The Current Use of Chelation in American Healthcare: An Overview

Paul M. Wax, MD, FACMT
Clinical Professor
University of Texas, Southwestern
Executive Director
American College of Medical Toxicology
Why Hold a Conference on “Use and Misuse of Metal Chelation Therapy”

Mercury Exposure: Evaluation and Intervention
The Inappropriate Use of Chelating Agents in the Diagnosis and Treatment of Putative Mercury Poisoning

John R. Bakke, MD. Stevens Point, Wisconsin

Each year, ATSDR receives dozens of calls from individuals who have been chelated (challenged) with DMPS or DMSA prior to collection of any urine samples, and subsequently been diagnosed as having mercury poisoning. The sole basis of these diagnoses was laboratory reports that indicated that the individual had been determined to have toxic levels of mercury, based solely upon comparison of post-chelation mercury values with historical (typically pre-chelation) values. Without exception these individuals have been advised to undergo additional chelation.

Some physicians have also looked to mercury as a possible cause of undiagnosed health problems and subsequent chelation therapy as a treatment for those problems. As a result, the use of chelation has expanded in recent years to include the treatment of mildly symptomatic or asymptomatic patients with no documented history of mercury exposure (McKay et al., 2003), and it is becoming increasingly, and unfortunately, common for practitioners to make a diagnosis of mercury intoxication and begin treatment without carrying out an adequate clinical workup (McKay et al., 2003).
Case #1

Health Consultation
Franklin Township Residential Mercury Investigation

Higgins Farm
Franklin Township, Warren County, NJ
EPA Facility ID: NJDEP1490281

Background

On October 22, 2003, the New Jersey Department of Environmental Protection (NJDEP), on behalf of the U.S. Environmental Protection Agency (EPA), contacted the New Jersey Department of Health and Senior Services (NJDHSS) regarding possible exposures related to the Higgins Farm National Priorities List site. A person living just outside of the well-restriction zone for Higgins Farm had raised concerns. The index resident (IR) advised EPA that three children in residence, two of whom had neurologic impairments, had used and currently were using a private well. The IR expressed concern that contaminants related to the Higgins Farm site were impacting the health of the family.

Contact with the IR by the NJDHSS revealed that the IR and one of the children were undergoing chelation therapy for "metals exposures." This child was 3 ½ years old and has been diagnosed with Attention Deficit Hyperactivity Disorder (ADHD). An out-of-state physician had diagnosed of metals exposure.

Table. Urine analyses for metals.*

<table>
<thead>
<tr>
<th></th>
<th>IR (24-hour sample)</th>
<th>Reference Range (24 hour sample, adult)**</th>
<th>Child B (spot sample)</th>
<th>Reference Range (spot sample, child)**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead</td>
<td>3.3</td>
<td>&lt; 15</td>
<td>14</td>
<td>&lt; 20</td>
</tr>
<tr>
<td>Arsenic</td>
<td>13</td>
<td>&lt; 140</td>
<td>23</td>
<td>&lt; 200</td>
</tr>
<tr>
<td>Mercury</td>
<td>21</td>
<td>&lt; 5</td>
<td>10</td>
<td>&lt; 5</td>
</tr>
</tbody>
</table>

Data Source: Doctor's Data, Inc; St. Charles, IL

* All results are provided in ng/g creatinine
** Reference ranges provided by Doctor's Data, Inc

After DMPS

After DMSA
Case 2

- 33 y.o. F visits a medical toxicologist for a 2nd opinion because her naturopath had diagnosed her with heavy metals poisoning
- History of chronic fatigue, difficulty concentrating, unable to get out of bed or talk and too fatigued to write a letter
- Went to several – what she calls “regular MDs” including psychiatrist, dermatologist, infectious disease specialist and gynecologist but they were unable to relieve her symptoms so out of frustration she sought treatment from a naturopath who she has seen for a year
- Naturopath ordered a urine heavy metal screen
- Prior to DMPS – Urinary Hg 1 mcg/gm creat, After DMPS – Urinary Hg 18 mcg/gm creat
- A course of chelation to reduce the mercury burden had been recommended
- The patient never had any symptoms of mercury toxicity nor any known exposure to mercury

Case 3

- A 53 y.o. F was treated with 1500 mg of EDTA IV pushed over 10-15 minutes in a naturopathic practitioner’s clinic.
- EDTA was intended to remove heavy metals from her body.
- Approximately 10-15 minutes after treatment began, the patient became unconscious.
- The patient’s ionized calcium level during code was 3.8 mg/dL (ref: 4.5–5.3 mg/ dL)
- Efforts to revive the patient were unsuccessful.

What is a Chelate?

- "The adjective chelate, derived from the great claw or chela (chely- Greek) of the lobster or other crustaceans"
- “Refers to the coordinating atoms linked in a single ligand or binding molecule so that the combination with the metal ion results in a ring structure.”

What is Chelation Therapy?

- Use of a chelating agent to remove a metal
- Many questions
- Many books
Many Questions

- How do we assess metal toxicity?
  - Clinically
  - Laboratory Interpretation
- Does enhancing excretion = therapeutic efficacy?
- Can chelation cause harm?

Complementary and Alternative Medicine
Focus on Research and Care

Chelation therapy—Chelation therapy is a chemical process in which a substance is used to bind molecules, such as metals or minerals, and hold them tightly so that they can be removed from a system, such as the body. In medicine, chelation has been scientifically proven to rid the body of excess toxic metals. For example, a person who has lead poisoning may be given chelation therapy in order to bind and remove excess lead from the body before it can cause damage.

Deep breathing—Deep breathing involves slow and deep inhalation through the nose, usually to a count of 10, followed by slow and complete exhalation for a similar count. The process may be repeated 5 to 10 times, several times a day.

Energy healing therapy—Energy healing therapy involves the channeling of healing energy through the hands of a practitioner into the client’s body to restore a normal energy balance and, therefore, health. Energy healing

<table>
<thead>
<tr>
<th>Heavy Metals</th>
<th>Essential Trace Metals – toxic in excess</th>
<th>Other Toxic Metals</th>
<th>Radioactive Metals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead</td>
<td>Chromium</td>
<td>Aluminum</td>
<td>Actinium</td>
</tr>
<tr>
<td>Mercury</td>
<td>Cobalt</td>
<td>Antimony</td>
<td>Americium</td>
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<tr>
<td>Cadmium</td>
<td>Copper</td>
<td>Arsenic</td>
<td>Plutonium</td>
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<tr>
<td></td>
<td>Iron</td>
<td>Beryllium</td>
<td>Polonium</td>
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<tr>
<td>Manganese</td>
<td>Lithium</td>
<td>Osmium</td>
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<tr>
<td>Molybdenum</td>
<td></td>
<td>Tellurium</td>
<td>Uranium</td>
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<tr>
<td>Nickel</td>
<td></td>
<td>Thallium</td>
<td>Cobalt-60</td>
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<tr>
<td>Selenium</td>
<td></td>
<td>Tin</td>
<td>Strontium-90</td>
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<tr>
<td>Zinc</td>
<td></td>
<td></td>
<td>Vanadium</td>
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Objectives

1. Describe the FDA approved chelators currently used and their indications
2. Discuss how to obtain chelators
3. Discuss the frequency of use of these chelators
4. Understand the spectrum of health care providers who are involved with chelation including allopathic physicians, alternative medicine providers, professional societies, and laboratories

FDA Approved Chelators

- Dimercaprol (BAL)
- Edetate Calcium Disodium (Calcium EDTA)
- Succimer (DMSA)
- Penicillamine
- Trientine Hydrochloride
- Deferoxamine Mesylate
- Deferiprone
- Deferasirox
- Pentetate Calcium Trisodium (Ca-DTPA)
- Pentetate Zinc Trisodium (Ca-DTPA)
- Prussian Blue (Radiogardase)
Dimercaprol

\[ \text{C}_3\text{H}_6\text{OS}_2 \text{ Molecular Weight 124.22} \]

\[ \text{CH}_2\text{CHCH}_2\text{OH} \]

\[ \text{SH} \quad \text{SH} \]

**Original Approval or Tentative Approval Date**

May 6, 1946

**INDICATIONS**

BAL in Oil (Dimercaprol Injection USP) is indicated in the treatment of argentic, gold and mercury poisoning. It is indicated in acute lead poisoning when used concomitantly with Edetate Calcium Disodium Injection USP.

Dimercaprol Injection USP is effective for use in acute poisoning by mercury salts if therapy is begun within one or two hours following ingestion. It is not very effective for chronic mercury poisoning.

Dimercaprol Injection USP is of questionable value in poisoning caused by other heavy metals such as antimony and bismuth. It should not be used in iron, cadmium, or selenium poisoning because the resulting dimercaprol-metal complexes are more toxic than the metal alone, especially to the kidneys.

Ethylenediaminetetraacetic Acid

**EDTA**

- First Synthesized – 1930s
  - Looking for a substitute of citric acid to use with dye solutions in the textile industry
- Many Current Industrial Uses
  - Paper and pulp industry
  - Laundry detergent
  - Water treatment
  - Food and beverage industry
EDTA – with and without Ca$^{2+}$

- Edetate calcium disodium, aka Calcium EDTA
  - trade name: Calcium Disodium Versenate®

- Edetate Disodium, aka Disodium EDTA
  - trade names: Sodium Versenate®, Endrate®

Edetate Calcium Disodium

Original Approval or Tentative Approval Date: July 14, 1983

<table>
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<tr>
<th>Drug Name</th>
<th>Active Ingredients</th>
<th>Strength</th>
<th>Dosage Form/Route</th>
<th>Marketing Status</th>
<th>DME Code</th>
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<tr>
<td>CALCIUM DISODIUM VERSENATE</td>
<td>Edetate Calcium Disodium</td>
<td>200MG/ML</td>
<td>INJECTABLE; INJECTION</td>
<td>Prescription</td>
<td>None</td>
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<tr>
<td>CALCIUM DISODIUM VERSENATE</td>
<td>Edetate Calcium Disodium</td>
<td>500MG</td>
<td>TABLET; ORAL</td>
<td>Discontinued</td>
<td>No</td>
</tr>
</tbody>
</table>

INDICATIONS AND USAGE

Edetate calcium disodium is indicated for the reduction of blood levels and depot stores of lead in lead poisoning (acute and chronic) and lead encephalopathy, in both pediatric populations and adults.

Chelation therapy should not replace effective measures to eliminate or reduce further exposure to lead.
Edetate Disodium

Drug Details

Drug Name(s): SODIUM VERSENATE (Brand Name Drug)
FDA Application No.: (NDA) 010573
Active Ingredient(s): EDETATE DISODIUM
Company: 3M
Chemical Type: 2 New ester, new salt, or other noncovalent derivative
Review Classification: 5 Standard review drug

- There are no Therapeutic Equivalents
- Approved History and Related Documents are not available
- Labels are not available

Products on Application (NDA) #010573
Click on a column header to re-sort the table:

<table>
<thead>
<tr>
<th>Drug Name</th>
<th>Active Ingredients</th>
<th>Strength</th>
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<th>RLD Code</th>
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<tbody>
<tr>
<td>SODIUM VERSENATE</td>
<td>EDETATE DISODIUM</td>
<td>200MG/ML</td>
<td>INJECTABLE: INJECTION</td>
<td>Discontinued</td>
<td>No None</td>
</tr>
</tbody>
</table>

Deaths Associated with Hypocalcemia from Chelation Therapy --- Texas, Pennsylvania, and Oregon, 2003--2005

Chelating agents bind lead in soft tissue and are used in the treatment of lead poisoning to enhance urinary and fecal excretion of lead, thus decreasing lead levels in the body (1). During the past 30 years, environmen tal and dietary changes in lead have occurred substantially, resulting in a considerable decrease in population blood levels (2) and a corresponding decrease in the number of patients requiring chelation therapy. Chelating agents also increase excretion of other heavy metals and minerals, such as zinc and, to a certain extent, calcium (3). This review describes three deaths associated with chelation therapy--related hypocalcemia that resulted in cardiac arrest. Several drugs are used in the treatment of lead poisoning, including ethylene diamine tetraacetic acid (EDTA), dimercaprol (BAL trimethylamine), and mono-2,3-dimercaptopropanol (DMPS). Health-care providers who are unfamiliar with chelating agents and are considering their use for lead poisoning should consult an expert in the chemotherapy of lead poisoning. Hospital pharmacists should evaluate whether continuous stocking of NaEDTA is necessary, given the established risk for hypocalcemia, the availability of less toxic alternatives, and an ongoing safety review by the Food and Drug Administration (FDA). Health-care providers and pharmacists should ensure that NaEDTA is not administered to children during chelation therapy.

Chelating agents, especially those transdermal for use in children, should be effective in reducing lead and other heavy metals from the body without producing substantial adverse effects as levels of other heavy metals or calcium are measured with time. The only agent recommended for intensive IV chelation therapy for splenectomized patients is CaEDTA (4). However, hospital pharmacists usually stock multiple chelation agents. One such agent, NaEDTA, was formerly used for treatment of hypocalcemia, but its use has become infrequent because of concern regarding nephrotoxicity and because of the availability of less toxic alternatives (5). Furthermore, NaEDTA remains a warning drug. "The use of this drug is in a particular patient is recommended only when the severity of the clinical condition justifies the aggressive measures associated with the type of therapy." According to the package insert, NaEDTA is "indicated in selected patients for the emergency treatment of hypocalcemia and for the control of venous calcification associated with digitalis toxicity." According to FDA and CDC, the safety and effectiveness of NaEDTA in pediatric patients has not been established, and its use is not recommended because it induces hypocalcemia and possibly fatal renal injury (6).

In 2005, the Texas Department of Health child lead poisoning surveillance program reported a death attributable to chelation-associated hypocalcemia to CDC. Subsequently, CDC queried state and local lead surveillance programs regarding chelation-related hospitalizations and additional deaths were identified in Pennsylvania and Oregon.
Succimer

![Chemical Structure of Succimer]

**Original Approval or Tentative Approval Date**: January 30, 1991

**Products on Application (NDA) #019998**

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<th>Drug Name</th>
<th>Active Ingredients</th>
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<th>TE Code</th>
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<tr>
<td>CHEMET</td>
<td>SUCCIMER</td>
<td>100MG</td>
<td>CAPSULE, ORAL</td>
<td>Prescription</td>
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<td>None</td>
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</tbody>
</table>

**INDICATIONS AND USAGE**

CHEMET is indicated for the treatment of lead poisoning in pediatric patients with blood lead levels above 45 μg/dL. CHEMET is not indicated for prophylaxis of lead poisoning in a lead-containing environment; the use of CHEMET should always be accompanied by identification and removal of the source of the lead exposure.

**Other Heavy Metal Poisoning:** No controlled clinical studies have been conducted with succimer in poisoning with other heavy metals. A limited number of patients have received succimer for mercury or arsenic poisoning. These patients showed increased urinary excretion of the heavy metal and varying degrees of symptomatic improvement.
Penicillamine

Original Approval or Tentative Approval Date
December 4, 1970

Products on Application (NDA) #019853

INDICATIONS

CUPRIMINE is indicated in the treatment of Wilson's disease, cystinuria, and in patients with severe, active rheumatoid arthritis who have failed to respond to an adequate trial of conventional therapy. Available evidence suggests that CUPRIMINE is of value in ankylosing spondylitis.

Trientine

Original Approval or Tentative Approval Date
November 8, 1985

Products on Application (NDA) #019194

INDICATIONS

TREINTINE HYDROCHLORIDE is indicated in the treatment of Wilson's disease, cystinuria, and in patients with severe, active rheumatoid arthritis who have failed to respond to an adequate trial of conventional therapy. Available evidence suggests that TREINTINE HYDROCHLORIDE is of value in ankylosing spondylitis.

Iron Chelators

Deferoxamine Mesylate

Original Approval or Tentative Approval Date
April 1, 1968

PRODUCTS ON APPLICATION (NDA) #015267

INDICATIONS AND USAGE

Desferal is indicated for the treatment of acute iron intoxication and of chronic iron overload due to transfusion-dependent anemia.

Deferasirox & Deferiprone (oral)

Active Ingredient(s)
DEFERASIROX

Company
NOVARTIS

Original Approval or Tentative Approval Date
November 2, 2005

Active Ingredient(s)
DEFERIPRONE

Company
APOTHEM INC

Original Approval or Tentative Approval Date
October 14, 2011
Chelators for Radioactive Metals
Calcium DTPA & Zinc DTPA

Active Ingredient(s) PENTETATE CALCIUM TRISODIUM
Company HAMELN PHARMS
Original Approval or Tentative Approval Date August 11, 2004

Active Ingredient(s) PENTETATE ZINC TRISODIUM
Company HAMELN PHARMS
Original Approval or Tentative Approval Date August 11, 2004

INDICATIONS AND USAGE
Ca-DTPA is indicated for treatment of individuals with known or suspected internal contamination with plutonium, americium, or curium to increase the rates of elimination.


Prussian Blue

Drug Details
Drug Name(s) RADIOGARDASE (PRUSSIAN BLUE) (Brand Name Drug)
PDA Application No. (NDA) 021626
Active Ingredient(s) FERRIC HEXACYANOFERRATE(II)
Company HEYL CHEMIECH
Original Approval or Tentative Approval Date October 2, 2003

Products on Application (NDA) #021626

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<th>Marketing Status</th>
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<tr>
<td>RADIOGARDASE (PRUSSIAN BLUE)</td>
<td>FERRIC HEXACYANOFERRATE(II)</td>
<td>500MG</td>
<td>CAPSULE; ORAL</td>
<td>Prescription</td>
<td>Yes</td>
<td>None</td>
</tr>
</tbody>
</table>

INDICATIONS AND USAGE
Insoluble Prussian blue is indicated for treatment of patients with known or suspected internal contamination with radioactive cesium and/or radioactive or non-radioactive thallium to increase their rates of elimination.
Non FDA Approved Chelators

- DMPS – 2,3-dimercapto-1-propanesulfonic acid

DMPS
2,3-Dimercapto-1-propanesulfonic acid

“In the United States, DMPS is considered an experimental drug and is not approved by the FDA, but is allowed as a bulk item to be compounded.”

Object #2: How to Obtain Chelators

- Prescription
  - FDA Approved Drugs
  - Compounding pharmacies
- Non-prescription
  - Over the internet
Compounding Pharmacies

- Pharmacy compounding - customized preparation of a medicine that is not otherwise commercially available.
- Prescribed by physician, veterinarians, or other prescribing practitioner, and compounded by a state-licensed pharmacist.
- Uses bulk active pharmaceutical ingredients
- Subject to ongoing legal and regulatory debate
B. Nominated Drug Substances Being Proposed for Inclusion on the Bulk Drugs List

Dimercapto-1-propanesulfonic acid
Dimercapto-1-propanesulfonic acid (DMPS), a chelating agent, is well characterized chemically. DMPS has been used to treat heavy metal poisoning. At doses reported in the literature for this indication, DMPS appears to be relatively nontoxic, and serious adverse reactions associated with its use have not been commonly reported. Limited anecdotal evidence of DMPS’s effectiveness for this indication is also reported in the literature.

The Arsenic Was In The Coffee

NEW SMYRNA, Maine, May 2, 2003

Arsenic Poisoning and McGuff Compounding Pharmacy

May 9, 2003
By William Jarr, Pharm.D.

On April 27, 2003, 16 patients were poisoned with arsenic at the Gustaf Adolph Evangelical Lutheran Church in New Smyrna, Maine.

One person died and 15 others were sickened after drinking arsenic-laced coffee at a church reception following Sunday services.

Immediately after the poisonings occurred, McGuff Compounding Pharmacy Services, Inc. (McGuff CPS) was contacted and asked to provide DMPS injection to treat the victims. McGuff CPS rushed DMPS Injection to Maine.

Subsequently, several additional orders have been requested and sent. We have been told that the patients are improving.

HOW TO BUY and USE chelation agents

(previous title was: HOW TO BUY DMSA WITHOUT A PRESCRIPTION)

Copyright Moria Mermelweaver 2002 and November 2003. This file was last updated on 11/30/03

INDEX:

- PUBLICATION NOTES
- How to buy ALA (alpha lipoic acid)
- How to buy DMSA
- How to buy DMPS
- How to buy small dosages (ready made)
- Compounding Pharmacies (small doses made to order)
- How to mix small dosages
- Comments on mixing methods & getting kids to take stuff
  - Dividing up capsules
  - Mixing stuff into food/juice
  - Giving night-time doses
  - Pill shooters, forcing kids to take pills
  - Teaching kids to swallow pills/capsules
  - Attitude issues, asking child how to give
  - Traveling with doses of chelation agent
  - Getting school to give doses
- Where to buy TTFQ
- Where to buy transdermal ALA

http://home.earthlink.net/~moriam/HOW_TO_buy_DMSA.html
DMSA Chelation

DMSA For Detoxing Lead and Mercury

The body is continually exposed to an endless list of environmental toxins. Lead and mercury are two heavy metals that seem to have found their way into almost everything. Lead and mercury do not occur naturally in the body and are not very leachable. These two heavy metals are known to interfere with nerve transmission.

DMSA (2,3-dimercaptopropanoic acid) is a compound approved in 1984 by the FDA for the removal (chelation) of heavy metals. DMSA is considered the preferred agent for the chelation (removal) of heavy metals because it is more soluble in the blood. Since DMSA is a small organic molecule, it can penetrate the blood-brain barrier. DMSA is excreted through the kidneys. It is highly effective and has a low toxicity level.

How Did I Get Heavy Metal (Mercury and Lead) In My Body?

There are several possible ways heavy metals get into your body. Below are the major sources for heavy metals. Chelation of toxic heavy metals will...

http://www.amazon.com/s/ref=nb_sb_noss?url=search-alias%3Dhpc&field-keywords=chelators&x=0&y=0

Accessed 1/11/12
Objective #3

- Discuss the frequency of use of these chelators
Frequency of adults (≥ 18 y.o.) who use chelation therapy

- 2002 – 66,000
- 2007 – 111,000
### Frequency of children (< 18 y.o.) who use chelation therapy

- **2007 – 72,000**

#### Poison Center Data 2007

**Chelator Use**

<table>
<thead>
<tr>
<th>Chelator</th>
<th># of use</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAL</td>
<td>59</td>
</tr>
<tr>
<td>DFO</td>
<td>82</td>
</tr>
<tr>
<td>EDTA</td>
<td>64</td>
</tr>
<tr>
<td>Penicillamine</td>
<td>5</td>
</tr>
<tr>
<td>Succimer</td>
<td>256</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>466</strong></td>
</tr>
</tbody>
</table>

466 / 183,000 = 0.25%
Objective #4

- Understand the spectrum of health care providers who are involved with chelation including allopathic physicians, alternative medicine providers, professional societies, and laboratories
Complementary and Alternative Medicine (CAM)

- “Refers to therapies not usually taught in U.S. medical schools or generally available in U.S. hospitals. They include a broad range of practices and beliefs such as acupuncture, chiropractic care, relaxation techniques, massage therapy, and herbal remedies.”

http://nccam.nih.gov/

Prevalence of Alternative Medicine

- > 40% of populations has used alternative therapies
- 629 million visits – greater than total visits to all US primary care providers
- > $20 billion spent on alternative therapies (comparable to out of pocket expenses for all US physician services)

IOM Report 2005
Directory of Health Professionals

Traditional
- Allopathic Medicine
- Osteopathic Medicine

Alternative
- Chiropractic
- Traditional Oriental Medicine / Acupuncturists
- Homeopathic Medicine
- Naturopathic Medicine
- Environmental Medicine
- Orthomolecular Medicine
- Chelationists
- Biological Dentists

Medical Schools Embrace Alternative Medicine

Patients’ desire for alternative therapies is driving changes in medical education.

Now that nearly 40 percent of American adults swear by some form of complementary and alternative medicine, or CAM—from nutrition and mental relaxation to acupuncture, magnet therapy, and foreign healing systems like traditional Chinese medicine and Indian ayurveda—a growing number of medical schools, too, are supplementing medication with meditation.

Interest in teaching alternative approaches “has exploded, especially this last year,” says Laurie Hofmann, executive director of the Institute for Functional Medicine, which is based in Gig Harbor, Wash. The nonprofit institute educates healthcare professionals to look for underlying systemic imbalances as a cause of illness rather than focus on treating symptoms and, when possible, to correct with lifestyle changes and mind-body techniques.

US News. April 12, 2011
Professional Societies

- American College of Medical Toxicology
- American Association of Oriental Medicine
- American Association of Naturopathic Physicians
- American College for the Advancement of Medicine
- American Holistic Medical Association
- American Board of Clinical Metal Toxicology
- International Academy of Oral Medicine and Toxicology
- Environmental Dental Association
- International Association of Colon Therapy

http://www.acamnet.org/site/c.ltJW4MPwE/b.6805203/k.BD39/Detoxification_IV_Chelation.htm
Chelation Therapy/Metal Toxicology

Date: Monday, May 7, 2012
Time: 7:30 AM to 8:30 AM

Level: Advanced Practice

Description: This session will provide an overview of the latest research on the use of chelation therapy in the treatment of heavy metal toxicity and related diseases. Participants will learn about the mechanisms of metal toxicity, the role of chelation therapy in its treatment, and the latest clinical applications. The session will also cover regulatory issues and ethical considerations.

Fee: $250

Registration: Required

Speaker: Dr. Jane Smith

Awards: CME credit will be awarded for this session.

Contact: American Board of Clinical Metal Toxicology

American Board of Clinical Metal Toxicology

Welcome to ABCMT's Website

Why you want an ABCMT doctor?

ABCMT has been certifying doctors for 24 years. The doctor must be a D.O. or M.D. and licensed to practice in his or her state. He or she must take a comprehensive course on the diagnosis and treatment of Metal Toxicity and related diseases. He or she must pass a test administered by ABCMT and upon passing becomes a Diplomate Candidate in Clinical Metal Toxicology.

He must continue his training, get two letters of recommendation, do at least 2000 hours of patient care, pass a written examination with a passing score of 300, then submit an application to the ABCMT for certification. The doctor must also be a Diplomate Candidate with the American Board of Clinical Metal Toxicology.

Why you want to be an ABCMT doctor?

ABCMT has been certifying doctors for 24 years. It aims to be the leader in the field of Clinical Metal Toxicology. It trains patients with the confidence that you are knowledgeable, well trained and on the cutting edge of a fast growing medical discipline. You will be allowed to practice to the fullest and will be taught to the highest standards.

Contact: American Board of Clinical Metal Toxicology

http://abcmt.org/
CAM Laboratory Testing

- Candida Overgrowth Detection
- Intestinal Permeability Testing
- Heavy Metal Screening
- Adrenocortex Stress Profile
- Natural Killer Cell Test
- Oxidative Stress Testing
- Detoxification Profile
- Biological Terrain Assessment
- Adipose Tissue Testing

http://abcmt.org/
Comprehensive Urine Element Profile

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<th>Element</th>
<th>Lower Reference Range</th>
<th>Upper Reference Range</th>
<th>Toxicological Comments</th>
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<tbody>
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<td>Lead</td>
<td>0 mcg/L</td>
<td>5 mcg/L</td>
<td>Exposure to lead, may indicate presence of inorganic lead.</td>
</tr>
<tr>
<td>Cadmium</td>
<td>0.00 mcg/L</td>
<td>50 mcg/L</td>
<td>Exposure to cadmium, may indicate exposure to cadmium from industrial sources.</td>
</tr>
<tr>
<td>Arsenic</td>
<td>1 mcg/L</td>
<td>50 mcg/L</td>
<td>Exposure to arsenic, may indicate exposure to arsenic from industrial sources.</td>
</tr>
<tr>
<td>Mercury</td>
<td>0.00 mcg/L</td>
<td>5 mcg/L</td>
<td>Exposure to mercury, may indicate exposure to mercury from industrial sources.</td>
</tr>
<tr>
<td>Antimony</td>
<td>0.00 mcg/L</td>
<td>20 mcg/L</td>
<td>Exposure to antimony, may indicate exposure to antimony from industrial sources.</td>
</tr>
<tr>
<td>Selenium</td>
<td>60 mcg/L</td>
<td>400 mcg/L</td>
<td>Exposure to selenium, may indicate exposure to selenium from industrial sources.</td>
</tr>
<tr>
<td>Copper</td>
<td>1 mcg/L</td>
<td>10 mcg/L</td>
<td>Exposure to copper, may indicate exposure to copper from industrial sources.</td>
</tr>
</tbody>
</table>

Comprehensive Elemental Hair Analysis


Chelation Therapy Related Links


The ATSDR ToxFAQs™ is a series of summaries about hazardous substances developed by the ATSDR Division of Toxicology. Check out the links below and you will soon see why chelation may be of interest to you.


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Abstract

BACKGROUND: This study investigated the effect of oral dimercapto succinic acid (DMSA) therapy for children with autism spectrum disorders ages 3-8 years.

METHODS: Phase 1 involved 65 children who received one round of DMSA (3 days). Participants who had high urinary excretion of toxic metals were selected to continue on to phase 2. In phase 2, 49 participants were randomly assigned in a double-blind design to receive an additional 6 rounds of either DMSA or placebo.

RESULTS: DMSA greatly increased the excretion of lead, substantially increased excretion of tin and bismuth, and somewhat increased the excretion of thallium, mercury, antimony, and fergsten. There was some increase in urinary excretion of essential minerals, especially potassium and chromium. The Phase 1 single round of DMSA led to a dramatic normalization of RBC glutathione in almost all cases, and results improved abnormal platelet counts, suggesting a significant decrease in inflammation.

CONCLUSION: Overall, DMSA therapy seems to be reasonably safe, effective in removing several toxic metals (especially lead), dramatically effective in normalizing RBC glutathione, and effective in normalizing platelet counts. Only 1 round (3 days) was sufficient to improve glutathione and platelets. Additional rounds increased excretion of toxic metals.
Conclusions

- Numerous approved chelators are available by prescription only
- Chelators also appear to be available by non-prescription and over the internet
- A wide variety of health care providers use these medications
- The internet continues to provide mixed messages about chelation therapies
- Communication to health care providers, the public and the media conveying scientifically sound information about the role for chelation remains a critical public health imperative

Thank You