

FOR IMMEDIATE RELEASE

Orthomolecular Medicine News Service, Feb 10, 2020

VITAMIN C AND ITS APPLICATION TO THE TREATMENT OF nCoV CORONAVIRUS

How Vitamin C Reduces Severity and Deaths from Serious Viral Respiratory Diseases

by Andrew W. Saul, Editor

(OMNS February 10, 2020) Most deaths from coronavirus are caused by pneumonia. Vitamin C has been known, for over 80 years, to greatly benefit pneumonia patients.

In 1936 Gander and Niederberger found that vitamin C lowered fever and reduced pain in pneumonia patients. [1]

Also in 1936, Hochwald independently reported similar results. He gave 500 mg of vitamin C every ninety minutes. [2]

McCormick gave 1000 mg vitamin C intravenously, followed by 500 mg orally every hour. He repeated the injection at least once. On the fourth day, his patient felt so well that he voluntarily resumed work, with no adverse effects. [3]

In 1944 Slotkin and Fletcher reported on the prophylactic and therapeutic value of vitamin C in bronchopneumonia, lung abscess, and purulent bronchitis. "Vitamin C has greatly alleviated this condition and promptly restored normal pulmonary function." [4]

Slotkin further reported that "Vitamin C has been used routinely by the general surgeons in the Millard Fillmore Hospital, Buffalo, as a prophylactic against pneumonia, with complete disappearance of this complication." [5]

According to the US Centers for Disease Control, there are about 80,000 dead from annual influenzas, escalating to pneumonia, in the USA. Coronavirus is a very serious contagious disease. But contagion to a virus largely depends on the susceptibility of the host. It is well established that low vitamin C levels increase susceptibility to viruses. [6]

Vitamin C lowers mortality

It is one thing to be sick from a virus and another thing entirely to die from a viral-instigated disease. It must be emphasized that a mere 200 mg of vitamin C/day resulted in an 80% decrease in deaths among severely ill, hospitalized respiratory disease patients. [7]

A single, cheap, big-box discount store vitamin C tablet will provide more than twice the amount used in the study above.

And yes, with vitamin C, more is better.

Frederick R. Klenner and Robert F. Cathcart successfully treated influenza and pneumonia with very high doses of vitamin C. Klenner published on his results beginning in the 1940s; [8] Cathcart beginning in the 1970s. [9] They used both oral and intravenous administration.

"Vitamin C is effective in reducing duration of severe pneumonia in children less than five years of age. Oxygen saturation was improved in less than one day." [10]

A recent placebo controlled study concluded that "vitamin C should be included in treatment protocol of children with pneumonia so that mortality and morbidity can be reduced." In this study, the majority of the children were infants under one year of age. By body weight, the modest 200 mg dose given, to tiny babies, would actually be the equivalent of 2,000-3,000 mg/day for an adult. [10]

Although many will rightly maintain that the dose should be high, even a low supplemental amount of vitamin C saves lives. This is very important for those with low incomes and few treatment options.

We're talking about twenty cents' worth of vitamin C a day to save lives now.

References:

1. Gander and Niederberger. Vitamin C in the handling of pneumonia." Munch. Med. Wchnschr., 31: 2074, 1936.
 2. Hochwald A. Beobachtungen uber Ascorbinsaurewirkung bei der krupposen Pneumonie." Wien. Arch. f. inn. Med., 353, 1936.
 3. McCormick WJ. Have we forgotten the lesson of scurvy? J Applied Nutrition, 1962, 15:1 & 2, 4-12. <https://www.seleneriverpress.com/historical/have-we-forgotten-the-lesson-of-scurvy/>
 4. Slotkin & Fletcher. Ascorbic acid in pulmonary complications following prostatic surgery." Jour. Urol., 52: Nov. 6, 1944.
 5. Slotkin GE. Personal communication with WJ McCormick. December 2, 1946.
 6. Saul AW. Nutritional treatment of coronavirus. Orthomolecular Medicine News Service, 16:6, Jan 30, 2020. <http://orthomolecular.org/resources/omns/v16n06.shtml> (22 references and 50 recommended papers for further reading)
 7. Hunt C et al. The clinical effects of Vitamin C supplementation in elderly hospitalised patients with acute respiratory infections. Int J Vitam Nutr Res 1994;64:212-19. <https://www.ncbi.nlm.nih.gov/pubmed/7814237>
 8. Klenner FR. Observations on the dose and administration of ascorbic acid when employed beyond the range of a vitamin in human pathology. J Applied Nutrition 1971, 23:3&4. <http://www.doctoryourself.com/klennerpaper.html>
- Klenner FR. (1948) Virus pneumonia and its treatment with vitamin C. J South Med Surg 110:36-8. https://www.seanet.com/~alexs/ascorbate/194x/klenner-fr-southern_med_surg-1948-v110-n2-p36.htm
- Klenner, FR. (1951) Massive doses of vitamin C and the virus diseases. J South Med and Surg, 113:101-107.
- Klenner, FR. (1971) Observations on the dose and administration of ascorbic acid when employed beyond the range of a vitamin in human pathology. J. App. Nutr., 23:61-88.
- All of Dr. Klenner's papers are listed and summarized in: Clinical Guide to the Use of Vitamin C (ed. Lendon H. Smith, MD, Life Sciences Press, Tacoma, WA, 1988. This book is posted for free access at http://www.seanet.com/~alexs/ascorbate/198x/smith-lh-clinical_guide_1988.htm
9. Cathcart RF. (1981) Vitamin C, titrating to bowel tolerance, anascorbemia, and acute induced scurvy. Med Hypotheses. 7:1359-76. <http://www.doctoryourself.com/titration.html>
- Cathcart RF. (1993) The third face of vitamin C. J Orthomolecular Med, 7:197-200. Free access at http://www.doctoryourself.com/cathcart_thirdface.html

Additional Dr. Cathcart papers are posted at http://www.doctoryourself.com/biblio_cathcart.html

10. Khan IM et al. (2014) Efficacy of vitamin C in reducing duration of severe pneumonia in children. J Rawalpindi Med Col (JRMC). 18(1):55-57. <https://www.journalrmc.com/volumes/1405749894.pdf>

Recommendations for further reading:

A coronavirus pandemic can be stopped with the immediate widespread use of high doses of vitamin C. Preventing and treating severe respiratory infections with large amounts of vitamin C is well established. There has been a lack of media coverage of this therapeutic approach against viruses in general, and coronavirus in particular. (A Chinese language edition is also freely available.)

The nutritional treatment of coronavirus is presented, with dosage specifics, in this protocol endorsed by physicians on the editorial board of the Orthomolecular Medicine News Service.

Exactly how to administer intravenous vitamin C to a hospitalized patient with a viral illness, by Atsuo Yanagisawa, MD, Japanese College of Intravenous Therapy. (Here is the IV vitamin C protocol in Chinese).

Instructions on how to take high oral doses of vitamin C during illness, by Robert F. Cathcart III, MD. This paper contains the doctor's answers to many questions about the therapeutic use of vitamin C.

Nutritional Medicine is Orthomolecular Medicine

Orthomolecular medicine uses safe, effective nutritional therapy to fight illness. For more information: <http://www.orthomolecular.org>

FOR IMMEDIATE RELEASE

Orthomolecular Medicine News Service, Feb 13, 2020

Coronavirus Patients in China to be Treated with High-Dose Vitamin C

by Andrew W. Saul, Editor

(OMNS February 13, 2020) Breaking news: China is conducting a clinical trial of 24,000 mg/day of intravenous vitamin C to treat patients with coronavirus and severe respiratory complications. Participants will receive IV vitamin C for 7 days straight at Zhongnan Hospital of Wuhan University. Honor and thanks are due to Zhiyong Peng, MD, for making this happen. He is chief physician and professor at the hospital, which is close to ground zero for coronavirus. This important study was filed and announced yesterday and details may be confirmed at <https://clinicaltrials.gov/ct2/show/NCT04264533>

At Zhongnan Hospital in Wuhan, China, 24,000 mg of vitamin C will be administered to coronavirus patients, intravenously, each day for 7 days.

To fight a dangerous virus for which there is no existing medical treatment, you must rely on your own immune system. It is well established, in every nutrition textbook ever written, that you need vitamin C to make your immune system work well, or to even work at all. Inadequate vitamin C intake is a worldwide problem that can be immediately and economically fixed. With even modest amounts of supplemental vitamin C, deaths will decrease. In one study, a mere 200 mg of vitamin C/day resulted in an 80% decrease in deaths among severely ill, hospitalized respiratory disease patients. [Hunt C et al. Int J Vitam Nutr Res 1994;64:212-19.] <http://orthomolecular.org/resources/omns/v16n09.shtml>

Another recent study used this same low 200 mg dose for infants and children under five years of age, with severe pneumonia. The authors concluded that "Vitamin C is effective in reducing duration of severe pneumonia in children less than five years of age. Oxygen saturation was improved in less than one day." [Khan IM et al. J Rawalpindi Med Coll (JRMC); 2014;18(1):55-57 <http://www.journalrmc.com/volumes/1405749894.pdf>]

A lack of vitamin C has been long known, literally for decades, to increase susceptibility to viruses. <http://orthomolecular.org/resources/omns/v16n06.shtml> It is one thing to be sick from a virus and another thing entirely to die from a viral-instigated disease. The greatest danger with coronavirus is escalation to pneumonia. For this, much higher doses of vitamin C are indicated, preferably by IV.

How to administer high-dose intravenous vitamin C in hospital, Chinese language edition, is now posted for free access at http://www.doctoryourself.com/Coronavirus_Chinese_IV_C_Protocol.pdf This information is now being publicized all over Asia. Just because it is not on the American news channels doesn't mean it's not happening. It is. This is real news. The fake news is the media's neglect in not reporting it. And here is the protocol in English, to make reporting all the easier: <http://orthomolecular.org/resources/omns/v16n07.shtml>

(OMNS Editor-in-Chief Andrew W. Saul is a member of the Medical and Scientific Advisory Board to the International Intravenous Vitamin C China Epidemic Medical Support Team. Its director is Richard Z. Cheng, MD, PhD; associate director is Hong Zhang, PhD. Other team members that American readers will recognize include Jeanne Drisko, MD (Professor, University of Kansas Medical School); Thomas Levy, MD, JD; and Atsuo Yanagisawa, MD, PhD. (Professor, Kyorin University, Tokyo).

Intravenous Vitamin C Protocol in English: <http://orthomolecular.org/resources/omns/v16n07.shtml>

IVC Protocol in Chinese: http://www.doctoryourself.com/Coronavirus_Chinese_IV_C_Protocol.pdf

Nutritional Medicine is Orthomolecular Medicine

Orthomolecular medicine uses safe, effective nutritional therapy to fight illness. For more information:
<http://www.orthomolecular.org>

Le gouvernement de Shanghai recommande officiellement la vitamine C pour COVID-19
by Andrew W. Saul

(OMNS le 3 mars 2020) Le gouvernement de Shanghai, en Chine, a annoncé sa recommandation officielle selon laquelle COVID-19 devrait être traité avec des quantités élevées de vitamine C par voie intraveineuse. (1) Les recommandations de dosage varient en fonction de la gravité de la maladie, de 50 à 200 milligrammes par kilogramme de poids corporel par jour jusqu'à 200 mg/kg/jour.

Ces doses sont d'environ 4 000 à 16 000 mg pour un adulte, administrées par voie intraveineuse. Cette méthode d'administration spécifique est importante, explique l'expert en thérapie intraveineuse Atsuo Yanagisawa, MD, PhD, car l'effet de la vitamine C est au moins dix fois plus puissant par IV que par voie orale. Le Dr Yanagisawa est président du Collège japonais de thérapie intraveineuse, basé à Tokyo. Il déclare : "La vitamine C par voie intraveineuse est un antiviral sûr, efficace et à large spectre".

Richard Z. Cheng, MD, PhD, médecin spécialiste sino-américain, a travaillé en étroite collaboration avec les autorités médicales et gouvernementales de toute la Chine. Il a contribué à faciliter au moins trois études cliniques chinoises sur la vitamine C IV actuellement en cours. Le Dr Cheng est actuellement à Shanghai où il poursuit ses efforts pour encourager encore plus d'hôpitaux chinois à mettre en place une thérapie à la vitamine C incorporant des doses orales élevées ainsi que de la vitamine C par voie intraveineuse.

Le Dr Cheng et le Dr Yanagisawa recommandent tous deux la vitamine C par voie orale pour la prévention de l'infection par COVID-19.

Une déclaration officielle du deuxième hôpital de l'université Jiaotong de Xi'an (2) énonce:

"Dans l'après-midi du 20 février 2020, 4 autres patients atteints d'une nouvelle pneumonie coronavirale sévère se sont rétablis du service C10 Ouest de l'hôpital de Tongji. Plus tard, 8 patients sont sortis de l'hôpital. . . La vitamine C à forte dose a donné de bons résultats dans les applications cliniques. Nous pensons que pour les patients souffrant de pneumonie néonatale sévère et les patients gravement malades, le traitement à la vitamine C doit être commencé le plus tôt possible après l'admission. L'utilisation de fortes doses de vitamine C peut avoir un fort effet antioxydant, réduire les réponses inflammatoires et améliorer la fonction endothéliale. . . De nombreuses études ont montré que la dose de vitamine C est très importante pour l'effet du traitement. . . La dose de vitamine C de [H]gh peut non seulement améliorer la qualité du degré antiviral, mais plus important encore, elle peut prévenir et traiter les lésions pulmonaires aiguës (ALI) et la détresse respiratoire aiguë (SDRA)"

Pour plus d'informations, vous trouverez ci-dessous une liste des précédents articles de l'OMNS sur COVID-19 et la vitamine C :

- Mar 1, 2020 News Media Attacks Vitamin C Treatment of COVID-19 Coronavirus
- Feb 28, 2020 Vitamin C and COVID-19 Coronavirus
- Feb 23, 2020 TONS OF VITAMIN C TO WUHAN: China Using Vitamin C against COVID
- Feb 21, 2020 Three Intravenous Vitamin C Research Studies Approved for Treating COVID-19
- Feb 16, 2020 Early Large Dose Intravenous Vitamin C is the Treatment of Choice for 2019-nCov Pneumonia
- Feb 13, 2020 Coronavirus Patients in China to be Treated with High-Dose Vitamin C
- Feb 10, 2020 VITAMIN C AND ITS APPLICATION TO THE TREATMENT OF nCoV
- CORONAVIRUS: How Vitamin C Reduces Severity and Deaths from Serious Viral Respiratory Diseases
- Feb 2, 2020 Hospital-based Intravenous Vitamin C Treatment for Coronavirus and Related Illnesses
- Jan 30, 2020 Nutritional Treatment of Coronavirus
- Jan 26, 2020 Vitamin C Protects Against Coronavirus

Bibliographie

1. <https://mp.weixin.qq.com/s/bF2YhJKiOfe1yimBc4XwOA>
2. <http://2yuan.xjtu.edu.cn/Html/News/Articles/21774.html>

Nutritional Medicine is Orthomolecular Medicine

Orthomolecular medicine uses safe, effective nutritional therapy to fight illness. For more information:
<http://www.orthomolecular.org>

Find a Doctor

To locate an orthomolecular physician near you:
<http://orthomolecular.org/resources/omns/v06n09.shtml>

The peer-reviewed Orthomolecular Medicine News Service is a non-profit and non-commercial informational resource.

FOR IMMEDIATE RELEASE

Orthomolecular Medicine News Service, Jan 26, 2020

Vitamin C Protects Against Coronavirus

by Andrew W. Saul, Editor

(OMNS January 26, 2020) The coronavirus pandemic can be dramatically slowed, or stopped, with the immediate widespread use of high doses of vitamin C. Physicians have demonstrated the powerful antiviral action of vitamin C for decades. There has been a lack of media coverage of this effective and successful approach against viruses in general, and coronavirus in particular.

It is very important to maximize the body's anti-oxidative capacity and natural immunity to prevent and minimize symptoms when a virus attacks the human body. The host environment is crucial. Preventing is obviously easier than treating severe illness. But treat serious illness seriously. Do not hesitate to seek medical attention. It is not an either-or choice. Vitamin C can be used right along with medicines when they are indicated.

"I have not seen any flu yet that was not cured or markedly ameliorated by massive doses of vitamin C."

(Robert F. Cathcart, MD)

The physicians of the Orthomolecular Medicine News Service and the International Society for Orthomolecular Medicine urge a nutrient-based method to prevent or minimize symptoms for future viral infection. The following inexpensive supplemental levels are recommended for adults; for children reduce these in proportion to body weight:

Vitamin C: 3,000 milligrams (or more) daily, in divided doses.

Vitamin D3: 2,000 International Units daily. (Start with 5,000 IU/day for two weeks, then reduce to 2,000)

Magnesium: 400 mg daily (in citrate, malate, chelate, or chloride form)

Zinc: 20 mg daily

Selenium: 100 mcg (micrograms) daily

Vitamin C [1], Vitamin D [2], magnesium [3], zinc [4], and selenium [5] have been shown to strengthen the immune system against viruses.

The basis for using high doses of vitamin C to prevent and combat virus-caused illness may be traced back to vitamin C's early success against polio, first reported in the late 1940s.[6] Many people are unaware, even surprised, to learn this. Further clinical evidence built up over the decades, leading to an anti-virus protocol published in 1980.[7]

It is important to remember that preventing and treating respiratory infections with large amounts of vitamin C is well established. Those who believe that vitamin C generally has merit, but massive doses are ineffective or somehow harmful, will do well to read the original papers for themselves. To dismiss the work of these doctors simply because they had success so long ago sidesteps a more important question: Why has the benefit of their clinical experience not been presented to the public by responsible governmental authorities, especially in the face of a viral pandemic?

References:

1. Vitamin C:

Case HS (2018) Vitamin C questions answered. Orthomolecular Medicine News Service, <http://orthomolecular.org/resources/omns/v14n12.shtml>.

Gonzalez MJ, Berdiel MJ, Duconge J (2018) High dose vitamin C and influenza: A case report. *J Orthomol Med.* June, 2018, 33(3). <https://isom.ca/article/high-dose-vitamin-c-influenza-case-report>.

Gorton HC, Jarvis K (1999) The effectiveness of vitamin C in preventing and relieving the symptoms of virus-induced respiratory infections. *J Manip Physiol Ther*, 22:8, 530-533. <https://www.ncbi.nlm.nih.gov/pubmed/10543583>

Hemilä H (2017) Vitamin C and infections. *Nutrients.* 9(4). pii:E339. <https://www.ncbi.nlm.nih.gov/pubmed/28353648>.

Hickey S, Saul AW (2015) *Vitamin C: The real story.* Basic Health Pub. ISBN-13: 978-1591202233.

Levy TE (2014) The clinical impact of vitamin C. Orthomolecular Medicine News Service, <http://orthomolecular.org/resources/omns/v10n14.shtml>

OMNS (2007) Vitamin C: a highly effective treatment for colds. <http://orthomolecular.org/resources/omns/v03n05.shtml>.

OMNS (2009) Vitamin C as an antiviral <http://orthomolecular.org/resources/omns/v05n09.shtml>.

Taylor T (2017) Vitamin C material: where to start, what to watch. OMNS, <http://www.orthomolecular.org/resources/omns/v13n20.shtml>.

Yejin Kim, Hyemin Kim, Seyeon Bae et al. (2013) Vitamin C is an essential factor on the anti-viral immune responses through the production of interferon- α/β at the initial stage of influenza A virus (H3N2) infection. *Immune Netw.* 13:70-74. <https://www.ncbi.nlm.nih.gov/pubmed/23700397>.

2. Vitamin D:

Cannell JJ, Vieth R, Umhau JC et al. (2006) Epidemic influenza and vitamin D. *Epidemiol Infect.* 134:1129-1140. <https://www.ncbi.nlm.nih.gov/pubmed/16959053>.

Cannell JJ, Zasloff M, Garland CF et al. (2008) On the epidemiology of influenza. *Virol J.* 5:29. <https://www.ncbi.nlm.nih.gov/pubmed/16959053>.

Ginde AA, Mansbach JM, Camargo CA Jr. (2009) Association between serum 25-hydroxyvitamin D level and upper respiratory tract infection in the Third National Health and Nutrition Examination Survey. *Arch Intern Med.* 169:384-390. <https://www.ncbi.nlm.nih.gov/pubmed/19237723>.

Martineau AR, Jolliffe DA, Hooper RL et al. (2017) Vitamin D supplementation to prevent acute respiratory tract infections: systematic review and meta-analysis of individual participant data. *BMJ.* 356:i6583. <https://www.ncbi.nlm.nih.gov/pubmed/28202713>.

Urashima M, Segawa T, Okazaki M et al. (2010) Randomized trial of vitamin D supplementation to prevent seasonal influenza A in schoolchildren. *Am J Clin Nutr.* 91:1255-60. <https://www.ncbi.nlm.nih.gov/pubmed/20219962>.

von Essen MR, Kongsbak M, Schjerling P et al. (2010) Vitamin D controls T cell antigen receptor signaling and activation of human T cells. *Nat Immunol.* 11:344-349. <https://www.ncbi.nlm.nih.gov/pubmed/20208539>.

3. Magnesium:

Dean C (2017) Magnesium. OMNS, <http://www.orthomolecular.org/resources/omns/v13n22.shtml>

Dean C. (2017) The Magnesium Miracle. 2nd Ed., Ballantine Books. ISBN-13: 978-0399594441.

Levy TE (2019) Magnesium: Reversing Disease. Medfox Pub. ISBN-13: 978-0998312408

4. Zinc:

Fraker PJ, King LE, Laakko T, Vollmer TL. (2000) The dynamic link between the integrity of the immune system and zinc status. *J Nutr.* 130:1399S-406S.
<https://www.ncbi.nlm.nih.gov/pubmed/10801951>.

Liu MJ, Bao S, Gálvez-Peralta M, et al. (2013) ZIP8 regulates host defense through zinc-mediated inhibition of NF-κB. *Cell Rep.* 3:386-400. <https://www.ncbi.nlm.nih.gov/pubmed/23403290>.

Mocchegiani E, Muzzioli M. (2000) Therapeutic application of zinc in human immunodeficiency virus against opportunistic infections. *J Nutr.* 130:1424S-1431S.
<https://www.ncbi.nlm.nih.gov/pubmed/10801955>.

Shankar AH, Prasad AS. (1998) Zinc and immune function: the biological basis of altered resistance to infection. *Am J Clin Nutr.* 68:447S-463S. <https://www.ncbi.nlm.nih.gov/pubmed/9701160>.

5. Selenium:

Beck MA, Levander OA, Handy J. (2003) Selenium deficiency and viral infection. *J Nutr.* 133:1463S-1467S. <https://www.ncbi.nlm.nih.gov/pubmed/12730444>.

Hoffmann PR, Berry MJ. (2008) The influence of selenium on immune responses. *Mol Nutr Food Res.* 52:1273-1280. <https://www.ncbi.nlm.nih.gov/pubmed/18384097>.

Steinbrenner H, Al-Quraishy S, Dkhil MA et al. (2015) Dietary selenium in adjuvant therapy of viral and bacterial infections. *Adv Nutr.* 6:73-82. <https://www.ncbi.nlm.nih.gov/pubmed/25593145>.

6. Klenner FR. The treatment of poliomyelitis and other virus diseases with vitamin C. *J South Med Surg* 1949, 111:210-214. <http://www.doctoryourself.com/klennerpaper.html>.

7. Cathcart RF. The method of determining proper doses of vitamin C for treatment of diseases by titrating to bowel tolerance. *Australian Nurses J* 1980, 9(4):9-13.
<http://www.doctoryourself.com/titration.html>

Nutritional Medicine is Orthomolecular Medicine

Orthomolecular medicine uses safe, effective nutritional therapy to fight illness. For more information:
<http://www.orthomolecular.org>

FOR IMMEDIATE RELEASE

Orthomolecular Medicine News Service, Feb 2, 2020

Hospital-based Intravenous Vitamin C Treatment
for Coronavirus and Related Illnesses

by Andrew W. Saul and Atsuo Yanagisawa, MD, PhD

(OMNS February 2, 2020) No matter which hospital a coronavirus patient may seek help from, the question is, Will they be able to leave walking out the front door, or end up being wheeled out the basement backdoor? Prompt administration of intravenous vitamin C, in high doses, can make the difference.

Abundant clinical evidence confirms vitamin C's effectiveness when used in sufficient quantity. [1]

Physicians have demonstrated the powerful antiviral action of vitamin C for decades. [2]

Specific instructions for intravenous vitamin C

The Japanese College of Intravenous Therapy (JCIT) recommends intravenous vitamin C (IVC) 12.5/25g (12,500 - 25,000 mg) for acute viral infections (influenza, herpes zoster, common cold, rubella, mumps, etc.) and virus mimetic infections (idiopathic sudden hearing loss, Bell's palsy). In adults, IVC 12.5g is given for early stage illness with mild symptoms, and IVC 25g for moderate to severe symptoms. IVC is usually administered once or twice a day for 2-5 continuous days, along with or without general treatments for viral infections.

IVC 12.5g cocktail

Sterile water 125 mL

50% Vitamin C 25 mL (12.5g)

0.5M Magnesium sulfate 10 mL

Add Vitamin B complex

Drip for 30-40 min

IVC 25g cocktail

Sterile water 250 mL

50% Vitamin C 50 mL (25g)

0.5M Magnesium sulfate 20 mL

Add Vitamin B complex

Drip for 40-60 min

Patients with acute viral infections show a depletion of vitamin C and increasing free radicals and cellular dysfunction. Such patients should be treated with vitamin C, oral or IV, for neutralizing free radicals throughout the body and inside cells, maintaining physiological functions, and enhancing natural healing. If patients progress to sepsis, vitamin C should be added intravenously as soon as possible along with conventional therapy for sepsis.

Toronto Star, 30 May 2003: "Fred Hui, MD believes that administering vitamin C intravenously is a treatment worth trying. And he'd like to see people admitted to hospital for the pneumonia-like virus treated with the vitamin intravenously while also receiving the usual drugs for SARS. 'I appeal to hospitals to try this for people who already have SARS,' says Hui. Members of the public would also do well to build up their levels of vitamin C, he says, adding that there is nothing to lose in trying it. 'This is one of the most harmless substances there is,' Hui states. 'There used to be concern about kidney stones, but that was theoretical. It was never borne out in an actual case.' Hui says he has found intravenous vitamin C effective in his medical practice with patients who have viral illnesses." [3]

Additional administration details are readily obtained from a free download of the complete Riordan Clinic Intravenous Vitamin C Protocol. [4] Although initially prepared for cancer patients, the protocol has found widespread application for many other diseases, particularly viral illnesses.

"Research and experience has shown that a therapeutic goal of reaching a peak-plasma concentration of ~20 mM (350- 400 mg/dL) is most efficacious. (No increased toxicity for prooxidant IVC plasma vitamin C levels up to 780 mg/dL has been observed.) . . . [T]he administering physician begins with a series of three consecutive IVC infusions at the 15, 25, and 50 gram dosages followed by post IVC plasma vitamin C levels in order to determine the oxidative burden for that patient so that subsequent IVCs can be optimally dosed."

Pages 16-18 of the Riordan protocol present IVC administration instructions.

<http://www.doctoryourself.com/RiordanIVC.pdf> or
https://riordanclinic.org/wp-content/uploads/2015/11/RiordanIVCprotocol_en.pdf

There are four pages of supporting references.

"Given the rapid rate of success of intravenous vitamin C in viral diseases, I strongly believe it would be my first recommendation in the management of corona virus infections."

(Victor A. Marcial-Vega, MD)
Puerto Rico

"It is of great importance for all doctors to be informed about intravenous vitamin C. When a patient is already in hospital severely ill, this would be the best solution to help save her or his life."

(Karin Munsterhjelm, MD)
Finland

Winning the hospital game

When faced with hospitalization, the most powerful person in the most entire hospital system is the patient. However, in most cases, the system works on the assumption that the patient will not claim that power. If on your way in you signed the hospital's legal consent form, you can unsign it. You can revoke your permission. Just because somebody has permission to do one thing doesn't mean that they have the permission to do everything. There's no such thing as a situation that you cannot reverse. You can change your mind about your own personal healthcare. It concerns your very life. The rights of the patient override the rules of any institution.

If the patient doesn't know that, or if they're not conscious, or if they just don't have the moxie to do it, the next most powerful person is the spouse. The spouse has enormous influence and can do almost as much as the patient. If the patient is incapacitated, the spouse can, and must, do all the more. If there is no spouse present, the next most powerful people in the system are the children of the patient.

When you go to the hospital, bring along a big red pen, and cross out anything that you don't like in the hospital's permission form. And before you sign it, add anything you want. Write out "I want intravenous vitamin C, 25 grams per day, until I state otherwise." And should they say, "We're not going to admit you," you reply, "Please put it in writing that you refuse to admit me." What do you think their lawyers are going to do with that? They have to admit you. It's a game, and you can win it. But you can't win it if you don't know the rules. And basically, they don't tell you the rules.

This is deadly serious. Medical mistakes are now the third leading cause of death in the US. Yes, medical errors kill over 400,000 Americans every year. That's 1,100 each day, every day. [5]

There are mistakes of commission and mistakes of omission. Failure to provide intravenous vitamin C is, literally, a grave omission. Do not allow yourself or your loved ones to be deprived of a simple, easy to prepare and administer IV of vitamin C.

"If a family member of mine died due to coronavirus infection, after a doctor refused to use intravenous vitamin C, I would challenge his or her treatment in a court of law. I would win."
(Kenneth Walker, MD, surgeon)

It can be done

Vitamin IVs can be arranged in virtually any hospital, anywhere in the world. Attorney and cardiologist Thomas E. Levy's very relevant presentation is free access. [6,7]

<http://www.doctoryourself.com/VC.NZ.Sept.2010.pdf> and

<http://orthomolecular.org/resources/omns/v06n26.shtml>.

Both the letter and the intent of new USA legislation now make this easier for you.

"The new federal Right to Try Act provides patients suffering from life-threatening diseases or conditions the right to use investigational drugs... It amends the Food, Drug, and Cosmetic Act to exempt investigational drugs provided to patients who have exhausted approved treatment options and are unable to participate in a clinical trial involving the drug. Advocates of right to try laws have sought to accelerate access to new drugs for terminally ill patients who are running out of options. Arguably, the law does not represent a radical change in this and several other states, however, because in 2016, California had already joined the majority of other states in adopting a law enabling physicians to help terminally ill patients pursue investigational therapies, without fear of Medical Board or state civil or criminal liability. . . . The new Right to Try law should give physicians, as well as drug manufacturers, some added comfort about FDA enforcement in these cases." [8]

Therefore, in regards to intravenous vitamin C, do not accept stories that "the hospital can't" or "the doctor can't" or that "the state won't allow it." If you hear any of this malarkey, please send the Orthomolecular Medicine News Service the text of the policy or the law that says so. In the meantime, take the reins and get vitamin C in the veins.

References:

1. Saul AW (2020) Nutritional Treatment of Coronavirus.

<http://orthomolecular.org/resources/omns/v16n06.shtml>

2. Saul AW (2020) Vitamin C Protects Against Coronavirus.

<http://orthomolecular.org/resources/omns/v16n04.shtml>

3. Mawhinney J (2003) Vitamin C touted to fight virus. Toronto Star, 30 May 2003.

http://www.newmediaexplorer.org/sepp/2003/06/06/vitamin_c_could_be_effective_against_sars.htm.

4. The Riordan IVC Protocol is a free-access download at

<http://www.doctoryourself.com/RiordanIVC.pdf>

5. James JT (2013) A new, evidence-based estimate of patient harms associated with hospital care. J

Patient Safety 9:122-128. [https://journals.lww.com/journalpatientsafety/fulltext/2013/09000/](https://journals.lww.com/journalpatientsafety/fulltext/2013/09000/A_New_Evidence_based_Estimate_of_Patient_Harms.2.aspx)

[A_New_Evidence_based_Estimate_of_Patient_Harms.2.aspx](https://journals.lww.com/journalpatientsafety/fulltext/2013/09000/A_New_Evidence_based_Estimate_of_Patient_Harms.2.aspx) .

6. Levy TE. Vitamin C: the facts, the fiction, and the law.

<http://www.doctoryourself.com/VC.NZ.Sept.2010.pdf>

7. Levy TE. Vitamin C And The Law. OMNS.

<http://orthomolecular.org/resources/omns/v06n26.shtml>.

8. Nelson H, Zimmitti S (2018) New Federal Right to Try Act. NH Healthcare Law Perspectives.

<https://www.nelsonhardiman.com/right-to-try-right-to-die-federal-and-state-laws-in-flux-for-providers-who-treat-terminally-ill-patients>

To learn more about intravenous vitamin C:
There are many articles posted for free reading at
<https://riordanclinic.org/journal-article-categories/intravenous-vitamin-c/>

Mikirova N, Hunninghake R. (2014) Effect of high dose vitamin C on Epstein-Barr viral infection. *Med Sci Monit.* 20:725-732. <https://www.ncbi.nlm.nih.gov/pubmed/24793092>. "The clinical study of ascorbic acid and EBV infection showed the reduction in EBV EA IgG and EBV VCA IgM antibody levels over time during IVC therapy that is consistent with observations from the literature that millimolar levels of ascorbate hinder viral infection and replication in vitro."

Gonzalez MJ, Berdiel MJ, Duconge J, Levy TE, Alfaro IM, Morales-Borges R, Marcial-Vega, V, Olalde J. (2018) High Dose Vitamin C and Influenza: A Case Report. *J Orthomol Med.* 33(3) <https://isom.ca/article/high-dose-vitamin-c-influenza-case-report/> "Based on the positive outcome in this case, we propose that Intravenous Vitamin C should be studied as a vital component of the treatment protocol for acute viral infections."

Dr. W. Gifford-Jones: People are dying needlessly of coronavirus.
<https://www.mpnnow.com/news/20200128/dr-gifford-jones-people-are-dying-needlessly-of-coronavirus>

Murata A. (1975) Virucidal activity of vitamin C: Vitamin C for the prevention and treatment of viral diseases. *Proceedings of the First Intersectional Congress of Microbiological societies, Science Council of Japan*, 3:432-42.

Saul AW. Vitamins in Hospitals <http://www.doctoryourself.com/hospitals.html>

Saul AW. (2020) Vitamin C Protects Against Coronavirus. *Orthomolecular Medicine News Service.* <http://orthomolecular.org/resources/omns/v16n04.shtml>

Saul AW. How to Get Intravenous Vitamin C Given to a Hospitalized Patient: A Checklist
<http://www.doctoryourself.com/strategies.html>

Cathcart RF. Preparation of Sodium Ascorbate for Intravenous and Intramuscular Administration
<http://www.doctoryourself.com/vitciv.html>

Note: The Japanese College of Intravenous Therapy (JCIT) was founded in 2007. JCIT has organized educational seminar on intravenous nutrient therapy and integrative medicine for 13 years. JCIT now consists of 850 active members of physician and dentists. Every year, the College organizes 10 or more educational seminars with protocols for intravenous vitamin C therapy, mainly along with the Riordan Protocol, for patients with acute and chronic diseases. More than 2500 physicians in Japan have learned these protocols, and patients can easily find member's clinics all over Japan. In addition, JCIT recommends that physicians stock extra vitamin C vials in case of a pandemic. The JCIT website (Japanese language only): <https://www.iv-therapy.org>

Nutritional Medicine is Orthomolecular Medicine
Orthomolecular medicine uses safe, effective nutritional therapy to fight illness. For more information:
<http://www.orthomolecular.org>

FOR IMMEDIATE RELEASE

Orthomolecular Medicine News Service, Feb 16, 2020

Early Large Dose Intravenous Vitamin C is the Treatment of Choice for 2019-nCov Pneumonia
Richard Z Cheng, MD, PhD; Hanping Shi, MD, PhD; Atsuo Yanagisawa, MD, PhD; Thomas Levy, MD, JD; Andrew Saul, PhD.

(OMNS February 16, 2020) The 2019-nCov (coronavirus) epidemic originated in Wuhan, China and is now spreading to many other continents and countries, causing a public fear. Worst of all, there is no vaccine or specific antiviral drugs for 2019-nCov available. This adds to the public fear and gloomy outlook. A quick, rapidly deployable and accessible, effective and also safe treatment is urgently needed to not only save those patients, to curtail the spread of the epidemic, but also very important in the psychological assurance to people worldwide, and to the Chinese in particular. Acute organ failure, especially pulmonary failure (acute respiratory distress syndrome, ARDS) is the key mechanism for 2019-nCov's fatality. Significantly increased oxidative stress due to the rapid release of free radicals and cytokines etc. is the hallmark of ARDS which leads to cellular injury, organ failure and death. Early use of large dose antioxidants, especially vitamin C (VC), therefore, plays a key role in the management of these patients. We call upon all those in the leadership, and those providing direct assistance patients, to bravely and rapidly apply large dose intravenous vitamin C (IVC) to help those patients and to stop this epidemic.

2019-nCov is a rapidly developing epidemic with a high morbidity and mortality.

Wang et al reports 26% ICU admission rate and a 4.3% mortality rate in their 138 confirmed cases [1]. Chen et al report that out of 99 confirmed 2019-nCov patients, 17 (17%) patients developed ARDS and, among them, 11 (11%) patients worsened in a short period of time and died of multiple organ failure.

Increased oxidative stress, an underlying "cytokine storm," leads to ARDS which is the key pathology of high mortality of these pandemic viral infections. Cytokine storm-induced ARDS is the key pathology leading to death of these patients [2]. Intravenous vitamin C effectively counters oxidative stress.

Cytokine storm

Coronaviruses and influenza are among the pandemic viruses that can cause lethal lung injuries and death from ARDS [3]. Viral infections cause a "cytokine storm" that can activate lung capillary endothelial cells leading to neutrophil infiltration and increased oxidative stress (reactive oxygen and nitrogen species) that further damages lung barrier function [3]. ARDS, which is characterized by severe hypoxemia, is usually accompanied by uncontrolled inflammation, oxidative injury, and the damage to the alveolar-capillary barrier [4]. The increased oxidative stress is a major insult in pulmonary injury such as acute lung injury (ALI) and acute respiratory distress syndrome (ARDS), two clinical manifestations of acute respiratory failure with substantially high morbidity and mortality [5,6].

In a report of 29 patients confirmed of 2019-nCov pneumonia patients, 27 (93%) showed increased hsCRP, a marker of inflammation (and oxidative stress) [7]. Transcription factor nuclear factor erythroid 2-related factor 2 (Nrf2) is a major regulator of antioxidant response element- (ARE-) driven cytoprotective protein expression. The activation of Nrf2 signaling plays an essential role in preventing cells and tissues from injury induced by oxidative stress. Vitamin C is an essential element of the antioxidant system in cellular response [8].

Part of vitamin C's biological effects in critical care management are well reviewed in a recent article by Nabzdyk and Bittner from Mass Gen Hospital of Harvard Medical School on World's Journal of Critical Care Medicine [9]:

Antioxidant, radical oxygen scavenger protecting cells from oxidative Steroid- and catecholamine synthesis, cofactor in catecholamine, vasopressin and steroid synthesis, improves hemodynamics, may accelerate resolution of shock

Immune cell function. Increases neutrophil phagocytosis and chemotaxis, affects macrophage migration, enhances T and NK cell proliferation, modulates their function, may increase antibody formation.

Endothelial cell function. Decreases endothelium ICAM expression and leukocyte adhesion, improves endothelial barrier function, improves microcirculation

Carnitine production, modulates fatty acid metabolism, may improve microcirculation and cardiac function

Wound healing, cofactor of collagen synthesis, mitogen for fibroblasts

Antioxidants, especially large dose IV vitamin C (IVC) in the management of ARDS.

It's clear that increased oxidative stress plays a major role in the pathogenesis of ARDS and death.

Cytokine storm is observed in both viral and bacterial infections [3]. Cytokine storm leads to increased oxidative stress, ARDS and death seems to be a common and non-specific pathway. This is important in clinical management. Since the prevention and management targeting increased oxidative stress with large dose of antioxidants seems a logical step and can be applied to these deadly pandemics, without the lengthy waiting for pathogen-specific vaccines and drugs, as is the case of the current 2019-nCov epidemic.

As a matter of fact, large dose intravenous vitamin C (IVC) has been used clinically successfully in viral ARDS and also in influenza [10]. Fowler et al described a 26-year-old woman developed viral ARDS (rhinovirus and enterovirus-D68) [3]. She was admitted to ICU. After failure to routine standard management, she was placed on ECMO on day 3. High dose IVC (200mg/kg body/24 hour, divided in 4 doses, one every 6 hours) was also started on ECMO day 1. Her lungs showed significant improvement on day 2 of high dose IVC infusion on X-ray imaging. She continued to improve on ECMO and IVC and ECMO was discontinued on ECMO day 7 and the patient recovered and was discharged from the hospital on hospital day 12, without the need of supplemental oxygen. One month later, X-ray of her lungs showed complete recovery. Gonzalez et al (including one of the authors, Thomas Levy) reported recently a severe case of influenza successfully treated with high dose IVC [10]. 25-year-old MG developed flu-like symptoms which was rapidly deteriorating to the degree that, about 2 weeks later, the patient barely had the energy to use the toilet. He was placed on high dose IVC (50,000 mg of vitamin C in 1000 ml Ringer's solution, infused over 90 minutes). The patient immediately reported significant improvement the next day. On day 4 of IVC infusion he reported to feel normal. He continued oral VC (2,000 mg twice daily) [10]. Another story has been widely circulating on the social media that large dose IVC reportedly was used in 2009 to save a New Zealand farmer, Alan Smith (Primal Panacea). One of us (Thomas Levy) was consulted upon in this case [11] [12]. Hemila et al reported that vitamin C shortens ICU stay in their 2019 meta-analysis of 18 clinical studies with a total of 2004 ICU patients on the journal *Nutrients* [13]. In this report, 17,000 mg/day IVC shortened the ICU stay by 44%. Marik et al reported their use of IVC in 47 sepsis ICU cases. They found a significant reduction in mortality rate in the IVC group of patients [14].

Dietary antioxidants (vitamin C and sulforaphane) were shown to reduce oxidative-stress-induced acute inflammatory lung injury in patients receiving mechanical ventilation [15]. Other antioxidants (curcumin) have also been shown to have promising anti-inflammatory potential in pneumonia [16].

High dose IVC has been clinically used for several decades and a recent NIH expert panel document states clearly that high dose IVC (1.5 g/kg body weight) is safe and without major side effects [17].

Summary

2019-nCov pneumonia is a rapidly developing disease with high morbidity and mortality rate. The key pathogenesis is the acute lung injury causing ARDS and death. Coronaviruses, influenza viruses and many other pandemic viral infections are usually associated with an increase oxidative stress leading to oxidative cellular damage resulting in multi-organ failure. Antioxidants administration therefore has a central role in the management of these conditions, in addition to the standard conventional supportive

therapies. Preliminary clinical studies and case reports show that early administration of high dose IVC can improve clinical conditions of patients in ICU, ARDS and flu. It needs to be pointed that pandemics like 2019-nCov will happen in the future. Specific vaccines and antiviral drugs R&D take long time to develop and are not available for the current nCov epidemic and won't be ready when the next pandemic strikes. IVC and other antioxidants are universal agents for ARDS that can be rapidly applied clinically. Given that high dose IVC is safe, can be effective, we call on the involved leadership and healthcare professionals to look into high dose IVC without further delay. More clinical studies of the IVC and oral VC (such as liposomal-encapsulated VC) are needed to develop standard protocols for the current use and future uses are urgently needed. We hope when the next pandemic strikes, we won't be so helpless and we'll be ready.

For further reading

Coronavirus Patients in China to be Treated with High-Dose Vitamin C

<http://orthomolecular.org/resources/omns/v16n10.shtml> As of the date of publication of this Orthomolecular Medicine News service Release, Dr. Cheng is in Wuhan facilitating IVC treatment for hospitalized coronavirus patients.

Vitamin C and its Application to the Treatment of nCoV Coronavirus

<http://orthomolecular.org/resources/omns/v16n09.shtml>

Hospital-based Intravenous Vitamin C Treatment for Coronavirus and Related Illnesses

<http://orthomolecular.org/resources/omns/v16n07.shtml>

Nutritional Treatment of Coronavirus

<http://orthomolecular.org/resources/omns/v16n06.shtml>

Vitamin C Protects Against Coronavirus

<http://orthomolecular.org/resources/omns/v16n04.shtml>

References

1. Wang D, Hu B, Hu C, Zhu F, Liu X, Zhang J, Wang B, Xiang H, Cheng Z, Xiong Y, Zhao Y, Li Y, Wang X, Peng Z. Clinical Characteristics of 138 Hospitalized Patients With 2019 Novel Coronavirus-Infected Pneumonia in Wuhan, China. *JAMA*. 2020 Feb 7;
2. Chen N, Zhou M, Dong X, Qu J, Gong F, Han Y, Qiu Y, Wang J, Liu Y, Wei Y, Xia J, Yu T, Zhang X, Zhang L. Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study. *Lancet Lond Engl*. 2020 Jan 30;
3. Fowler III AA, Kim C, Lepler L, Malhotra R, Debesa O, Natarajan R, Fisher BJ, Syed A, DeWilde C, Priday A, Kasirajan V. Intravenous vitamin C as adjunctive therapy for enterovirus/rhinovirus induced acute respiratory distress syndrome. *World J Crit Care Med*. 2017 Feb 4;6(1):85-90.
4. Meng L, Zhao X, Zhang H. HIPK1 Interference Attenuates Inflammation and Oxidative Stress of Acute Lung Injury via Autophagy. *Med Sci Monit Int Med J Exp Clin Res*. 2019 Jan 29;25:827-35.
5. Yan X, Fu X, Jia Y, Ma X, Tao J, Yang T, Ma H, Liang X, Liu X, Yang J, Wei J. Nrf2/Keap1/ARE Signaling Mediated an Antioxidative Protection of Human Placental Mesenchymal Stem Cells of Fetal Origin in Alveolar Epithelial Cells. *Oxid Med Cell Longev*. 2019;2019:2654910.
6. Hecker L. Mechanisms and consequences of oxidative stress in lung disease: therapeutic implications for an aging populace. *Am J Physiol Lung Cell Mol Physiol*. 2018 01;314(4):L642-53.
7. Chen L, Liu HG, Liu W, Liu J, Liu K, Shang J, Deng Y, Wei S. [Analysis of clinical features of 29 patients with 2019 novel coronavirus pneumonia]. *Zhonghua Jie He He Hu Xi Za Zhi Zhonghua Jie He Huxi Zazhi Chin J Tuberc Respir Dis*. 2020 Feb 6;43(0):E005.

8. Liu Q, Gao Y, Ci X. Role of Nrf2 and Its Activators in Respiratory Diseases. *Oxid Med Cell Longev*. 2019;2019:7090534.
9. Nabzdyk CS, Bittner EA. Vitamin C in the critically ill - indications and controversies. *World J Crit Care Med*. 2018 Oct 16;7(5):52-61.
10. High Dose Vitamin C and Influenza: A Case Report - ISOM [Internet]. [cited 2020 Feb 9]. Available from: <https://isom.ca/article/high-dose-vitamin-c-influenza-case-report/?from=groupmessage&isappinstalled=0>
11. Levy T. *Primal Panacea*. MedFox Publishing; 350 p. (Kindle Edition).
12. Levy TE. *Primal Panacea*. Medfox Pub, 2012. Kindle, 2017.
13. Hemilä H, Chalker E. Vitamin C Can Shorten the Length of Stay in the ICU: A Meta-Analysis. *Nutrients*. 2019 Mar 27;11(4).
14. Marik PE, Khangoora V, Rivera R, Hooper MH, Catravas J. Hydrocortisone, Vitamin C, and Thiamine for the Treatment of Severe Sepsis and Septic Shock: A Retrospective Before-After Study. *Chest*. 2017;151(6):1229-38.
15. Patel V, Dial K, Wu J, Gauthier AG, Wu W, Lin M, Espey MG, Thomas DD, Jr CRA, Mantell LL. Dietary Antioxidants Significantly Attenuate Hyperoxia-Induced Acute Inflammatory Lung Injury by Enhancing Macrophage Function via Reducing the Accumulation of Airway HMGB1. *Int J Mol Sci*. 2020 Feb 1;21(3).
16. Zhang B, Swamy S, Balijepalli S, Panicker S, Mooliyil J, Sherman MA, Parkkinen J, Raghavendran K, Suresh MV. Direct pulmonary delivery of solubilized curcumin reduces severity of lethal pneumonia. *FASEB J Off Publ Fed Am Soc Exp Biol*. 2019 Dec;33(12):13294-309.
17. High-Dose Vitamin C (PDQ(r))-Health Professional Version - National Cancer Institute [Internet]. [cited 2020 Feb 9]. Available from: <https://www.cancer.gov/about-cancer/treatment/cam/hp/vitamin-c-pdq>

Nutritional Medicine is Orthomolecular Medicine

Orthomolecular medicine uses safe, effective nutritional therapy to fight illness. For more information: <http://www.orthomolecular.org>