1 **Urinary Chelation & Testing Protocols**

Van D. Merkle, DC
DABCI, DCBCN

2 **What is Chelation?**

- A chelation agent is a chemical agent that, like a claw, grabs and chemically bonds with metals or other minerals and toxins.
- Simply put, chelation is the process in which chemicals bind with minerals.
- While chelation is a naturally occurring biological process (Hgb binds with Fe to provide O_2 to tissues), synthesized chelation agents were first developed during WWII as a way to clear toxic metals from the body.
- Chemists discovered they could create a heterocycling ring of molecules which surround or "sequester" mineral molecules and carry them from the body through normal elimination.

3 **What is Chelation?**

- The chelate finds and forms a single attachment to the toxin with one reversible ionic bond.
- With that bond intact, the toxin is grabbed onto, pulled off the cell and carried from the body.
- However, the toxin is not neutralized during this process and is potentially able to attach to other cells on its way out.
-

4 **Chelation Continued**

- This process of chelation actually removes unwanted metals from the bloodstream.
- In fact, chelation therapy is the only way to treat lead poisoning.
- A chelation agent will also bind with most metals, mineral deposits, calcium-based plaques and other chemical toxins.
- Because of its positive impact on the bloodstream, chelation therapy has proven to benefit a number of medical conditions, including atherosclerosis and arteriosclerosis.
-
-

5 **Oral Chelation**

- Oral chelation therapy a vital step toward cleansing the body of contaminants.
- Laboratory studies have shown it to effectively clear heavy metals, toxins, plaque, pesticides, chemicals, and residuals from prior bacterial and viral infections.
- It also seems to target the liver for detoxification and to lower both Elevated enzyme counts and

mercury levels in children with autism.

-
-

6 **Common Chelators**

- More Popular
  1. dimercaptosuccinic acid (DMSA)
  2. dimercaptopropane sulfonate (DMPS)
  3. ethylene diaminetetraacetic acid (EDTA)

  - Less Popular
    - PCA
    - Zeolite

7

8 **Heavy Metals and Pathology**

9

10 **Highest Priority Systems**

- Brain
- Heart
- Liver
- Lungs
- Pancreas
- Kidneys
- Nervous System
- GI System

11 **Secondary or Lessor Systems**

- Thyroid
- Adrenals
- Hormones
- Ovaries, Testis
- Skeletal
- Muscle
- Joint
- Skin

12 **Heavy Metals**

- Displace your nutrient minerals and cause deficiency.
- There is no positive metabolic function for these metals in the body.

13 **How they harm**

- Non-essential metals may mimic the essential metals causing a disruption in cellular and enzymatic mechanisms.
- Cadmium can replace zinc
- Thallium can replace potassium

- Arsenic can replace phosphates

14 **Diagnosis Depends on Laboratory Testing**

- Exposures to toxic elements can be acute (one time, short-term) or chronic (many times, long-term).
- Clinical signs and symptoms of toxicity are often different for acute vs chronic exposures but may be non-specific.
- Due to non-specific signs and symptoms of toxicity, as well as the fact that the duration and extent of exposure is often not known, diagnosis of most toxic element exposures depends on laboratory testing.

15 **HA Case Study: K. S.**

2 years old
Doctors had told her parents she has asthma
Parents thought she was having allergic reactions

16

17 **Chelating Agents**

18 **FDA Approved Chelation**

19 **The Only Approved Chelating Agent**

- So what is a proven chelating agent?
- Why not turn to the FDA and see what they approved.
- Turns out they have only approved ONE substance as a scientifically proven chelating agent, that is dimercaptosuccinic acid, or DMSA.
- DMSA was approved as being safe and beneficial for use in children to remove lead.
- It also removes 22 other toxic heavy metals without removing any beneficial minerals.
- It only chelates substances that are foreign to the human body.

20 **DMSA in the Media**

- Think you have never heard of DMSA?
- The TV show *House* mentions it all the time.
- Sure it is just a show but they use actual doctors as medical advisers.
- Yes the show is sensationalistic or people would not watch it.
- It is also accurate medically.
- House will often prescribe 'captomer' or 'chemet' or 'succinic acid' to deal with cases of heavy metal poisoning. These are all different words for DMSA. Next time you watch *House* listen for these words.

21 **Obtaining DMSA:**
A Real Chelating Agent

- Contrary to popular belief DMSA is available without a prescription in many countries including the United States.
- You can get it with a prescription but it is very expensive as it often has to be 'compounded' by your local pharmacist.
- The usual price is about $2 per pill. You can buy DMSA online from a reputable site such as dmsachelation.com for MUCH less per pill.
- DMSA is an over the counter product so there are no problems getting it delivered to your

house.

22 **Medically diagnosed heavy metal poisoning**

- Some common chelating agents are EDTA (ethylenediaminetetraacetic acid), DMPS (2,3-dimercaptopropanesulfonic acid), TTFD (thiamine tetrahydrofurfuryl disulfide), and DMSA (2,3-dimercaptosuccinic acid).
- Calcium-disodium EDTA and DMSA are only approved for the removal of lead by the Food and Drug Administration while DMPS and TTFD are not approved by the FDA.
- These drugs bind to heavy metals in the body and prevent them from binding to other agents. They are then excreted from the body.
- The chelating process also removes vital nutrients such as vitamins C and E, therefore these must be supplemented.
- More than 30 deaths have been recorded in association with IV-administered disodium EDTA since the 1970s.

23 **Heart disease**

- The use of EDTA chelation therapy as a treatment for coronary artery disease has not been shown to be effective and is not approved by the U.S. Food and Drug Administration (FDA).
- Several possible mechanisms have been proposed, though none have been scientifically validated. The US National Center for Complementary and Alternative Medicine began conducting the Trial to Assess Chelation Therapy (TACT) in 2003.
- Patient enrollment was to be completed around July 2009 with final completion around July 2010, but enrollment in the trial was suspended on September 26, 2008 for an investigation by OHRP after complaints about ethical concerns such as inadequate informed consent.
- The trial has been criticized for lacking prior Phase I and II studies, and particularly because previous controlled trials have not indicated benefits.
- The American College for Advancement in Medicine, a controversial organization created to promote chelation therapy, has played a part in the adoption of the TACT clinical trial, which has led to further criticism of the trial.
- Atwood et al. have argued that methodological flaws and lack of prior probability make this trial "unethical, dangerous, pointless, and wasteful."

24 **Heart Disease cont.**

- The final results of TACT, published in November 2012, showed no support for the use of chelation therapy in coronary heart disease, particularly the claims to reduce the need for coronary artery bypass grafting.
- The American Heart Association states that there is "no scientific evidence to demonstrate any benefit from this form of therapy" and that the "United States Food and Drug Administration (FDA), the National Institutes of Health (NIH) and the American College of Cardiology all agree with the American Heart Association" that "there have been no adequate, controlled, published scientific studies using currently approved scientific methodology to support this therapy for cardiovascular disease."

25 **Heart Disease cont.**

- Like other scientific commentators, they note that any improvement among heart patients undergoing chelation therapy can be attributed to the placebo effect and lifestyle changes

discovered in conventional medicine but recommended by chelationists; "quitting smoking, losing weight, eating more fruits and vegetables, avoiding foods high in saturated fats and exercising regularly". They note their concern that patients could put off proven treatments for heart disease like drugs or surgery.

- A 2005 systematic review found that controlled scientific studies did not support chelation therapy for heart disease. It found that very small trials and uncontrolled descriptive studies have reported benefits while larger controlled studies have found results no better than placebo.
- The Mayo Clinic states that 'chelation studies have found that chelation didn't work as a heart disease treatment.
- In 2009, the Montana Board of Medical Examiners issued a position paper concluding that "chelation therapy has no proven efficacy in the treatment of cardiovascular disease, and in some patients could be injurious."
-
-
-

26 **Chlorella**

Chlorella, a unicellular green alga that grows in fresh water, contains high levels of proteins, vitamins, minerals, and dietary fibers.

27 **Chlorella supplementation decreases dioxin and increases Ig A concentrations in breast milk.**

- Dioxins have been detected at high concentrations in breast milk, raising concerns about disorders in nursing infants caused by breast milk containing dioxins in Japan.
- Toxic equivalents were significantly lower in the breast milk of women taking Chlorella tablets than in the Control group (P = .003).
- These results suggest that Chlorella supplementation by the mother may reduce transfer of dioxins to the child through breast milk.
- IgA concentrations in breast milk in the Chlorella group were significantly higher than in the Control group (P = .03).
- Increasing IgA levels in breast milk is considered to be effective for reducing the risk of infection in nursing infants.
- The present results suggest that Chlorella supplementation not only reduces dioxin levels in breast milk, but may also have beneficial effects on nursing infants by increasing IgA levels in breast milk.

28 **Maternal-fetal distribution and transfer of dioxins in pregnant women in Japan, and attempts to reduce maternal transfer with Chlorella supplements.**

Total toxic element status in breast milk were approximately 30% lower in the Chlorella group than in controls (P=0.0113).

29 **Protective effects of Chlorella in lead-exposed mice infected with Listeria monocytogenes.**

- Chlorella was examined for its chelating effects on the myelosuppression induced by lead in Listeria monocytogenes-infected mice.
- The reduction in the number of bone marrow granulocyte-macrophage progenitors (CFU-GM) observed after the infection was more severe in the groups previously exposed to lead.
- Treatment with Chlorella, given simultaneously or following lead exposure, restored to control values the myelosuppression observed in infected/lead-exposed mice and produced a significant

increase in serum colony-stimulating activity.

- The benefits of the Chlorella treatment were also evident in the recovery of thymus weight, since the reduction produced by the infection was further potentiated by lead exposure.

30 ☐ **Protective effects of Chlorella vulgaris on liver toxicity in cadmium-administered rats.**

- Rats in the Cadmium-no Chlorella group had significantly higher hepatic concentrations of Cd and metallothioneins (MTs) than in the Cd-5% Chlorella or Cd-10% Chlorella group.
- The hepatic MT I/II mRNA was expressed in all experimental rats. MT II was more expressed in the Cd-5C and Cd-10C groups than in the Cd-0C group.
  - Metallothioneins form complexes with heavy metal ions. Metallothioneins bind physiological metals such as zinc and copper, but also xenobiotic heavy metals such as cadmium, mercury and silver.
- Morphologically, a higher level of congestion and vacuolation was observed in the livers of the Cd-0C group compared to those of the Cd-5C and Cd-10C groups.
- Therefore, this study suggests that Chlorella has a protective effect against Cd-induced liver damage by reducing Cd accumulation and stimulating the expression of MT II in liver.

31 ☐ **Effect of Chlorella on Cd metabolism in rats.**

- Cadmium was accumulated in blood and tissues (liver, kidney and small intestine) in the Cd-exposed groups, while the accumulation of Cd was decreased in the Cd-exposed chlorella groups.
- Fecal and urinary Cd excretions were remarkably increased in Cd-exposed chlorella groups.
- Thus, cadmium retention ratio and absorption rate were decreased in the Cd exposed chlorella groups.
- In addition, metallothionein (MT) synthesis in tissues was increased by Cd administration. The Cd-exposed chlorella groups indicated lower MT concentration compared to the Cd-exposed groups.
- Moreover, glomerular filtration rate (GFR) was not changed by dietary chlorella and Cd administration.
- According to the results above, this study could suggest that Cd toxicity can be alleviated by increasing Cd excretion through feces.
- Therefore, when exposed to Cd, chlorella is an appropriate source which counteracts heavy metal poisoning, to decrease the damage of tissues by decreasing cadmium absorption.

32 ☐ **Zeolite**

33 ☐ **Zeolite in a nut shell**

- Doctors Alexey V. Yablokov, Vassily B. Nesterenko, and Alexey V. Nesterenko agree with Dr. Gordon saying:
  - "Natural zeolite (i.e., that found in volcanogenic sedimentary rocks) is a mineral possessing attractive properties that contribute directly to their use in the extraction of Cesium and Strontium from nuclear wastes and the mitigation of radioactive fallout.
  - It is also as a dietary supplement for heavy metal detoxification, it has anti-bacterial properties, and it stimulates the immune system.
  - It was used successfully during Chernobyl."

34 ☐ **Zeolite**

- Aka: Clinoptilolite, Erionite, Phillipsite and Mordenite
- Zeolites are a group of chemically related mineral substances that contain mainly hydrated

aluminum and silicon compounds.

- They occur naturally in volcanic rock and ashes.
- Synthetic forms are available for industrial uses.
- They are also used as additives in animal feed.

35 **Zeolite**

- Zeolites have a fine porous cage-like structure and are often used as adsorbents, desiccants, detergents, and as water and air purifiers.
- They are used in medicine as an external hemostatic dressing, for diarrhea, diabetes and as suspending agents.
- The effect of zeolites on autism is under investigation.
- Zeolites have been marketed as dietary supplements for hangover and as adjuvant therapy for cancers.
- It is unclear if they are absorbed in the intestine or have any systemic effects.
- Since zeolites have chelating properties and may increase the pH in the gastrointestinal tract, they can potentially interact with many prescription drugs when consumed together.
- Exposure to airborne zeolite dust has been associated with high incidence of malignant mesothelioma.

36 **Zeolite**

- Uses:
  - Diarrhea
  - Anticancer therapy
  - Antioxidant
  - Immuno-enhancer

37 **Zeolite- how they work**

- Having ion-exchanging abilities
- Absorption properties
- Stops bleeding on external wounds and promotes clotting
- Thought to absorb pathogenic microbes, glucose and alcohol and be beneficial in diarrhea, diabetes and hangover.

38 **Zeolites- how they work**

- Buffering effect due to their alkaline nature
- Precise mechanisms of action remain largely unknown
- May have immunosuppressing and immunostimulating effects
- Increase mineral utilization
-

39 **Zeolites- Absoprtion**

Zeolites are stable structures are not broken down in the GI tract when taken orally.

40 **Zeolites- Warning**

- Zeolites are carcinogenic when inhaled
- Vulkansandkuren, a Zeolite product marketed in Europe, contained high levels of arsenic, lead, mercury, cadmium, nickel, copper and chromium

41 **Zeolites- drug interaction**

- Shown to absorb aspirin, theophylline, propanolol and phenobarbital
-

42 **Zeolite and Japan**

- Zeolite absorbs radiation and used at Chernobyl and Three Mile Island
- Absorbs it and won't release it till 5000 degrees centigrade

43 **Zeolite- Wikipedia**

- Zeolites are microporous, aluminosilicate minerals commonly used as commercial adsorbents.
- The term zeolite was originally coined in 1756 by Swedish mineralogist Axel Fredrik Cronstedt, who observed that upon rapidly heating the material stilbite, it produced large amounts of steam from water that had been adsorbed by the material.
- Based on this, he called the material *zeolite*, from the Greek ζέω (*zéō*), meaning "to boil" and λίθος (*líthos*), meaning "stone".
- As of October 2012, 206 unique zeolite frameworks have been identified, and over 40 naturally occurring zeolite frameworks are known.
- Zeolites are widely used in industry for water purification, as catalysts, for the preparation of advanced materials and in nuclear reprocessing.
- They are used to extract nitrogen from air to increase oxygen content for both industrial and medical purposes.
- Their biggest use is in the production of laundry detergents.
- They are also used in medicine and in agriculture.
-

44 **Zeolite- wikipedia**

- Currently, the world's annual production of natural zeolite is about 3 million tonnes. The major producers in 2010 were China (2 million tonnes), South Korea (210,000 t), Japan (150,000 t), Jordan (140,000 t), Turkey (100,000 t) Slovakia (85,000 t) and the United States (59,000 t).
- The ready availability of zeolite-rich rock at low cost and the shortage of competing minerals and rocks are probably the most important factors for its large-scale use.
- According to the United States Geological Survey, it is likely that a significant percentage of the material sold as zeolites in some countries is ground or sawn volcanic tuff that contains only a small amount of zeolites.
  - Some examples of such usage are dimension stone (as an altered volcanic tuff), lightweight aggregate, pozzolanic cement, and soil conditioners.

45 **Synthetic Zeolite**

- Synthetic zeolites form by a process of slow crystallization of a silica-alumina gel in the presence of alkalis and organic templates.
- One of the important processes used to carry out zeolite synthesis is sol-gel processing.
- The product properties depend on reaction mixture composition, pH of the system, operating temperature, pre-reaction 'seeding' time, reaction time as well as the templates used.
- In sol-gel process, other elements (metals, metal oxides) can be easily incorporated.
- The silicalite sol formed by the hydrothermal method is very stable.
- The ease of scaling up this process makes it a favorite route for zeolite synthesis.
-

46 **Nuclear industry**

- Zeolites have uses in advanced reprocessing methods, where their micro-porous ability to

capture some ions while allowing others to pass freely, allowing many fission products to be efficiently removed from nuclear waste and permanently trapped.

- Equally important are the mineral properties of zeolites.
- Their alumino-silicate construction is extremely durable and resistant to radiation even in porous form.
- Additionally, once they are loaded with trapped fission products, the zeolite-waste combination can be hot pressed into an extremely durable ceramic form, closing the pores and trapping the waste in a solid stone block.
- This is a waste form factor that greatly reduces its hazard compared to conventional reprocessing systems.
- Zeolites are also used in the management of leaks of radioactive materials.
- For example, in the aftermath of the Fukushima Daiichi nuclear disaster, sandbags of zeolite were dropped into the seawater near the power plant to adsorb radioactive cesium which was present in high levels
-

47 **Detergents**

- The largest single use for zeolite is the global laundry detergent market.
- This amounted to 1.44 million metric tons per year of anhydrous zeolite A in 1992
-

48 **DMSA vs. EDTA vs. DMPS vs. PCA**

A comparative guide

49

50 **Dimercaptosuccinic Acid, or DMSA**

- Chemicaal compound with the formula (HO2CCH(SH)CH(SH)CO2H.
- This colourless solid contains two carboxylic acid and two thiol groups, the latter being responsible for the unpleasant odor of this compound.
- It occurs in two diastereomeric forms, meso and the chiral dl forms.
-

51 **Think you have never heard of DMSA?**

- The TV show 'House' mentions it often.
- Sure it is just a show but they use actual doctors as medical advisers. Yes the show is sensationalistic or people would not watch it. It is also accurate medically.
- House will often prescribe 'DMSA' or 'chemet' or 'succinic acid' to deal with cases of heavy metal poisoning.
- These are all different words for DMSA.

52 **Dimercaptosuccinic Acid, or DMSA**

- The meso isomer is used as chelating agent.
- Meso 2,3-dimecaptosuccinic acid is used to sequester heavy metals such as mercury and lead for excretion.
- DMSA can cross the blood-brain barrier, and thus is useful for extracting heavy metals from the brain.

53 **Commonly used DMSA Protocols**

1
- Protocols for DMSA Provocation Challenges
- stop mineral and SH-containing supplements 24 h before and during dosing.
- Have patient take DMSA @ 10 mg/kg t.i.d for three consecutive days.
- Collect urine for 24 hrs during the third day of dosing; start collecting urine on day three after the first morning void through the first morning void on day 4.
- As an alternative, a recent study *(J. Nutr Envir Med 1998; 8, 219-231)* suggests that better yields may be attained with DMSA if given at 30 mg/kg as a single oral bolus dose on an empty stomach, followed by a 6 hour urine collection. Some patients will experience gas, bloating and/or diarrhea with this protocol. Start with an empty bladder, with hold food for about 2 h and encourage consumption of about 1-1.5 liters of purified water. Mix specimen well before taking off the 50 ml aliquot for submission to Doctor's Data for analysis.

2
- Protocol for DMSA Therapy
- Two week cycle; 3 days on DMSA @10 mg/kg t.i.d., 11 days off.
- Supplement 24-48 hours after last dose (essential elements, SH-containing amino acids: DMSA depletes cysteine).
- As with any chelating/complexing agent, do not co-administer minerals 24 hours prior to or during DMSA administration (except for Mg).
- Re-challenge as described above to monitor progress after about every 5 cycles of oral DMSA..
- Note: ONE SIZE DOES NOT FIT ALL! It is prudent to give patients a trial dose of ≤ 100 mg DMSA prior to an initial challenge. Therapeutic dosage should be adjusted according to tolerance, but it is important to divide the total daily dose as described above.

54 **DMPS**

- DMPS (iv or oral) is the most productive agent for the provoked urine toxic elements challenge, particularly when mercury is of concern. Only about 20% of DMSA is absorbed from the G.I. tract. Studies performed at D.D.I. indicate that oral DMSA (30 mg/kg/day) for 1 to 3 days only yields about 1/5-1/10 the amount of Hg in the urine as does a single i.v. or oral dose of DMPS. Therefore many physicians use DMPS rather than DMSA as the initial challenge and monitoring agent for assessment of toxic metal burden.

55 **Standard Challenge DMSA Dosing for 6 hour urine**

- 1 lb = 0.453592 Kg X 30mg = 13.60mg
- 50lb = 22.6796 Kg X 30mg = 680 mg
- 100lb = 45.3592 Kg X 30 = 1360 mg
- 120 lb = 54.4311kg X 30 = 1,632 mg
- 150 lb = 68.0389 kg X 30 = 2,041mg
- 180 lb = 81.6466 kg X 30 = 2,449 mg
- 200 lb = 90.7185 kg X 30 = 2,721 mg
- 220 lb = 99.7903 kg X 30 = 2,993 mg
- 250 lb = 113.393 kg X 30 = 3,401 mg
- 300lb = 136.078 kg X 30 = 4,082 mg

56 **When to Use Chelation**

- Problems with chelation
  - Conventional chelation also has a harder time clearing heavy metals from cells (due to having only one method of bonding to the toxin) and some chelating substances even remove needed minerals from the body with the toxins, resulting in some adverse side effects.
-

57

58

59

60

61

62

63

64

65

66

67

68

69

70

71

72

73

74 **DMSA, DMPS, EDTA, PCA ,Chlorella and Cilantro**

		DMPS		DMSA		EDTA	PCA	Chlorella	Cilantro
Aluminum			X	X	X	X	X		
Antimony		X				X	X		
arsenic	X	X	X	X	X	X			
Bismuth	X	X							
Cadmium		X	X	X	X	X	X		
Chromium		X							
Cobalt	X		X						
Copper	X	X	X	X					
Lead		X	X	X	X	X	X		
Mercury	X	X		X	X	X			
Nickel		X	X		X	X			

- Uranium X X
- Silver X
- Tin X X
- Zinc X X

75

76

77 **There are no "drug" contraindications using DMSA**

Only the state of health of the patient to be able to handle chelation.

78

79 **DMSA letter to Patients**

- To all patients using DMSA:

- I have used oral DMSA in my clinic for over 15 years and it was used many years before that by many doctors. It has been an integral part of restoring health to many people not just in my clinic but with doctors and their patients all over the world. In early 2015, a vitamin company that was selling DMSA got a letter from the FDA basically telling them to stop selling DMSA because of complaints they have had. Can you fight the government or the FDA?

- As a result of the threat of legal action, that company stopped selling all DMSA products and then all other companies in the USA also stopped selling DMSA in any form and any strength/dosage. I understand the vitamin company position. It would cost hundreds of thousands of dollars to try to fight the FDA but DMSA has never been a big seller and it wouldn't make good business sense to spend so much money with so little benefit to their bottom line.

- As a result, DMSA is not available in the USA without a prescription and as you can probably guess, MDs as a general rule are not going to be recommending it or writing prescriptions for oral DMSA. It would likely curb the need for other more expensive drugs and medical procedures. The medical community mostly uses DMSA for IV Chelation, which is much more expensive. Oral DMSA is safer, and in my experience just as effect and much cheaper than IV DMSA.

- What complaints caused the FDA to act? The vitamin company involved sent a letter to the doctors including me, who were using DMSA, explaining that the FDA got complaints of stomach aches, upset stomach and skin rash. (That letter and the FDA website do not say how many complaints they received.) These symptoms will all go away within a day or so after the DMSA is stopped. DMSA has a half-life of 6 hours. It is basically out of your system/body in 6 hours. This is very similar to most of the B Vitamins and vitamin C that are in the system only hours before being used and eliminated.

- Several vitamin companies in the USA were selling DMSA to the public. Anyone could buy it and use it but DMSA will cause those symptoms if very high doses are used.

- Years ago, when I first started using DMSA, I used the standard doses that were quite high and some of my patients had similar complaints. So, I modified all the testing and treatment doses to much lower. I found that with these lower doses the testing was still good and revealed the toxic element elimination and patients still responded. Results were maybe a little slower than at the high doses but that was fine. I would rather my patients take a little longer to get better than do something that might cause an upset stomach or skin rash even though I know the complaints will go away once the DMSA is stopped.

- Some people might have been thinking that if the dose of DMSA recommended is 200 mg then 2000 mg will be better and work faster. Just like the RDA level of vitamin C is about 80 mg and many people will take well over 1000 mg, maybe even 5000 to 10,000/day without problem,

however, some people will get an upset stomach or diarrhea taking these high doses of vitamin C. More is not always better and too much of anything is harmful. Too much oxygen, too much water, too much of anything will cause problems.

▸The World Health Organization (WHO) has a component called CODEX, which calls for worldwide regulation of all vitamins to be by prescription only. This has occurred in several countries where vitamins are available by prescription only and only vitamin doses at RDA levels can be sold. As an example, the RDA of vitamin C is about 60 mg/day. This 60 mg tablet costs about 10 times what a 1000 mg vitamin C tablet will cost currently in the USA. Drug companies are buying up vitamin companies and many vitamin companies are lowering their doses already in preparation for the CODEX regulation.

▸The AMA and drug business are pushing the passing of CODEX, which has been stopped in some countries and the USA. Several states including Ohio have tried to pass laws limiting your access to nutrients and natural health care. That attempt was also stopped. So far, we still have the freedom to buy vitamins and nutritional products without prescription in the USA.

▸The FDA has a regulation that says something like if a product is 10 times the RDA (Recommended Daily Allowance) it is classified as a drug. So, anyone taking vitamin C at 1000 mg/day is in fact taking a drug according to the FDA. This has not been enforced yet. I think this is one reason the vitamin companies are lowering their doses to be below this limit. Drinking Raw Milk is also illegal by the FDA. A recent headline read "Deadly drugs: Deaths From Pain Medications Rise 700 Percent" (AARP Bulletin 9-2015) but you don't see the FDA stopping use of those drugs.

▸Also, if a nutritional product has a direct influence on a disease process, it is reclassified as a drug and is to be limited to prescription only. Therefore, regardless of overwhelming research, vitamin companies cannot state

80 ☐ **DMSA letter to Patients**

▸that their vitamins fix, cure or are helpful for anything otherwise, the FDA will come after them. B6 was petitioned by the FDA by a drug company to be by prescription only because it was found that B6/pyridoxamine helped kidney disease by significantly reducing serum creatinine levels. The FDA was going to remove it, not because it was dangerous but because it worked to reduce a specific disease/condition. Is this scary?

▸Oddly, there are now drugs that are OTC, that used to be by prescription only, that have far more side effects and are far more dangerous than DMSA or other vitamins, but anyone can walk into any drug store and buy them.

▸No one has died, gotten cancer, developed liver or kidney disease or damage taking oral DMSA. Taking aspirin has far more side effects and causes kidney disease. How many people die/commit suicide taking OTC sleeping pills?

▸So, I wanted to let you know why we have limited access to DMSA. It is still available over the internet. Just like you can get the same prescription drugs much cheaper online even without a prescription.

▸I'm not a rebel and I would not put my patients at unreasonable physical or health risks. Not being able to use DMSA is a step toward losing our freedom to choose.

▸If the FDA only gets negative comments and everyone just stops using DMSA, then the FDA, AMA and drug companies have won.

▸We need to have testimonials from everyone possible that has used DMSA and is maybe still using DMSA such that if the FDA does pursue this matter that we would have some documentation of the positive benefits that I believe far outweigh the negative possibility of a skin rash or upset stomach.

▸I first want you to know the facts as stated here. I also am asking you to write a letter stating your

experiences using DMSA, both positive and negative, and how long you have been using it and how it has helped your condition and how much you have been taking. At least give us some feedback if you have or have not had negative reactions to using DMSA. Positive feedback is always good.

- DMSA can still be (purchased) from some companies in Canada, Europe and South America.
- We are here to help you and *now we need your help so that we can continue to bring you the best healthcare possible*.

One more thing: we must be careful what we say about DMSA. According to the FDA, DMSA is only approved for the elimination of lead and nothing else. There are only 4 types of treatment for cancer: chemo, radiation, and surgery and hormone therapy. If I said that I treated cancer with nutrition, the FDA would shut us down very quickly. I happen to believe that we don't treat cancer anyway, only the body does. Everyone has cancer cells in their body every day and a healthy body can identify and stop the process. This is what we do: we help the body get healthier so that it can do what it already knows how to do. If your body grew from 2 cells to the body you have today, I believe that a healthy body can fight cancer, cure itself of lupus, MS or just about any disease if we can test to find weaknesses and then do what is required to restore true health. There are obvious limits- age is a factor and sometimes people wait too long to try to make changes.

DMSA does not cure cancer, lupus, MS, autism, heart disease, ADHD, Parkinson's, Alzheimer's, or anything else. All DMSA does is assist the body's natural ability to eliminate heavy metals, but calcium, magnesium, zinc, water, and other nutrients are also needed, too. Our bodies have a natural ability to eliminate lead, mercury, arsenic and other heavy metals and chemicals. The addition of DMSA doesn't cure anything but it appears to assist that process.

- I hope we can count on you in preserving our right to choose safe natural products.
-
- Sincerely,
-
- Van D Merkle DC
-
-

81 ☐ **DMSA letter to Patients**

- Name: Date:
-
- To whom it concerns:
- (Please be as specific as possible)
-
- I have used DMSA for _____ (number of months or years)
-
- The doses I used were: _____ for the urine challenge test.
-
- The doses of DMSA I used to improve health were: _____
-
- The side effects I had from using DMSA were: _____
-
- These side effects lasted: _____
-
- Overall, DMSA had a positive health benefit: ____Rate 1-10 with 10 being the best and 1 being

the worst.

-
- Additional comments:

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

-
-
- Signature _____
-

82 ☐ **Testing for Toxic Elements**

83 ☐ **Hair Elements**

Hair is intracellular and often can be an indicator of exposure in the last 4-6 months or the amount that has been *excreted* in the last 4-6 months.

84 ☐ **Hair testing results have been used to implicate lead poisoning in the death of Ludwig van Beethoven, and arsenic poisoning in the death of Napoleon.**

Shamberger RJ. Validity of hair mineral testing. Biol Trace Elem Res. 2002;87:1-28.

85 ☐ **WHY do Hair Analysis?**

- While there are instances where patient compliance interferes with expected results, it is also quite common that toxic elements have not been assessed by the provider.
- A very simple example of this is anemia. If you do only blood work and find a client is anemic… barring known blood loss what other reasons could there be for the anemia?

86 ☐ **WHY do Hair Analysis? Cont.**

- If that client is getting exposed to arsenic or lead, it doesn't matter how much B12 and Folic acid you have them take.
- Unless you address the lead/arsenic, the anemia will be resistant.
- Testing toxic elements in the blood is albeit useless unless one is aware of a very recent, acute exposure/poisoning.
- If it's chronic, mild long term exposure, you won't see it in the blood…and blood does not evaluate EXCRETION RATE/POTENTIAL.
-
-
-

87 ☐ **Concerns Regarding Laboratory Standards**

- There is no question that ineptness has been observed at some commercial laboratories for hair

analysis.

- The issue of interlaboratory differences is not sufficient reason, however, to conclude that hair analysis is not of value.
- It is simply a question of tightening up sampling/analytical protocols.
-

88 **Hair Washing**

89 **Should you clean the hair before analyzing?**

90 **Hair Washing Causes Erratic Results?**

- "I would suggest using the supplement suggestions on this site rather than those from Dr. Wilson.
- Dr. Wilson wrote to me saying, "Your readers might want to know that hair analysis tests from Great Smokies Lab, King James Laboratory, and Doctors Data will give significantly different results because they wash the hair in acetone and detergent.
- Analytical Research Labs and Trace Elements, Inc do not wash the hair. In the JAMA study referred to by Dr. Mercola, the labs that wash the hair produced erratic results. This is also what was found in earlier studies.
- Hair is biopsy material and harsh washing chemicals damage it. That is a main reason I use ARL (Analytical Research Labs)."
  - http://www.ithyroid.com/hair_analysis.htm
-

91 **Hair washing**

- From: David Quig, PhD
- Fascinating quote.
- It was actually ARL that had about 10 outlier values!
- Use of a standardized wash procedure, like standardization of any laboratory method, is why the National Institute of Standards and Technology (NIST) exists and strives to get consistency among labs.
- A simple response- does ARL have any legitimate data (published) other than their own self published paperback book to support their claims about the meaning of all of those ratios that they report?
- The utility of hair analysis is to evaluate exposure to toxic elements (see the interpretation sections for hair mercury, lead and arsenic on the Mayo Medical Laboratories web site and the CDC).
- Its labs like ARL that over interpret hair elemental analysis and give the entire industry, and CAM a bad rap.

92 **Why hair washing?**

- Hair grows from within the cell and a hair sample gives a 3-6 month indication of exposure
- Most people wash their hair everyday
-

93 **Hair washing**

- You want to test hair, not stuff on the hair.
- Maybe ingredients of hair products:
- Men's hair products to color it darker use or used to use lead.
-

94 **Go With a Provider Who's Ahead of the Game**

- Doctor's Data has been pressing for the establishment of standardized procedures for hair analysis under CLIA and the Health Care Financing Administration.
- Doctor's Data only accepts hair samples from licensed physicians or for research purposes.

95 **Hair Elements Reference Ranges**

- Reference ranges are not based exclusively on small data pools which is one of the major critics for use of hair analysis.
- Available reference ranges are based on 28 years of doing hair analysis.
- As methods improve, so will reference ranges.
- If you have been doing blood work for any length of time, you'll also note the blood reference ranges change as new data arises.
-

96

97 **It must be emphasized that the actual toxic threshold for an individual is not equivalent to exceeding the reference interval.**
Development of heavy metal toxicity depends on many factors, such as genetic vulnerabilities, as well as whether the exposure is acute or chronic, age, and any co-morbidities.
LABMEDICINE ■ Volume 42 Number 12 ■ December 2011

98 **The Perfect Test…**

- As a screening tool, no one laboratory test exists that is absolutely definitive.
- It is critical that hair analysis results be looked at in careful consideration of patient symptoms and exposures. Hair analysis is not a test to end all tests.
- The confusion typically comes from the way many doctors/nutritionists use or interpret the data from the hair/urine elements.
- Many tend to use *only* the hair elements to try to assess diet and supplement modifications.
- What does one test tell you?...Nothing definitively.

99 **This is where combining the blood work with the toxic element testing gives you the best overall picture and plan of action.**

100 **Long-Term Excretion Rate**

- The hair root is in constant contact with blood vessels, allowing both essential and toxic elements to enter the hair shaft continuously as hair grows.
- Toxic element deposition requires approximately 2 weeks after an exposure to appear in hair
  - LABMEDICINE ■ Volume 42 Number 12 ■ December 2011
- In other words, hair analysis reflects long-term *excretion rates* of the various elements.

101 **Excretion is "good"**

- One must understand that hair is an *excretory* tissue so any results that are "high" in the hair tissue *are* being excreted…when it comes to toxic elements, if one is getting exposed, we *want* to see them coming out.
- However, it does indicate exposure to the toxic element along with nutrient depletions it can cause.
-

102 **The Sickest Have Little to No Excretion Rate**

- Just because it's not being excreted in the hair, doesn't mean one is not being exposed to that toxic element.
- Many times the clients that show *no* toxic element elimination in the hair will be your sickest clients.
- It can indicate one has an inability to excrete the toxic element which can cause many health disorders from high blood pressure to memory and concentration issues.
- In our industrial society and with the very real problem of pollution, it is well understood one will get exposed to many toxic elements.

103 **Some People Need Higher Levels of Supplementation *Because* of Their Environment**

- We want to try to assess what our clients are being exposed to and if they're excreting efficiently.
- This is where some clients will need higher levels of supplementation due to the environment they live.
- Toxic elements via hair and/or urine and blood testing can give one a bigger picture of where they stand with regards to optimal health.
-

104 **High Hair Calcium**

- There are several factors that can cause an elevation (or excessive excretion) of calcium and magnesium in the hair including external contamination, but also toxic elements.
- When I see elevated levels in the hair they are often low levels in the blood.
- Blood levels are more critical and the body will take from the tissues to maintain blood levels.
- Why then are the hair levels high?
-

105 **Why then are the hair calcium levels high?**

- This is the main question.
- No absolutes here but I often see a high hair and low blood with some of the clients who present with more chronic problems.
- I usually assume that a high hair level indicates that there are some reserves and that the body will use calcium and magnesium more than other essential elements to attach a toxic element to a calcium buffer to safely carry it out of the system.

106 **Neurological Disorders**

- Now when the hair levels of nutrient elements go low and the blood levels are low and results show there are no significant levels of toxic elements coming out in the hair…
- this is often seen with MS, ALS, CFS, Parkinson's etc…I have never had a problem recommending magnesium even if it is high in the hair and "normal" in the blood.
- Usually because they're "dumping" so much magnesium in the hair, a little supplementation can be helpful.
-

107 **Hair Test vs. Urinary Challenge**

- Some things that I have noticed is that the hair test and DMSA challenge seldom "agree".
- I will see high or very high levels of Aluminum or Arsenic in the hair but almost none in the DMSA urinary challenge.
- But the DMSA urinary challenge of the same patient will show high or very high levels of Lead and Mercury and no Arsenic or Aluminum.

- Hair test shows the excretions for about a 4-6 months period as well as mineral rates and ratios.
- The Urine Challenge is more of an "acute" daily excretion rate. The Day 1 urine collection determines what the individual is excreting within that 6 hour period (vs the slow 6 months period via hair). The Day 2 Urine collection is showing what we're able to purge (quickly) using the chelating agent.
-
-

108 **Hair vs Urine cont.**

- There are many benefits (and some limitations) to both tests but doing both tests (just as testing more broadly with the blood) give you a better overall picture of that individuals excretion abilities as well as our ability to improve excretion rates.
- With hair, you typically see lighter weight elements (like arsenic or aluminum) being excreted because they are easier to excrete…rarely see lead and mercury being excreted unless the person is a generally health conscious person who has a good ability to excrete those toxic element BECAUSE they supplement already OR if the person is getting exposed to a lot of lead/mercury it will spill over into the hair.
- Urine challenge…we almost always see a big purge of lead and mercury (on the Day 2 test).
-

109

110 **Creatinine Clearance**

111 **Creatinine**

- The word 'creatinine' comes from the Greek word 'kreas', which means flesh.
- Formed after breakdown of creatine. Creatine is naturally produced in the human body from amino acids primarily in the kidney and liver. It is transported in the blood for use by muscles. Approximately 95% of the human body's total creatine is located in skeletal muscle.
- Creatinine is a chemical waste molecule generated during muscle metabolism.
- It makes its way into the kidney through the bloodstream.
- Creatinine is flushed out of the body through the kidneys into the urine. There is a little or no reabsorption of creatinine in the body.
- In case the kidneys are not functioning properly, due to a kidney infection or due to kidney diseases the levels of creatinine in blood increase while the levels in the urine decrease
-

112 **Levels of Creatinine in Urine**

- To find the creatinine level in urine and blood, creatinine clearance tests are used.
- These tests find out the exact working of the kidneys by comparing the level of creatinine in urine with that of creatinine in blood.
- The creatinine clearance value is found from the amounts of creatinine in the urine and blood and from the amount of urine, which is passed in the last 24 hours.
- When the kidneys are not working to their optimum best, it causes low creatinine levels in urine, but high creatinine levels in blood, because creatinine is not flushed out of the body.
-

113 **Creatinine Clearance Ranges**

- 90-140mL/min for men.
- 87 -107 mL/min for women
- normal values of creatinine go down with age.
  - The values normally go down by 6.5 mL/min for every 10 years, after the age of 20.

114 **High Urine Creatinine**

- High creatinine levels in urine are often caused due to strenuous exercise, muscle injury, more so - crushing injuries, burns, pregnancy, hypothyroidism or carbon monoxide poisoning.
- It is a common indicator of serious damage to the kidney or presence of some disease.
- If the levels are on the higher side, the most common symptoms include dehydration, fatigue, shortness of breath, confusion or other non specific symptoms.

115 **Low Creatinine**

- Low creatinine levels in the urine can also indicate damage to the kidney.
  - The damage can be caused due to a life-threatening infection, shock, cancer, low flow of blood to the kidneys or urinary tract blockage.
- Alcoholic beverages can lower creatinine in the urine as they interfere with the ability of the kidneys to filter creatinine from the blood.
- Vigorous exercises which can increase muscle mass will in turn will help to increase creatinine levels.
-

116 **How Do I Do It?**

Cost
Supplies
Patient Support forms

117 **Initial Testing…**

- The first time you ever test a patient, you will need a "pre" and "post" test kit.
  - Pre = is a 6 hr urine collection with NO provoking agent.
  - Post = is a 6 hr urine collection after the intake of a provoking agent (DMSA/DMSA).
- So…to do the <u>initial</u> Urinary Challenge, you will need TWO test kits and one bottle of DMSA
-

118

119 **Urinary Challenge Supplies**

120 **Contents**

- Collection cup
- Storage container
- Requisition form and directions

➢ Shipping
supplies

121 ☐ **Contents**

122 ☐ **While the patient waits**
Preparing the Test Kits

123 ☐

124 ☐

125 ☐ **PRE-KIT**

- Complete Sections 1 & 2
- Section 3:
  - Fill out ONLY:
    - Patient Height
    - Patient Weight
    - Collection Period – 6 Hours
    - Select "Pre"
    - DO NOT fill out any other information in this section
-

126 ☐

- Section 4:
  - Fill out ONLY:
    - Patient Name
    - Patient Date of Birth
    - Sex
    - Mailing Address
    - City
    - State
    - County
    - Zip
    - DO NOT fill out any other information in this section.

127 ☐ **PRE-KIT**
NY, NJ & RI

- Section 5 –
  - NY, NJ, & RI members MUST complete Section 5.
  - Please note – this will be the PATIENT'S payment information.
  - If you are NOT a NY, NJ or RI member, DO NOT fill out Section 5.
- Section 6 –
  DO NOT FILL OUT SECTION 6.
-

128 ☐ **PRE-KIT**
Specimen Vial

- Fill out:

- Patient Name
- Date of Birth
- Choose "Pre"

▸

129 ☐ **POST KIT**

▸ Fill out Sections 1 & 2
▸ Section 3:
- Fill out ONLY:
  - Patient Height
  - Patient Weight
  - Collection Period – 6 Hours
  - Select "Post"
  - Provoking Agent – Enter "DMSA" and write the patient's dosage (determined by the doctor)
  - DO NOT fill out any other information in this section

▸

130 ☐

▸ Section 4:
- Same as PRE-KIT

131 ☐ **POST-KIT**
NY, NJ & RI

▸ Section 5 –
- Same as PRE-KIT

▸ Section 6 – DO NOT FILL OUT SECTION 6.

▸

132 ☐ **POST-KIT**
Specimen Vial

▸ Fill out:
- Patient Name
- Date of Birth
- Choose "Post"

▸

133 ☐ **ONCE THE TESTING SUPPLIES ARE PREPARED, WE LIKE TO TAKE SUPPLIES INTO A CONSULTATION ROOM TO DISCUSS <u>TESTING EXPLANATIONS FOR PATIENTS</u>.**

134 ☐ **Before the patient leaves**

Explaining Test Procedure

135 ☐

▸ Give the patient the pre kit, post kit, DMSA and Toxic Urine Challenge Instructions all together in a bag.
▸ Pull out each item as you explain the testing.

▸

136 ☐ **Urinary Challenge Instructions**
DAY ONE using the PRE-KIT

- First thing in the morning, patient urinates but does not collect specimen.
- Upon next urination, collect the specimen in the collection cup then pour it into the storage container.
  - This is done for the next 6 hours.
  - Keep the clear container refrigerated.
- After completing the 6-hour collection, mix the urine by shaking the clear container for at least 30 seconds. Pour the urine into the specimen vial all of the way up to the top of the label and tighten the screw cap securely.
  - Patient needs to:
    - Write the collection date on the vial.
    - Write the collection date on the pre-test requisition form.
    - Place the vial in the zip-lock bag. Place the bag in the cardboard shipping box.
    - Store in the refrigerator until it is ready to be shipped.
- At the end of the 6-hour urine collection, take the trial dose of DMSA (1 tablet) to test for sensitivities.

137 ☐ **Process**

- First thing in the morning, patient urinates but does not collect that urine.
- Afterward, the patient collects urine

138 ☐ **Process**

- Pours sample in the collection jug.
- Patient continues to collect urine for 6 hours and pours all of it in the jug.
- Keep refrigerated.

139 ☐ **Process**

- After all collections for that day are finished, shake the jug to mix contents and pour into the specimen tube.
- Document collection date on the label on the specimen tube and the requisition form.
-

140 ☐ **Process**

- Wrap collection tube in the sanitary paper provided in the kit.
- Put it back into the plastic bag

141 ☐ **Process**

- Put wrapped specimen tube and requisition form back into the box.

142 ☐ **Process**

- Put box into the FedEx Clinical Pak.
- Write name and address in space provided on the Billable Stamp.
- Tear off the customer receipt for your records.
- Affix the Billable Stamp to the Clinical Pak.
- Keep refrigerated until pick up.

143 ☐ **Schedule Pick Up**

- Call FedEx toll free: 1-800-238-5355

- Follow prompts
- Tell rep that you need a pickup for a shipment using a prepaid "BILLABLE STAMP" and give the address location of the pickup.
- DO NOT USE A DROP BOX.
-

144

145 **NY, NJ & RI**

- Patient will also need to include payment in each test kit.
- They can either add a check for the amount to EACH kit before shipping or fill out section 5 on the requisition form.
- Do not fill out section 6 or any other information. This lab cannot bill your insurance.

146 **Urinary Challenge**
DAY TWO using the POST-KIT

- Upon rising empty the bladder but do not collect urine.
- DO NOT eat before taking DMSA supplements.
- DO NOT take ANY other supplements on this day.
- Take the full DMSA dose that has been assigned
  Do not eat for 2 HOURS after taking the DMSA.
- The next time the client urinates, they collect the specimen in the collection cup then pour it into the storage container.
  - This is done for the next 6 hours.
  - Keep the clear container refrigerated.
  - The urine will have a strong smell.
- *During the 6 hour collection*, they need to completely drink 1 to 1 ½ liters of reverse osmosis water. Commercial brands include Aquafina or Dasani.

147 **Urinary Challenge**
DAY TWO using the POST-KIT continued

- After completing 6-hour collection, mix urine by shaking the clear container at least 30 seconds. Pour the urine into the specimen vial and tighten the screw cap securely.
  - Patient needs to:
    - Write the collection date on the vial.
    - Write the collection date on the post-test requisition form.
    - Place the vial in the zip-lock bag. Place the bag in the cardboard shipping box.
    - Store in the refrigerator until it is ready to be shipped.

148

149 **Important**

- Patient must wait 7 days after taking DMSA Supplement to have blood drawn.
- Remind the patient: "Do not dispose of your DMSA. You will use it again at a later date."
-

150

151 **Toxic Urinary Challenge Packing and Shipping Procedures**

- We give the patient 2 options

1. They can bring the boxes directly to our office during office hours.
2. They can ship them on their own using the instructions included in the package.

- You do not need the storage containers returned. We ask the clients to recycle these containers.
-

152 **Toxic Urine Test Results take 7-10 business days.**

153

154

155 **Retesting**

Do not retest the blood work during a day
the patient is taking Captomer. Wait 7 days after
they finish a round of Captomer to retest the blood.
The Captomer could temporarily raise or lower certain tests.

156 **Retesting**

- Always use the same dose of DMSA as the first challenge even if they lose weight.
- Do only the post-challenge [Day 2 protocol]
- Have to use DMSA for the post-challenge

157 **Retest Results**

- Therapy Depends upon:
  - Patient tolerance
  - Liver, Kidney and Thyroid function
  - Mineral levels
  - Presence of anemia
  - Were test results a bigger purge or smaller purge?

158 **Progress not Perfection**

- Keep in mind…there is no hurry!
- Slow progress is better than no progress.
- The testing will guide your recommendations.

159 **Dr. Merkle's Personal Comments**

Chelation experience…

160 **GI Upset from DMSA**

Note: we have had no problems with the new lower doses.

- For the patient that gets GI upset from the DMSA then I will use other chelating agents.
-
- DMPS, DMSA and EDTA are eliminated through the kidneys out the urine.

161

162

163

164

165 **DMSA long term**

- I take DMSA nearly every Monday morning
- 600mg all at once.
- Reduce the dosage according to weight, tolerance or need.
- I have a dentist that takes 600 twice a week due to chronic high mercury

166 **Case Studies**

Urinary Chelation & Testing Protocols

167

168

169

170

171

172

173

174

175

176

177 **Ken C.**

69 year old, male
Presented on April 19, 2005
Primary Complaint: Parkinson's Disease

178 **History- Patient Diagnosis**

- Neurosurgeon diagnosed Parkinson's disease August of 2004, via the proper radiological exams and physical exams 6 months prior to seeing us and unusual symptoms were noted.
-
-

179 **History:**
Adrenal Fatigue/ "Alternative Healer"

- There was no improvement noticed for the treatment of Adrenal Fatigue after being on the following nutrients for one year.
  - Lecithin
  - Heavy Metal Detox
  - Cortisol
  - Adrenal Support
  - Siberian Ginseng

- Super Antioxidant
- Unadegada? Homeopathic?

180 **Signs and Symptoms**

1
- Parkinson's Symptoms
  - Dizziness and balance problems
  - Slow guarded gait, uses hand on wife to steady himself
  - Problems focusing eye sight
  - Shaving is difficult
  - Started stuttering and stammering in the last 3 months due to a constant tongue 'quivering' making speaking difficult
  - Can no longer preach
  - Reduced: Personality and character are different
  - 'Cries' or feels like crying 'all of the time'
  -
  -
-
-

2
- Nervous and agitated for last 6 months
- Heart disease
  - 5 heart catheterizations
  - 2 balloons
- Allergies
- History of Prostate cancer
  - Radiation treatment 2004
- Depression
- Takes Atavan for anxiety
- Surgical removal of Uvula years ago for sinusitis resulting in constant drooling, choking and problems drinking fluids.

181

Ken C

- Most significant findings:
  - low thyroid
  - Low grade infection
  - Mild low protein
  - Mild low minerals

182 **Ken C**

Toxic Elements

-
- No significant levels of toxic elements.

- This is bad.

183 **Diet and Supplements**

1 ▸ The diabetic factors are a little high.
  ◦ This is not primary and may be associated with infection, fast food or just eating too much fruit this time of year.
▸ Patient was recommended he follow a standard whole foods diet and Category 3 diabetic diet.

2 ▸ Calcium MCHC 1500mg.
▸ Inflavanoid (Turmeric) 2 per day
▸ Iodoral 24mg.
▸ Lithinase 2 per week
▸ Magnesium Glycinate 200mg.
▸ MLK 1000 2000mg.
▸ Seacure 3 per day
▸ Spectramin Chelate 900mg.
▸ Sublingual B12 Plus 2 per day
▸ Thyrostim 2 / day
▸ GLA (Ultralinic) 240mg.
▸ Lauricidin 2 tsp./day

184 **Ken C - Chelation Tests**

185 **DMSA comments**

▸ My staff informed me that this patient had some good improvement using the DMSA. He noticed immediate improvement in the shaking, unsteadiness and speech just from the challenge, therefore on his own he continued to take the DSMA on a daily basis.
▸

186 **Patient Progress**
4 months on his program

▸ 40% improvement
▸ Energy and allergies are better
▸ No shaking
▸ Walking better…can jog now which he wouldn't do before because of unsteadiness, weakness and angina.
▸ Better with people and emotions are much better
  ◦ Doesn't feel like crying all the time
▸ Talks better…stutters much less!
▸ "More with it."
▸ Back to Preaching

187 **Ken C**

188 **Supplements from Initial Re-test**

▸ Calcium MCHC 1500mg
▸ Inflavonoid (Turmeric) 2 per day
▸ Iodoral 24mg.
▸ Lithinase 2 per week
▸ Magnesium Glycinate 200mg.

- Meda-Stim 600mg.
- MLK 1000 2000mg.
- Seacure 3 per day
- Spectramin Chelate 900mg.
- Sublingual B12 Plus 2 per day
- Thyrostim 6 per day
- GLA (Ultralinic) 240mg.
- Vitamin C 3000mg.
- Lauricidin 2 tsp./day

189

Ken C

Toxic Elements:
This hair test shows good progress even though the Arsenic, Aluminum and Mercury are higher.

There were so many deficiencies and imbalances before starting the program, that his body could not eliminate these toxic elements. The DSMA is involved with this too.

190