to eat while taking the IV), and dehydration (I encourage water and slow the IV down.) I also see headaches afterward but not so much since I have been emphasizing the continuing high doses of oral ascorbic acid as soon as the IV is over. Actually I give oral ascorbic acid while the IV is going to get a double effect. Bowel tolerance goes up while the IV is running but one has to be careful to stop giving oral C about an hour before the IV stops or else you may get diarrhea as soon as the IV stops. The oral ascorbic acid is then started again 1/2 to 1 hour after the IV stops.

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