



College of Intensive Care Medicine
of Australia and New Zealand

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High Dose Intravenous Vitamin C Treatment in Critically Ill Patients in New Zealand

A paper for the information of all Fellows and Trainees of The College and Members of The Society in New Zealand

There has recently been media and public interest in the use of high dose intravenous vitamin C treatment in critically ill patients in NZ Intensive Care Units. To date there appear to have been at least six requests from families for this treatment to be given to critically ill patients with various pathologies. The treatment is being championed by general practitioners working at the Centre for Advanced Medicine Ltd, Remuera, Auckland. They have authored an 'original piece of scientific research' entitled '*Vitamin C: Evidence, application and commentary*', NZFP October 2008 Vol 35 (5) 312-318. Their web site is <http://www.camitd.co.nz/> (accessed 15th September 2010). The doses being proposed are up to 50g three times per day, intravenously. The preparation that is being recommended is manufactured in the USA by McGuff pharmaceuticals. The manufacturer's package insert sheet is available on: http://www.mcguffpharmaceuticals.com/ascor_I_500.htm. The maximum recommended intravenous dose on this insert is 2g /day.

The scientific evidence for this new treatment has recently been reviewed by the Clinical Practice Committee at the Auckland District Health Board. This committee is made up of twelve senior clinicians and was set up to review the evidence for new treatments that ADHB is considering introducing. This committee makes recommendations to the ADHB management as to whether these treatments should be offered.

The CPC reviewed all of the published medical papers available and found that there had been no prospective randomised double blinded studies on the use of high dose intravenous vitamin C treatment (in the doses mentioned above i.e. 50-150 g/day). They recommended that this treatment should not be provided by ADHB except in the context of a clinical trial <http://www.cicm.org.au/cmsfiles/CPC%20Letter%20to%20ADHB%20CMO.pdf>.

One paper was found that detailed a trial in burns patients given one (high) dose of intravenous vitamin C in the first 24 hours of their admission as an infusion. This trial was not blinded and showed no mortality benefit (Tanaka et al. Arch. Surg. Mar 2000;135; 326-321). A complete list of the papers reviewed by the CPC is available at <http://www.cicm.org.au/cmsfiles/Bibliography%20of%20References%20used%20by%20CP%20Reviewers%207th%20September%202010.pdf>.

Whilst there are data for the safety of this high dose regimen in fit and healthy patients and cancer patients, there are no data for its safety in critically ill patients or patients with renal dysfunction.

Evidence of harm from high dose intravenous vitamin C exists. It has caused kidney failure in patients with poor kidney function. This has been so well established in the medical literature that at least one medico-legal case has ensued (NSW Medical Board - Varipatis) when such evidence has been ignored.

www.nswmb.org.au/resources/880/Varipatis%20101109.pdf.

The Medical Council of New Zealand (MCNZ) provides guidance to registered medical practitioners on prescribing in *Good Prescribing Practice* (2010). This guideline states that a registered medical practitioner should only prescribe a therapy if he/she is satisfied it is "in the patient's best interests", even in the face of a patient demanding the therapy.

The MCNZ also provides registered medical practitioners with advice on the subject of Complementary Medicines in its publication a *Statement on Complementary and Alternative Medicine* (2005), general guidance in its publication *Good Medical Practice. A Guide to Doctors* (2008), and advice on who can provide consent (and for what) on behalf of an incompetent patient in *Information and Consent* (2002).

<http://www.mcnz.org.nz/Publications/Goodmedicalpractice/tabid/293/Default.aspx#professionalism>.

The issue of informed consent and the incompetent adult patient in intensive care, is also covered in the article by Freebairn et al in *Critical Care and Resuscitation* 2002; 4: 61-64 - <http://cicm.org.au/journal/2002/march/Point%20of%20view.pdf>. When valid consent cannot be obtained from the patient, the treating clinician may treat the patient where the treatment is in the patient's best interests. Only a person who has been granted Enduring Power of Attorney (Welfare) or is a court appointed Welfare Guardian can provide valid proxy consent on behalf of the incompetent patient. Such a person may not give valid proxy consent for certain treatments such as experimental treatments, electroconvulsive therapy, and brain ablation procedures. They may not withhold consent for procedures that the treating clinician believes to be life preserving.

Right 7 of The Code of Health and Disability Services Consumers' Rights covers a patient's right to make an informed choice and give informed consent. This Code does not provide for the consumer or the relatives to demand a treatment or service that a clinician does not believe to be in the best interests of the consumer.

See: <http://www.hdc.org.nz/media/24833/brochure-code-white.pdf>.

Taking all of the information above into account, The College of Intensive Care Medicine and the Australian and New Zealand Intensive Care Society does not currently support the use of high dose intravenous vitamin C treatment in any critically ill patient in New Zealand, except as part of an ethics committee approved clinical trial.



DR MIKE GILLHAM
Chair
NZNC, CICM



DR JANET LIANG
NZ Regional Chair
ANZICS