



Micro Trace Minerals Labor

Über 30 Jahre umweltmedizinische
und toxikologische Untersuchungen

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IBCMT Workshop

Optimized and pharmacologically/medically correct uses of chelating substance for acute and chronic intoxications.

This international workshop will be held May 12/13, 2012 in the historical town Nuremberg, Germany. We will focus on the medically correct use of chelating substances in the treatment of chronic diseases. We discuss chelator-specific orientation ranges and Dr. Shideh Pouria of the British Society of Medical Ecology will share her expertise on chelation and how it affects renal disease. Prof. Schulte-Uebbing will discuss metals in oncology, what metals are commonly 'stored' and found in cancer tissue and explore treatment potentials. Prof. Chris Busby of the University of Ulster and editor of the *2010 Recommendations of the European Committee on Radiation Risk* will alert us to the health effects of low dose exposures to fission radionuclides and uranium. His studies are eye-openers. Don't miss it.

You have the opportunity to take the IBCMT written and/or oral exams. For program details, check www.microtraceminerals.com or www.ibcmt.com

1. Clinical Evaluation and Assessment of Provocation Urines

Several decades ago, the German toxicologist Dr. Dauderer MD statistically evaluated the mercury and copper concentration of urine following DMPS injections. In the years since, German medical laboratories used these secondary norms when evaluating provocation urines. No other chelator-specific norm has been applied since.

About a year ago, we changed this by statistically evaluating a large number of DMPS-Provocation urines. Since then we have DMPS-specific Reference Ranges, which we refer to as *DMPS-specific Orientation Values*.

Until that time, provocation urine test values were compared with Baseline Urine Reference Ranges (UB-RR) as officially provided by Environmental Agencies. Such a comparison is analytically and medically incorrect, not unlike comparing apples and oranges.

Baseline Urine Values reflect the renal metal excretion under normal conditions, i.e. without any provocation. Certainly, the metal concentration of this 'normal urine' is influenced by the oral intake of metal-containing supplements, medicines, food and drink. Some drinking water may be metal-rich; soft drinks such as colas are known to contain aluminum. High levels of arsenic or mercury may be found in fish, especially fish from polluted water.

If we avoid metal-rich food, drink, supplements and medicine prior to collecting the baseline urine, we can expect inconspicuous baseline urine metal concentrations. Values outside the UB-RR reflect immediate exposure in need of attention.

Chelating agents (DMSA, DMPS, EDTA etc) force binding of metals, which may have been deposited in the body over time, or are found in the blood stream due to an immediate

exposition. With the use of chelating agents we provoke metal binding, and an increase in mobilization and renal excretion.

If we compare Baseline Urine Values (BUVs) with the metal concentration of a Provocation Urine, we can expect that Provocation Urine Values (PUVs) exceed the BUV in many areas. Especially chelator-specific metals are expected to exceed the UB-RRs. For instance, mercury values are expected to rise after a DMPS or DMSA provocation. If EDTA is used, the PUV for iron and lead will exceed the BUV in nearly all cases, and certainly exceeds the UB-RR for lead and iron.

Since no laboratory compared *like with like*, the evaluation of PUV was difficult and often misinterpreted. It was also food for critics of chelation therapy.

We are starting 2012 by correcting this problem. We are now listing chelator-specific orientation ranges (OR) for EDTA, DMSA and DMPS provocation urines.

The assessment of test values is as follows:

- If a test value is above the UB-RR and below the OR, a mild exposition is noted.
- If the test value is above the OR, a moderate to severe exposition is noted.

We hope that our new reports, comparing PUV with Orientation Ranges helps you with the development of treatment concepts. (And we are optimists, thinking that this change takes wind out of the sails of chelation opponents.)

3. Chromium /Cobalt Implants

Most orthopedic dental implants, intracoronary stents, prosthetic valves, endovascular prostheses and some gynecologic devices are made from metal alloys. For over 20 years, metals such as cobalt and chromium are used. Longterm implants such as cobalt alloys may contain 25% chromium, 5% molybdenum and other metals such as nickel or iron. While those alloys are highly stable, corrosion happens in the bodily environment, either through chemical or direct, mechanical abrasion. The amount of the freed metals depends on the surface area of the implant and the mechanical stresses involved. (Venugopalan 1999, Hallab 2001, Clarke 2003).

In 2003 Clarke et al measured metals in blood serum after hip implantation, and found cobalt concentration of around 2.2mg/l (=2200mcg/L) and chromium levels of 2.7mg/l. (Prof. Menge 2011) The following table places these values into relation.

	Chromium	Cobalt
Serum - Plasma	< 5 µg/l	<0,4 µg/l
Whole Blood	<5,6 µg/l	<1,5 µg /l
Urine	<3,5 µg/l	<1,0 µg/l
Biological Tolerance Level –Urine* (for occupational exposure)	20 µg/l (CrIV)*	30 µg/l **

*Some sources apply Reference Values of 7mcg/l after a work day's exposure

** Biological Tolerance Level, SUVA Occupational Medicine, Switzerland

The following questions arise:

- a) What is considered a toxic value?
- b) Should, and can be detoxified?
- c) If yes, with what substance?

- a) It is important to recognize that contamination is a relatively common source of elevated chromium and cobalt levels. Metal-free tubes should be used for blood sampling.

Metals circulate in blood for about 72 hours after exposure or intake, before metal excretion or depositing takes place. Vit.B12 contains cobalt, and yeast-based B-vitamins contain chromium. Hence, vitamin B12-treatment or vitamin B-complex supplementation should be stopped 72 hours prior to blood sampling.

- b) Chromium and cobalt are essential trace elements with potential toxicity; however extreme doses are needed to create toxicity. Acute intoxications are extremely rare and generally workforce related. In occupational medicine, implant-related toxicities have not been noted at this time. Toxicological reactions seem less possible than immunological ones.

- c) We have no practical knowledge at this time, but caution seems appropriate.

Poison Centers list EDTA as Antidote for chromium and cobalt intoxication. The question if the blood levels noted by Clarke et al represent cases of intoxication has not been answered. We also don't know if EDTA chelation would cause chemical abrasion. If anyone has information, we appreciate notification.

We wish you a healthy, happy and successful 2012.

E.Blaurock-Busch and Team