Test Examples of Clostridia Toxin Reduction Using Biocidin Supplementation in Two Children with Autism

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Clostridia bacteria are known to inhibit a number of toxins that have negative consequences within the human body. Two specific toxins called 4-cresol and 3-(3-hydroxyphenyl)-3-hydroxypropionic acid (HPHPA) are known to inhibit Dopamine Beta-Hydroxylase, a dopamine to norepinephrine converting enzyme (1). When this enzyme is inhibited there can be a significant rise in dopamine levels within the brain leading to serious behavioral issues, including aggression and self-injury, as well as a potential exacerbation of psychosis as seen in Schizophrenia (2). Also, excess dopamine production can be neurotoxic to the brain leading to oxidative stress and a depletion of glutathione (3).

The image listed below is an enzyme conversion chart of dopamine to norepinephrine. The metabolite of dopamine called homovanillic acid (HVA) and norepinephrine called vanillylmandelic acid (HVA) can be measured along with the 4-cresol and HPHPA through Great Plains Laboratory’s Organic Acids Test. Notice how both the 4-cresol and HPHPA specifically block the dopamine beta-hydroxylase enzyme.
The Organic Acids Test from Great Plains Laboratory has a number of markers that show this relationship between clostridia toxins 4-cresol and HPHPA and the inhibiting effect of dopamine-beta hydroxylase.

Typically treatment for clostridia bacteria is done with antibiotics such as metronidazole (Flagyl) or vancomycin (Vancocin), using a 10 to 14 day course of therapy. Both of these antibiotics are often effective at eradicating clostridia bacteria and improving digestive function. However, in some individuals clostridia bacteria are resistant to these antibiotics and recurrence rates are high. Also, antibiotics have a tendency to increase candida overgrowth and create other issues related to dysbiosis (digestive bacteria imbalance). Finally, in some sensitive people these antibiotics cause intolerable side effects such as nausea, abdominal bloating and pain. Therefore, it has often been necessary to find alternative interventions to try and deal with the complex problem of clostridia bacteria seen in special needs individuals.

The supplement product Biocidin from BioBotanical Research has shown positive results in clostridia reduction as is evidenced by the normalization of clostridia toxins 4-cresol and/or HPHPA and improvement in the HVA and VMA values. Listed here are two examples of before and after Organic Acids Tests results from two children with autism showing normalization of HPHPA and 4-cresol where using Biocidin as the primary supplement.

Example #1

Initial treatment was Vancomycin for 10 days with no resolution of elevated HPHPA
Follow-up use of Biocidin for 60 days showed positive reduction of HPHPA

Recurrence rates are high with clostridia bacteria. Here in the follow-up test result show next, after stopping the support supplement Biocidin, we see that the HPHPA levels from clostridia came back. This time around a different strategy was used with Biocidin. Instead of doing daily dosing of the supplement a cyclical dosing regimen was employed instead with the goal of not only reducing the active colonies of clostridia, but reducing the spore colonies of clostridia as well. One of the reasons for recurrence of clostridia is their ability to develop spore forms which are resistant to many conventional interventions. Therefore, it has been shown in research, and clinical practice, that dosing antimicrobials in a cyclical fashion can be more successful in long-lasting effects against clostridia (4).

**Biocidin (2 capsules TID) x 14 days, then every 3rd day do a treatment day for 4 weeks.**
**Grapefruit Seed Extract (5 drops TID) every day**
**Culturelle – 4 capsules at bedtime**
Test result 30 days after intervention

Test result on same child taking 4 months after Biocidin intervention. Notice the HPHPA is still normal.

Example #2 – High 4-Cresol

In this child the 4-cresol was elevated and not the HPHPA. A similar dosing schedule was used as seen in example #1 with Biocidin dosed in a cyclical fashion.

Biocidin (8 drops TID) x 14 days, then every 3rd day do a treatment day for 4 weeks.
Grapefruit Seed Extract (3 drops TID) every day
Culturelle – 4 capsules at bedtime
Biocidin continues to be a useful supplement to support the digestive system against the problematic toxicity from various clostridia bacteria. Used alone or in conjunction with other supplements, i.e. probiotics, herbs it can be an effective way of assisting the special needs individual with their bowel issues. Biocidin, and other products from BioBotanical Research, can be obtained from the website [www.biodicin.com](http://www.biodicin.com). Also, New Beginnings Nutritionals at [www.nbnus.com](http://www.nbnus.com) carries Biocidin as well.
Organic Acids Testing from Great Plains Laboratory, along with many other useful integrative health tests useful for autism-spectrum disorders can be purchased from Lab Tests Plus. When ordering through this site each test result also comes with a personalized written review of relevant lab markers and action step suggestions for supplement assistance and medicine protocols when appropriate. Visit www.labtestsplus.com for more information.

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(2) Shaw, W. “Increased urinary excretion of 3-(3-hydroxy-phenyl)-3-hydroxypropionic acid (HPHPA), an abnormal phenylalanine metabolite of Clostridia spp. in the gastrointestinal tract, in urine samples from patients with autism and schizophrenia.” Nutritional Neuroscience 2010 Vol 13 No 3: 1-10
