Genova Diagnostics®
Innovative Testing for Optimal Health

SUPPORT GUIDE

Toxic Element Clearance (TEC):

Providing Meaningful Information

Genova Diagnostics has designed its **Toxic Element Clearance Profile** to provide clinically useful information for practitioners. The test does not include several nutritional elements whose levels in urine can be deceptive, nor does it purport to evaluate creatinine clearance by assaying nutritional elements in urine. Instead, we offer a conventional creatinine clearance test, and we recommend that certain elements be measured in others tissues where levels are more representative than they are in urine.

Role of Nutrient Elements in Toxic Element Clearance Evaluation:

The essential elements on the TEC are:

- Chromium (high levels can be toxic, especially Cr+6. Cr+3 is excreted in urine following EDTA treatment)
- Cobalt (toxic when high; it is excreted in urine after DMSA and EDTA)
- Copper (high can be toxic; it is depleted and is present at high levels in urine following D-penicillamine and DMSA)
- Manganese (toxic when high; it is excreted after EDTA and D-penicillamine)
- Molybdenum (toxic when high; it is excreted after DMPS and DMSA)
- Selenium (toxic when high; it is excreted following DMPS and DMSA)
- Zinc (toxic when very high, but there can also be very high results in urine following EDTA, which can deplete it. The inclusion of zinc in this test is primarily as a marker of loss and need for repletion when EDTA is used).

Reasons we have not included electrolyte essential elements (magnesium, sodium, potassium) on the TEC Panel are:

- Their meaning in urine is ambiguous.
- They are not removed or influenced by EDTA, DMPS, DMSA, D-penicillamine, etc.
- They are not toxic except in end-stage renal failure when everything in the BLOOD becomes toxic due to extreme excess.

Specific Nutrient Element Information:

- Magnesium (Mg): The body's homeostatic control range, including kidney function, is huge for Mg.
- In dietary Mg insufficiency, the kidneys conserve it in order to maintain blood levels. Urine levels then are low although the kidneys can be functioning well.
- In dietary Mg excess, the kidneys dump it – again maintaining physiologic blood levels when toxicity or viral/allergic inflammation of renal tubules occurs.
- High Mg levels in urine can be indicative of wasting as well as dietary excess. To discriminate between the two conditions, blood cell, organ, and possibly plasma levels should be evaluated.
- When kidney failure is at end stage or in acute renal failure ("ARF"), Mg can be high in blood and low in urine, making it look like magnesium deficiency based on urine results alone.
- Sodium (Na) and Potassium (K): Again, the body's homeostatic control range is huge. Urine levels usually (99% of the time) reflect variation in dietary intake.

- Mg, K, and Na levels in the urine do not change substantially (compared with variation in daily dietary intake) following chelation or detox therapy, because the agents that doctors use do not combine with these elements. Toxic levels of electrolytes are determined by blood plasma or serum measurement, a more accurate reflection of their bioavailable levels.

- Assessing Mg, K, and Na status by urine does not provide clinically useful information about kidney function, which medical academies require as part of treatment protocol. A true creatinine clearance test, which requires a blood draw, is a prerequisite to detoxification treatments involving EDTA, DMSA, D-penicillamine, etc.

Genova Diagnostics®
Innovative Testing for Optimal Health

63 Zillicoa Street
Asheville, NC 28801
800 522.4762
www.GDX.net

n,sg,tec,100208