

Editor's Column

Vitamin B6 (and magnesium) in the treatment of autism

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All 12 studies known to me in which vitamin B6 has been evaluated as a treatment for autistic children have provided positive results. This is a rather remarkable record, since the many drugs that have been evaluated as treatments for autism have produced very inconsistent results. If a drug shows positive results in about half of the evaluation studies, it is considered a success and the drug is then advocated for use with autistic patients. However, despite the remarkably consistent findings in the research on the use of vitamin B6 in the treatment of autism, and despite its being immeasurably safer than any of the drugs used for autistic children, there are at present very few practitioners who use it or advocate its use in the treatment of autism.

Research on the use of vitamin B6 with autistic children began in the 1960s. In 1966 two British neurologists, A. F. Heeley and G. E. Roberts, reported that 11 of 19 autistic children excreted abnormal metabolites in their urine when given a tryptophan load test. Giving these children a single 30 mg. tablet of vitamin B6 normalized their urine; however, no behavioral studies were done. A German investigator, V. E. Bonisch, reported in 1968 that 12 of 16 autistic children had shown considerable behavioral improvement when given high dosage levels (100 mg. to 600 mg. per day) of vitamin B6. Three of Bonisch's patients spoke for the first time after the vitamin B6 was administered in this open clinical trial.

After my book *Infantile Autism* was published in 1964, I began receiving hundreds of letters from parents of autistic children throughout the United States, including a number who had tried the then-new idea of "megavitamin therapy" on their autistic children. Most had begun experimenting with various vitamins on their autistic children as a result of reading books by popular nutrition writers. I initially was quite skeptical about the remarkable improvement being reported by some of these parents, but as the evidence accumulated, my interest was aroused. A questionnaire sent to the 1,000 parents then on my mailing list revealed that 57 had experimented with large doses of vitamins. Many of these had seen positive results in their children. As a result, I undertook a large-scale study, on over 200 autistic children, of megadose quantities of vitamin B6, niacinamide, pantothenic acid, and vitamin C, along with a multiple-vitamin tablet especially designed for the study. The children were living with their parents throughout the U.S. and Canada, and each was medically supervised by the family's own physician. (Over 600 parents had volunteered for the study, but most

could not overcome their physicians' skepticism.)

At the end of the four-month trial it was clear that vitamin B6 was the most important of the four vitamins we had investigated, and that in some cases it brought about remarkable improvement. Between 30% and 40% of the children showed significant improvement when the vitamin B6 was given to them. A few of the children showed minor side effects (irritability, sound sensitivity and bed-wetting), but these quickly cleared up when additional magnesium was supplied.

Two years later two colleagues and I initiated a second experimental study of the use of megavitamin therapy on autistic children, this time concentrating on vitamin B6 and magnesium. My co-investigators were Professors Enoch Callaway of the University of California Medical Center at San Francisco and Pierre Dreyfus of the University of California Medical Center at Davis. The double-blind placebo-controlled crossover experiment utilized 16 autistic children, and again produced statistically significant results. For most children dosage levels of B6 ranged between 300 mg. and 500 mg. per day. Several hundred mg./day of magnesium and a multiple-B tablet were also given, to guard against B6-induced deficiencies of these other nutrients. (In all probability, the temporary numbness and tingling resulting from B6 megadoses, reported recently by Schaumburg et al., were the result of induced deficiencies of other nutrients caused by taking B6 *alone* in enormous amounts — a foolish thing to do.)

In both studies the children showed a remarkably wide range of benefits from the vitamin B6. There was better eye contact, less self-stimulatory behavior, more interest in the world around them, fewer tantrums, more speech, and in general the children became more normal, although they were not completely cured.

People vary enormously in their need for B6. The children who showed improvement under B6 improved because they needed extra B6. Autism is thus in many cases a vitamin B6 dependency syndrome.

After completing his participation in our study, Professor Callaway visited France, where he persuaded Professor Gilbert LeLord and his colleagues to undertake additional B6/magnesium research on autistic children. The French researchers, although skeptical that anything as innocuous as a vitamin could influence a disorder as profound as autism, became believers after their first, reluctantly undertaken, experiment on 44 hospitalized children. They have since published six studies evaluating the use of vitamin B6, with and without additional magnesium, on autistic children and adults. Their studies

typically used as much as a gram a day of vitamin B6 and half a gram of magnesium.

LeLord and his colleagues measured not only the behavior of the autistic children, but also their excretion of homovanillic acid (HVA) and other metabolites in the urine. Additionally, they have done several studies in which the effects of the vitamin B6 and/or the magnesium on the brain electrical activity of the patients was analyzed. *All* of these studies have produced positive results.

LeLord et al. recently summarized their results on 91 patients: 14% improved markedly, 33% improved, 42% showed no improvement, and 11% worsened. They noted that "in all our studies, no side effects were observed..." Presumably, no physical side effects were seen.

Several recent studies by two groups of U.S. investigators, Thomas Gualtieri et al., at the University of North Carolina, and George Ellman et al., at Sonoma State Hospital in California, have also shown positive results on autistic patients.

While no patient has been cured with the vitamin B6 and magnesium treatment, there have been many instances where remarkable improvement has been achieved. In one such case an 18-year-old autistic patient was about to be evicted from the third mental hospital in his city. Even massive amounts of drugs had no effect on him, and he was considered too violent and assaultative to be kept in the hospital. The psychiatrist tried the B6/magnesium approach as a last resort. The young man calmed down very quickly. The psychiatrist reported at a meeting that she had recently visited the family and had found the young man to now be a pleasant and easy-going young autistic person who sang and played his guitar for her.

Another example: a frantic mother phoned me to ask for information on sheltered workshops in her city, since her 25-year-old autistic son was about to be expelled for unmanageable behavior. I knew of no alternate placements for the son, but I suggested that the mother try Super Nu-Thera, a supplement containing B6, magnesium and other nutrients. Within a few weeks she called again to tell me excitedly that her son was doing very well now and his piecework pay had risen dramatically from the minimum pay of \$1.50 per week to \$25 per week.

In view of the consistent findings showing the safety and efficacy of the nutrients B6 and magnesium in treating autistic individuals, and in view of the inevitability of short and/or long-term side effects of drug use, it certainly seems that this safe and rational approach should be tried before drugs are employed. (See publication list, item 39; also, see related articles on pages 2 and 4.)