



AAMAC
ACAAM

Aplastic Anemia & Myelodysplasia
Association of Canada
Association canadienne de l'anémie
aplasique et de la myélodysplasie

Iron & Iron Overload Webinar

Saturday November 28, 2020

Responses from Dr Hsia

Question regarding Wheatgrass as an iron chelation and how to take it:

There are 2 papers with wheatgrass as an iron chelation for iron overload from transfusion in MDS. However, I should **caution the reader as these are both very small studies that were just abstracts and not published as a full paper with peer-review**. So although interesting, it is not standard treatment. It doesn't seem like there is a standard method for taking wheatgrass. Please see below for various ways of taking it such as "self-administered wheatgrass that they either grew themselves in potting soil or in an agricultural setting, procured from a juice bar, or obtained in powder form from a nutritional supplement store" or "fresh leaves of 5–7-day-old wheat grass including stems were made fresh juice and had given 30 ml of juice daily". Otherwise, there is no standard method for making wheatgrass.

Here are the 2 references: Both are abstracts only and not full published papers.

1. David P. Steensma; Wheatgrass Extract (Mugineic Acid): An Inexpensive and Effective Iron Chelator in Patients with Myelodysplastic Syndromes. Blood 2017; 130 (Supplement 1): 5305.

Twelve patients with transfusion-dependent MDS (n=11) or congenital dyserythropoietic anemia (n=1) self-administered wheatgrass that they either grew themselves in potting soil or in an agricultural setting (n=3), procured from a juice bar (n=7), or obtained in powder form from a nutritional supplement store (n=2).

2. S. Mukhopadhyay, J. Basak, M. Kar, S. Mandal, and A. Mukhopadhyay
Journal of Clinical Oncology 2009 27:15_suppl, 7012-7012

The fresh leaves of 5–7-day-old wheat grass including stems were made fresh juice and had given 30 mL of juice daily to all 20 patients for continuous 6 months.

Question regarding Pseudogout and iron chelation:

Here's a few references for this that I could find on the topic. Pseudogout (also called CPPD) a form of arthritis that results from deposits of calcium pyrophosphate crystals (its medical term is calcium pyrophosphate dihydrate crystal deposition disease, or CPPD).

Data doesn't seem to be consistent and may be more in keeping with iron overload from hereditary causes such as hereditary hemochromatosis. Although, there is an association, it seems that really trying to correct the iron overload doesn't have an effect on the crystal deposition in pseudogout but may lead to some symptom benefit(?).

Some notes and references I've attached here:

Macmullan P, McCarthy G. Treatment and management of pseudogout: insights for the clinician. *Ther Adv Musculoskelet Dis.* 2012 Apr;4(2):121-31.

- Despite the value of establishing the presence of an associated disorder there is no evidence that targeted treatment of these conditions, such as decreasing iron load with phlebotomy in haemochromatosis, has any effect on CPPD crystal deposition [Hamilton et al. 1981]. However, recent data suggest that reversal of iron overload may at least lead to symptomatic relief in the long term [Harty et al. 2011].
- Of the other endocrine and metabolic conditions that have been linked with chondrocalcinosis, only hereditary haemochromatosis is associated with the full spectrum of CPPD-related arthropathy [Jones et al. 1992]. Iron accumulation in joint tissues appears to be a key factor, as evidenced by reports of CPPD crystal deposition in patients with secondary iron overload due to transfusion haemosiderosis and haemophilia.

Ivory D, Velázquez CR. The forgotten crystal arthritis: calcium pyrophosphate deposition. *Mo Med.* 2012 Jan-Feb;109(1):64-8.

- In patients with associated endocrine or metabolic disorders, such as hemochromatosis, hyperparathyroidism, or hypothyroidism, successful treatment of the underlying disorder has not resulted in reversal of cartilage calcification.
- In another disorder, Hereditary Hemochromatosis, “.. clinical presentations of pseudogout are uncommon”