



Could Antibiotics Be the T(oxin) of Autism?

By Joan M. Fallon, D.C., F.I.C.C.P.

Autism is becoming an increasing problem in the United States. Characterized by multiple deficits in the areas of communication, development and behavior, autistic children can be found in every community and state in this country. Estimates now hover around 4-20 per 100,000 children.^{1,2,3,4} Recent findings from the M.I.N.D. Institute at



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the University of California Davis, states, "The unprecedented increase in autism in California is real and cannot be explained away by artificial factors, such as misclassification and criteria changes, according to the results of a large statewide epidemiological study." This study was undertaken in light of a 1999 report by the California Department of Developmental Services (DDS) which uncov-

ered a 273 percent increase in autism cases between 1987 and 1998.^{4,5}

Many causes of autism have been postulated. These causes range from the environment to toxins. The most current thinking, including that of some members in Congress, is that vaccinations, more specifically the mercury based preservative in some vaccinations is causing brain damage in children resulting in autism.⁶

Other theories include that of Andrew Wakefield, a pediatric gastroenterologist who found the measles virus in the biopsied small intestines of autistic children on whom he performed endoscopies. These findings have created a stir in the medical community, and it now appears that his findings have been duplicated. Researchers are presently debating whether the biopsy findings of those such as Andrew Wakefield, who found the measles virus in the GI tracts of children are incidental or perhaps a more causative factor for autism, and PDD in general.^{7,8,9}

What is most likely is that autism has many etiologies. One can find Down's syndrome children with autism, and one can find children who were apparently "normal" but then began to regress at 18 months-2 years. Genetics cannot be ruled out either, as twin studies do show concordance. So what is most likely is that more than one cause underlies the etiology of autism.¹⁰

While participating in a study where over 200 children were screened for autism, I was able to determine that many autistic children suffer from chronic otitis media before they reach 3 years of age. Since this finding has never been reported in the literature, it is understandable why no one has ever looked at the effects of the antibiotics used to treat this condition and its possible connection to autism.

I searched through the case histories of my patients and those in the autism study. When I took out the children with known brain damage due to illness, trauma, or genetic defects, one thing stood out — the large percentage of children who had very frequent ear infections before they reached the age of three. These were my findings:

Number of ear infections below age 3

- Children without Developmental Delay 2-6
- Children with Developmental Delay 8-12

In looking for a possible tie between frequent ear infections at an early age and children with developmental delay, I have postulated a unique scenario for

the possible etiology of autism.

Clavanic acid (CA) is a beta-lactamase inhibitor used commercially as a component of a pharmaceutical formulation, generally in the form of a salt, especially potassium clavulanate. CA is produced commercially by culturing the microorganism *Streptomyces clavuligerus*. CA and its alkali metal salts and esters are active inhibitors of beta-lactamase produced by some gram positive as well as gram negative microorganisms. Additionally, CA and its alkali metal salts also have a synergistic action with penicillin and cephalosporin antibiotics. The most common commercial preparation contains potassium clavulanate in combination with amoxicillin trihydrate, sold under the name Augmentin™.^{11,12,13}

Clavanic acid and amoxicillin trihydrate have been used commercially to treat a vast number of conditions, especially otitis media, strep throat and skin infections. The every day use of this preparation began around 1989, when controlled studies began to appear in the literature for its use in treating otitis media.^{14,15,16}

According to statistics compiled by the pharmaceutical industry in 2001, Augmentin™ was the 27th most common prescription used in the United States for otitis media, ahead of other widely prescribed medications as levofloxacin, and prednisone.¹⁷

Clavanic acid and its derivatives such as potassium clavulanate are extremely moisture sensitive, and its formation must be carried out under conditions of relatively low humidity. When CA is prepared, it is done so by the process of

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