Guest Editorial: John Green, M.D.

Overview: Detoxification through chelation therapy

Dr. Green is a specialist in clinical ecology and nutritional medicine. A DAN! physician, he committed his full attention to the treatment of autistic children in 1999.

What is chelation therapy? How does it work? How is it performed? Why does chelation therapy in autism have such avid proponents and opponents? What are the risks and benefits of chelation therapy? Why does it receive the highest effectiveness rating from parents of all the current treatments being used for autism?

Chelation works like the body's natural sulfur defense system, wherein sticky molecules bind toxic metals to sequester and eliminate them. The commonly used chelators in autism treatment are DMSA, DMPS, and EDTA. All three of these are effective for removing lead and cadmium, while DMPS and DMSA are also effective for mercury, tin and arsenic. EDTA is also somewhat effective for aluminum. EDTA and DMSA are available over the counter in the U.S., as is DMPS in several western European countries. These three agents can be given orally or rectally, and DMPS and Calcium EDTA can be given intravenously. DMPS is also effective by intramuscular injection. Transdermal forms of all three are available, with proven efficacy for DMPS and DMSA, and uncertain efficacy for EDTA.

The best diagnostic test for toxic metal overload is the chelation challenge test. The chelation drug is administered, followed by a timed urine test to help assess the body's burden of toxic elements. This test is repeated periodically to evaluate treatment progress. In our office we use DMPS, the most potent mercury chelator (which must be prepared by a compounding pharmacy), as it can be injected with glutathione enhancement and avoids the problem of poor oral absorption. Others prefer DMSA, as it does not cross the blood-brain barrier, and is FDA approved for lead. Transdermal challenge tests are not reliable.

The choice of a chelating agent and route of administration should be individualized to the child. After implementing treatment, it is important to evaluate both effectiveness and tolerance. It is not necessary to push the therapy too vigorously; the best rule is to "go low and go slow." Transdermal methods of delivering either DMPS or DMSA are often preferred, as this helps to minimize the exposure of the bowel to the chelator/toxin complex. If there are problems with one method, it is reasonable to change to another method. After the levels of mercury drop to a low level, transdermal alpha lipoic acid is often given along with DMPS or DMSA, to provide additional benefits.

There is strong evidence that autistic children have impairments in their body detoxification systems, causing increased vulnerability to toxic injury. In addition to heavy metals (particularly mercury, lead, arsenic, antimony, and aluminum), we have found elevated blood levels of PCBs and volatile organic solvents in every autistic child tested in our office. These toxins further weaken their detoxification systems, by causing oxidative injury, immune dysfunction, impairment of enzyme and energy functions, disruption of cellular communications, and initiation and aggravation of chronic inflammation. The result of these disturbances is a complex set of self-perpetuating cycles of tissue injury. Detoxification by chelation and attendant supportive treatments helps break these cycles and restore healthy physiology.

Chelation therapy is extremely helpful for autistic spectrum children, with very few side effects. Chelation helps break many of the self-perpetuating cycles contributing to the tissue damage and symptom complex of autism and opens the way for repair and recovery to take place.

Intravenous EDTA chelation has been used safely for decades in thousands of elderly patients and in lead-poisoned children. However, questions about safety have arisen in the past year because two children have died from the improper use of a version of EDTA (disodium—instead of calcium—EDTA). They received the wrong drug (a mistake stemming from the drugs' similar names) by an improper intravenous technique, and died from severe depletion of blood calcium levels. If a child is treated with EDTA, it must be with the calcium EDTA drug, which has been proven safe.

The risks of chelation therapy, properly done, are few. The most common problems seen are yeast or bacterial disturbances in the gut and depletion of trace minerals, especially zinc. These tend to cause behavioral upsets, generally preventable by intestinal supports, mineral supplements, and/or change of chelation system. Rashes may necessitate change in the drug or in the method of delivery. Serious allergic reactions are very rare. Concerns have been expressed about chelation effects on the liver, kidney, and bone marrow, but there has been no evidence of irreversible problems with these organs in children receiving chelation treatment. To the contrary, thorough safety testing and experience with thousands of autistic children have demonstrated the extraordinary safety of these drugs.

In our office, we prefer using DMPS by the transdermal route (with intermittent oral dosing to help clear the gut). We also may vary the chelator and the route of administration to optimize the effects of each and ascertain which is most helpful. For instance, we may use TD DMPS for three days one week, TD DMSA for three days the next week, and oral DMPS for two days the next week. If the child shows more benefit with one, we will continue with that agent. While some doctors use an alternate-day treatment regimen, we find it most effective to use these medications intermittently, such as three days on and four to 11 days off, and a washout of three or more days between different medications is necessary.

Why are there such avid proponents and opponents? The proponents are professionals who use chelation regularly and have seen excellent results in their patients. The opponents are individuals who have not used chelation therapy in practice, and raise theoretical reasons against its use.

Why does chelation therapy have the highest effectiveness rating from parents of all the therapies evaluated by the Autism Research Institute? The simple answer is that chelation therapy is extremely helpful for autistic spectrum children, with very few side effects. Chelation helps break many of the self-perpetuating cycles contributing to the tissue damage and symptom complex of autism and opens the way for repair and recovery to take place.

If your child has been diagnosed with autism, and particularly if he/she has regressed or lost skills from an earlier stage in life, it is extremely likely that environmental factors have caused injury. In the DAN! Group, we believe that genetic and probably epigenetic (gene switching due to environmental influences) predispositions, interacting with toxic exposures, cause the syndrome of autism. Detoxification treatment commences when you optimize diet and nutrition, reduce exposure to known environmental toxins, and provide support for optimal digestive and immune function as described in the DAN! diagnostic and therapeutic guidelines. Upon this supportive foundation, chelation therapy will enhance your child's healing. May the day come when your child thanks you for all your efforts in bringing the best of biomedical treatments to facilitate his or her recovery!

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For more in-depth information regarding chelation therapy for autistic children, see "Treatment options for mercury/metal toxicity in autism and related developmental disabilities: Consensus position paper," at AutismResearchInstitute.com.