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THE BIOMEDICAL APPROACH TO TREATING AUTISM SPECTRUM DISORDERS: AN OVERVIEW

BY ANJU USMAN, MD

INTRODUCTION

A glance at current autism statistics leaves no doubt that we are in the midst of a horrific epidemic that is insidiously “stealing” the health of thousands of our children. Current estimates are that 1 out of every 110 children in America are being diagnosed with an autism spectrum disorder (ASD) (Centers for Disease Control and Prevention, 2010). This rate surpasses the incidence of both childhood cancer and Down syndrome. Remembering that it is medically impossible to have a genetic epidemic, the conclusion that the autism epidemic has environmental roots is inescapable. Potential environmental causes (a reflection of the toxic world we inhabit) include overuse of antibiotics and exposure to heavy metals, pesticides, plasticizers, and pollutants.

The use of prescription medications to treat children with ASD is common. However, the antipsychotics risperidone and now aripiprazole, the only medications specifically approved by the US Food and Drug Administration (FDA) for the treatment of autism (for the symptomatic treatment of irritability), have the potential for serious and life-threatening adverse effects. Psychotropic medications, reportedly used by more than 27% of children with ASD, also entail numerous side effects whose long-term consequences have not been established (American Academy of Pediatrics, 2010). Moreover, newer studies report that SSRIs (selective serotonin reuptake inhibitors), which are commonly prescribed for obsessive behaviors, have little effect on autistic patients with compulsive or repetitive behaviors (King et al., 2009).

THE BIOMEDICAL APPROACH

Given the rising numbers of children affected by the autism epidemic, it comes as no surprise that parents from around the world have turned to novel, unconventional, and/or off-label treatments to help their children with ASD. In a review of the literature from 1943 to the present, Ratajczak (2011) outlines evidence of hormones, metabolites, amino acids, and other biomarkers present in significantly different quantities in autistic subjects compared to age- and sex-matched controls. Ratajczak notes that these differences can be measured in the gastrointestinal, immunologic,

neurologic, and toxicologic systems of the body, with some biomarkers showing wide application. In addition, there are unifying concepts throughout the autism literature showing increased vulnerability to oxidative stress, immune glutamatergic dysfunction, and pineal gland malfunction. This evidence base, collected over the past 50 years, can be used in a judicious manner to develop safe and individualized treatment strategies for patients suffering with autism.

This approach, often referred to as the biomedical approach, has gained momentum and credibility over the past decade as more clinical evidence is gathered regarding the real medical issues faced by ASD patients and the effective medical treatments that are already available to them. Parents and loved ones of someone with autism have come to realize that an autism diagnosis need not represent a devastating life sentence nor be poorly managed by psychotropic medications. The heart of the biomedical approach lies in the principle that autism is a *medical disorder*, **not** a mental health disorder. The soul of the biomedical approach (the logical corollary to the first principle) is the conviction that autism is *treatable*.

OVERVIEW OF BIOMEDICAL TREATMENT OPTIONS

The biomedical approach to autism seeks to treat patients by analyzing their basic body functions, identifying breakdowns, and using a combination of vitamins, minerals, amino acids, nutraceuticals, hormones, enzymes, probiotics and prescription drugs to heal areas that are imbalanced (Rossignol, 2009). Biomedical clinicians can order specific laboratory tests to check for many of the metabolic and comorbid medical conditions that seem to exacerbate autistic-like behaviors.

Many biomedical treatments seem to work by decreasing oxidative stress and/or inflammation. Oxidative stress, which damages tissues and is neutralized by antioxidants such as vitamins C, A, and E, is one of the core medical issues that can be tested and addressed through biomedical treatment. Evidence has implicated oxidative stress in many so-called psychiatric disorders, including ASD (James et al., 2004). Other studies in individuals with ASD have described cerebral (Li et al., 2009) and gastrointestinal (GI) inflammation (Torrente et al., 2002). Using clinical tests to identify impaired production of glutathione (the body's main

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After receiving a diagnosis of autism, pervasive developmental disorder (PDD), or Asperger's syndrome (presuming that genetic causality has been ruled out), it is important for patients to undergo an electroencephalogram (EEG) to identify or rule out underlying seizures. About 60% or more of children with autism have subclinical seizure activity, with "subclinical" defined as abnormal electrical activity in the brain in the absence of full-blown seizures.

antioxidant and detoxifier), biomedical practitioners can recommend appropriate treatment. Eating a variety of antioxidant-rich foods and taking supplements such as glutathione and methyl B12 (which helps the body make its own glutathione) can alleviate oxidative stress and therefore inflammation (James et al., 2009).

The top ten most effective biomedical treatment strategies used over the past decade (as reported by 27,000 parents to the Autism Research Institute [2009] in San Diego) are listed below. These biomedical interventions, along with numerous others, have been shown to result in a higher rate of patient improvement and a lower side effect profile as compared to pharmaceutical agents.

- Vitamin B6
- Magnesium
- Zinc
- Methyl B12 (injections, or oral or nasal administration)
- Essential fatty acids (cod liver oil)
- Digestive enzymes
- Melatonin
- Hyperbaric oxygen therapy
- Detoxification (chelation)
- Special diets (gluten-free/casein-free, Specific Carbohydrate Diet™, allergy elimination)

Two further examples can serve to illustrate the biomedical treatment approach as it pertains to autism-related seizures and GI disorders.

SEIZURES

After receiving a diagnosis of autism, pervasive developmental disorder (PDD), or Asperger's syndrome (presuming that genetic causality has been ruled out), it is important for patients to undergo an electroencephalogram (EEG) to identify or rule out underlying seizures. About 60% or more of children with autism have subclinical seizure activity (Chez, 2006; Lewine, 1999), with "subclinical" defined as abnormal electrical activity in the brain in the absence of full-blown seizures. Subclinical seizures can often be helped with supplements such as vitamin B6, taurine, magnesium, and folic acid or with appropriate medications. Some patients may experience improvements in behavior, language, and speech when their subclinical seizure activity is treated.

GASTROINTESTINAL SYMPTOMS

In 2010, the journal *Pediatrics* published a consensus report on the "evaluation, diagnosis, and treatment of gastrointestinal disorders in individuals with ASDs" (Buie et al., 2010). This report in a mainstream medical journal finally acknowledges what parents of ASD children and biomedical clinicians have long known, namely, that patients with autism often have gut pathology that may present with behavioral issues and aggression. The specialists represented in the *Pediatrics* report make it clear that patients with autism who are experiencing gastrointestinal symptoms deserve medical attention and medical treatment for issues that may include abdominal pain, gastroesophageal reflux, diarrhea, constipation, and even mitochondrial disease. The biomedical approach—which uses dietary interventions, probiotics

(good bacteria), prebiotics (fiber that feeds good bacteria), digestive enzymes, and natural antimicrobials, antibiotics, and antifungals—is often helpful in treating these GI conditions. Pharmaceutical agents may also be needed to treat more difficult cases.

CONCLUSION

The biomedical approach to treating autism is in its infancy but has already shown great promise in bringing safe and innovative treatments to ASD patients. A growing number of children are losing their autism diagnosis completely as a result of receiving biomedical treatments. Thousands of these cases have been documented by the Autism Research Institute (ARI). These recovered children now have the potential to lead full and productive lives. We must continue to leap forward with treatments that address the disease process we call autism and embrace the promise of a new, more hopeful paradigm. A generation of children's lives depends on it.

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