Autism Open Access 2016, 6:4(Suppl)
http://dx.doi.org/10.4172/2165-7890.C1.003

Oxalate and the Inflammasome

Susan Costen Owens
Autism Research Institute, USA

Research in basic science in the last ten years has identified a new and important network of molecules that regulate innate immunity by forming a complex called the inflammasome. This complex will form after a phagocytic cell recognizes when the extracellular environment is out of normal balance. These changes occur during infection, but the identical cascade of inflammation is called into action when phagocytic cells recognize the presence of foreign substances or debris even from killed organisms, or from changes in pH of from crystals like uric acid. Scientists recently discovered that oxalate crystals activate inflammasomes and it was already known that oxalate will impair the activity of many mitochondrial enzymes and that distressed mitochondria activate inflammasomes..

In 2011, our Oxalate Project at the Autism Research Institute with a skilled team in Poland, published an article in the European Journal of Paediatric Neurology This study found that oxalate levels in children with autism (in both blood and urine) tended to be higher than normal by two and a half to three fold. Levels this elevated are more typical of Type II primary hyperoaluria and have also been found in an animal model of cystic fibrosis. The EJPN study used the Bonn Risk Index and other methods to determine that these children with autism, in spite of their high oxalate levels, were not at risk of forming kidney stones. Problems with oxalate in autism appeared to be focused outside the kidneys.

Inflammasome activation has been found to turn on unrelenting inflammation in many other chronic and modern diseases, like autoimmune diseases, Parkinson's disease and Alzheimers. Calming down this side of immunity may be why children with autism improve after reducing dietary oxalate, or when they are able to reduce oxalate that was made endogenously in their bodies because of problems with B6 and/or thiamine. Reducing inflammasome activity might have been behind the benefits that were seen in earlier work by Bernie Rimland and Derrick Lonsdale on the use of these vitamin therapies in autism. After our project showed parents whose children had autism how to reduce oxalate, some of those children in time lost their autism diagnosis. Others experienced considerable improvements in symptoms and parents reported these changes in a poll whose results are still available at www.lowoxalate.info.

The Oxalate Project has remained committed for eleven years to understanding what changes on this diet and will continue to explore how other autism treatments impact oxalate issues, and might affect inflammasome activation in autism.

lwo@iadfw.net