Clinical Pearls for
Health Care Professionals

BIOTICS RESEARCH CANADA
"The Best of Science and Nature"

Functional Medicine Updates

Why the Porphyrin Ring Structure is Such an Effective Oral Heavy Metals Chelating Compound

As we all know, we live in a toxic environment which continues to get even more toxic.

"Total Toxin Load" is a term that is increasingly being used by progressive Health Care Practitioners, and it represents the total accumulated load of toxins an individual must contend with in their environment.

And of course this includes not only chemicals and heavy metals, but newly introduced toxins such as more radiation exposure and GMO compounds (the worst by far being Glyphosate, an active compound in Monsanto's Roundup, which can cause significant damage to gut bacteria: but even more critical is the fact that

Glyphosate preferentially targets beneficial bactera, and causes disruption of P450 enzymes which can lead to

***The disruption of the biosynthesis of aromatic amino acids by gut bacteria, as well as impairment in serum sulfate transport*.**

Heavy metal toxicity is another toxic burden that we all deal with, and awareness of this fact is quite limited in the general public.

Taking preventative measures to minimize the accumulation of heavy metals is we believe one of the key components of maintaining health in the 21st. Century.

And certainly as we know, this can be done by the consumption of foods with naturally occurring chelating compounds (such as sulphur containing vegetables such as garlic and onions, cilantro, foods with a high Vitamin C content and many others (see a more comprehensive list below in this article).

Regular heavy metals detoxification is unfortunately now a reality to maintain optimal health.

Dr. Garry Gordon, MD of Gordon Research has the following to say on this topic:

Gordon Research

Dr. Garry Gordon, a leader in the field of chelation says, “No one on planet earth is operating at optimal levels without doing something about the toxic metals. Thus the conclusion I draw is that chelation appears to be a lifetime necessity for all. There is no chelation that can dent the lead levels of bones unless continued for at least seven years (bone turnover time).”[3]

There are of course different ways to approach this situation, primarily via I.V. intervention as well as via oral chelation.

We wanted to address the latter option: oral chelation in this article.

A key naturally occurring compound which has proven to be highly effective in this process is the **porphyrin ring structure.**

From the IAOMT Website, here is some more information on the porphyrin ring:

Urinary Porphyrin Profile: A Qualitative and Quantitative Laboratory Indicator of Mercury Toxicity by John Wilson, MD

Numerous steps are involved in the pathways that result in porphyrin ring formation, and each step is dependent upon specific enzymes.

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The work of James Woods **at UW demonstrated that porphyrin-ring structures are used in nature to shuttle metals through the blood and other tissues. Algae also contain porphyrin ring structures (i.e.chlorophyll).**

"A commercial product named **"Porphyra-Zyme" (Chela-Zyme in Canada)** shows promise in the course of a Hg ,Cd and Pb-detox program".

Another highly respected physician who has documented the efficacy of Porphyra-Zyme is Dr. Dietrich Klinghardt, MD.

The Klinghardt Neurotoxin Elimination Protocol

This lecture was presented by Dietrich Klinghardt M.D., Ph.D. at the Jean Piaget Department at the University of Geneva, Switzerland Oct.2002 to physicians and dentists from Europe, Israel, several Arab countries and Asia Updated 1/06

Mercury Toxicity and Systemic Elimination Agents

Dietrich Klinghardt, M.D., Ph.D. and Joseph Mercola, D.O.,

Journal of Nutritional & Environmental Medicine (2001) 11, 53-62

Biotics Research offers a porphyrin ring focused product (from mulberry, spinach and beet) which has proven to be a highly effective oral chelation product:

Biotics – Porphyra-Zyme™ (Chela-Zyme in Canada)

Biotics – Porphyra-Zyme™

Caution	Not recommended for pregnant or lactating women.
Dosage	12 – 18 tabs daily (6 tabs, 2 – 3 times daily) in divided doses away meals and supplemental minerals
Serving	Each tablet supplies 210 mg proprietary blend containing spinach mulberry, beet powder, and raw organic vegetable culture concer providing naturally occurring chlorophyllin, galacto-glycerides, chl (a and b), phospholipids, carotenoids, sulfolipids, plastoquinones c), menadione, cytochrome B6 and F, plastocyanine, ferridoxin, ar minerals.
Indications	Toxic conditions, heavy metal overload, oral chelation
Commentary	Porphyrin is a 5-carbon ring within which magnesium is loosely bc When the ringed structure enters solution, the magnesium is rele another substance—a toxin—is drawn into the ring. From there tl and its toxin are removed via the biliary, fecal, or the urinary rout

Also, Biotics offers Chlorella, which is well known for its chelation benefits:

Here is some information on Chlorella from an article by Dr. Joseph Mercola:

Chlorella is perhaps most well known for its ability to detox your body by binding to toxins, such as mercury and carrying them out of your system.

But that's not all this green algae is good for.

Chlorella can also be of great benefit to vegetarians and vegans who want proteins and B vitamins from a non-animal source.

Chlorella is about 60 percent protein, and is considered to be a "complete protein" source because it contains all the essential amino acids your body needs.

Other health benefits include:

Repairing nerve tissues
Enhancing your immune system and reducing your cancer risk
Improving digestion
Promoting healthy pH levels in your gut, which in turn helps good bacteria to thrive
Enhancing your ability to focus and concentrate
Increasing your energy levels
Normalizing your blood sugar and blood pressure

Also attached are actual Doctor's Data post provocative fecal metals **from some of Caron DeVita's (CEO of Biotics Canada) patients which she has worked with over the years which corroborates the efficacy of Chela-Zyme.**

Here is a copy of the materials from our Biotics Canada

"Advanced Heavy Metals Detoxification presentation"

Symptoms & conditions related to heavy metal toxicity

- Fibromyalgia, chronic fatigue and all autoimmune diseases
- Mood swings, depression, anxiety, schizophrenic-like behavior
- Neurotransmitter dysfunction
- Thyroid and adrenal dysfunction
- Inflammatory brain conditions, autism, Parkinson's and Alzheimer's
- Chronic infections, bacterial, viral and Candida
- TMJ
- ADD, lower IQ and learning problems
- Anemia
- Food allergies and sensitivities
- Infertility and reproductive problems in both men and women
- Genital malformation
- Hypertension
- Cancer
- Brain fog, confusion, forgetfulness, memory loss, dementia

- Hair loss, premature graying hair
- Chronic muscle and tendon pain
- Kidney and liver disease
- Osteoporosis
- Dizziness
- Mineral and nutrient deficiencies
- Insomnia
- Digestive problems, IBS and gastrointestinal complaints
- Migraines, headaches, visual disturbances
- Respiratory, lung and heart problems
- Nervous system malfunctions: burning extremities, numbness, tingling

In a Brown University study, researchers found nearly 23 percent of women aged 16-49 met or exceeded levels for all three environmental chemical pollutants — lead, mercury and polychlorinated biphenyls (PCBs) — and 56 percent of the women exceeded the median for two or more of these three pollutants. All but 17.3 percent of the women were at or above the level for one or more of these toxic chemicals.

Compounds that chelate heavy metals

Zeolites

Shilajit

Chlorella

ALA

Vitamin C

Cilantro

Garlic (a good souce of N-Acetyl-L-Cysteine (NAC))

NAC

Certain healing clays (such as Bentonite and Montmorillonite clays)

Diatomaceous Earth

Tamra Bhasma, a metallic ayurvedic preparation

Glutathione

Iodine / Kelp

MSM

IP6 plus Inositol (Inositol Hexaphosphate Plus Inositol)

Homeopathics

Methionine

Certain species of brown algae

Modified Citrus Pectin

A powerful visual reminder of the toxicity of mercury amalgams is graphically represented in the YouTube video:

Smoking Teeth YouTube Video

TOXIC METALS AND DETOXIFICATION **by Lawrence Wilson, MD**

Detoxification Agents for Mercury and Other Metals

IAOMT (International Academy of Oral Medicine and Toxicology)

Using the Urinary Porphyrin Profile in Mercury Detox

The mercury vapor from the amalgams is lipid soluble and passes readily through cell membranes and across the blood brain barrier.4

Lorschider, F, Vimy MJ, Summers, AO: Mercury xposure from "silver" tooth filligs: Emerging evidence questions a tradtional dental paradigm.

FASEB J 9:504-508, 1995

And from Doctor's Data Lab, information on fecal sample testing for heavy metals:

Fecal elemental analysis provides a direct indication of dietary exposure to toxic metals and indirect information about the potential for toxic metal burden. Chronic, low-level assimilation of toxic metals can result in accumulation in the body. For many toxic metals, fecal (biliary) excretion is the primary natural route of elimination from the body.

Analysis of elements in feces provides a comprehensive evaluation of environmental exposure, potential for accumulation in the body (Hg), and possibly endogenous detoxification of potentially toxic metals. For many toxic elements such as mercury, cadmium, lead, antimony and uranium, biliary excretion into the feces is the primary natural route of elimination from the body. The primary process by which the body eliminates the insidious sulfhydryl reactive metals is through the formation of metal-glutathione complexes, of which greater than 90% are excreted into the bile.

Evidence for the extent of exposure to mercury from dental amalgams is provided by the fact that fecal mercury levels are highly correlated with the number of amalgams in the mouth. It also clear that fecal mercury levels for people with dental amalgams are remarkably similar from day to day, and approximately ten times higher than in people who do not have mercury amalgams.

Administration of pharmaceutical metal binding agents results in excretion of toxic metals primarily through the kidneys into the urine. In contrast, support of natural detoxification processes enhances the rate of excretion of toxic metals into the feces. Elemental analysis of fecal specimens can provide a valuable tool to monitor the efficacy of natural detoxification of metals in infants or patients who are on very limited and defined diets that do not contain contaminated solid foods. A preliminary study performed at Doctor's Data indicates that biliary/fecal excretion of mercury and lead may be markedly enhanced following high-dose intravenous administration of ascorbic acid. Other orthomolecular or nutraceutical protocols may also enhance the fecal excretion of metals and hence potentially decrease burden on the kidneys. Further research to identify and validate such therapies is warranted.

A primary objective of preventive medicine is avoidance or removal of exposure to toxic substances. The rate of oral absorption of toxic metals varies considerably among elements, and among subspecies of a particular element. Fecal elemental analysis can provide a direct indication of dietary

exposure. Orally, the percent absorption of nickel, cadmium and lead is usually quite low, but varies significantly in part due to the relative abundance of antagonistic essential elements in the diet. That is particularly evident for lead and calcium, and cadmium and zinc. Chronic, low-level assimilation of the toxic metals can result in significant accumulation in the body. The results of fecal elemental analysis can help identify and eliminate dietary exposure to toxic metals.

The fecal metals test was not developed to replace the pre- and post-urinary toxic metals provocation test, but rather provides an alternative for infants, children or adults for whom urine collection is problematic, or for individuals who do not tolerate the available pharmaceutical metal detoxification agents. Elements are measured by ICP-MS and expressed on a dry weight basis to eliminate variability related to water content of the specimen.

“Soft” laboratory markers of mercury toxicity include depressed white blood cell count and slightly elevated albumin, but such markers are not specific to mercury. Findings of mercury toxicity on a physical exam will include the presence of mercury amalgams, vermicular fasciculations of the tongue, a crimson stripe on the soft palate margin that fades toward the midline, a one-beat unsustained clonus at the ankles, hypo- or hyper-active distal tendon reflexes, and impaired balance testing. One of the common clinical findings of mercury toxic autistic children is a very pale complexion and attendant anemia, likely related to impaired hemoglobin and porphyrin synthesis. No clinical findings are specific to mercury. Also, since nerve tissue

regenerates slowly, these markers become useless as a means of determining when one should stop chelation.

More definitive laboratory markers include tissue specific antibodies to chromatin, fibrillarin, myelin basic protein, chromatin, neurofilaments, and tubulin, with the latter two more likely suggestive of mercury damage. All of these components are found in nerve tissue which, if damaged by mercury (and/or other toxins), will be released into the blood stream, will be "seen" by the immune system, and antibodies specific to these components will thus be produced. Even so, elevated antibodies against these tissues can persist longer than a year even when the body burden of mercury has been sufficiently reduced.

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We as Health Care Professionals need to educate our patients about the dangers of metals toxicity, and to help them to regularly detox these toxins.

The Biotics Research products, Chela-Zyme and Chlorella can be valuable clinical tools in this process...

Regards,

Rob Lamberton

Robert Lamberton Consulting

Certified Light/Darkfield Microscopist

Functional Medicine Consultant - Biotics Canada Products

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