# Update on the Role of Medication in Treating Patients with FASD

*by Dr. Kieran D. O' Malley*

This article deals with general questions to be asked when medication is being considered in the management of a patient with Fetal Alcohol Spectrum Disorders (FASD). FASD describes patients with partial fetal alcohol syndrome (FAS) and alcohol-related neurodevelopmental disorder (ARND). The role of medication is essentially one of facilitating other modalities of management (such as speech and language therapy, special education or family therapy), rather than just symptom control. The article also offers some specific medication guidelines for different age groups.

Medication continues to be used extensively for children, adolescents and adults with FASD. At the current time there have been only two studies that have scientifically analyzed the efficacy of medication in these patients; one by Jill Synder and colleagues in Saskatoon, Canada, and the other by Jessica Oesterheld and colleagues in South Dakota. Both studied psychostimulant usage, such as Ritalin and Dexedrine, in children with FASD who showed a clinical picture consistent with a diagnosis of Attention Deficit Disorder (ADHD). They both showed the potential positive effect of psychostimulants used by children over 6 years old.

There is increasing concern about the overuse of medication in pre-school-age children in the US, and patients with FASD are particularly vulnerable to negative side effects because of their existing brain damage. A recent study reported by pharmacist Julie Zito in the February 2000 *Journal of the American Medical Association,* highlighted the increased use of psychostimulants, antidepressants and antipsychotics in pre-school-age children. It appears that these medications are often given to these younger children because third-party insurance companies are denying reimbursement for "non-medication" therapies such as parent education/ training or occupational therapy. This therefore increases the likelihood that medication will be used for behavioral management.

## Specific Questions

The use of medication in patients with FASD must acknowledge certain questions.

*1. What is the interaction between the developing brain and medication?*

It is valuable to remember a classic old study that showed that chronic administration of the anti-convulsant phenobarbital to small children for the control of seizures caused by high fevers resulted in a lower I.Q. after two years of usage. Moreover, this lowering of I.Q and cognitive impairment was still present six months after the children discontinued use. These children, it should be remembered, had no previous recorded brain damage.

*2. What is the interaction between a damaged developing brain and medication?*

The developing brain in patients with FASD has already been damaged at a structural or neurochemical level by prenatal alcohol exposure, and so critical enzyme and neurotransmitter pathways are more vulnerable to disturbance by the introduction of a medication, especially in the first six years of life. The growth of the brain after birth can be an essential time for potential brain "re-organization;" this process becomes complicated and may be inhibited by the too-early use of medications which artificially changes the critical balance in certain neurotransmitter systems.

Children at this age may become easily over-sedated or quickly "activated," or over-stimulated, by a medication. Their management may become more complex clinically. It is at this stage that medication is often increased, or a new medication introduced to "help" the patient. And so the cycle begins.

*3. What is the influence of the home environment on the clinical presentation of a child or adolescent with FASD?*

It is of major importance to clinically assess the home environment of the young child or adolescent with FASD. Sometimes the "noise" of the child's behavioral symptoms distracts the clinician from carefully appraising the environment that the patient is growing up in. This clinical issue was discussed in detail by Charley Huffine, MD, in the June 2000 issue of *Iceberg.*

The developing brain in the first few years of life has the capacity to realign certain neural circuits. Animal and human research is beginning to show just how malleable the brain really is at this early age. Environmental treatments such as motor training or, potentially, sensory integration therapy are not medically invasive and have a capacity to increase the developing child's functional ability.

In addition, neurobiological research has shown that severe environmental stressors such as abuse may actually cause a structural as well as neurochemical disturbance in the brain. Children with a history of prenatal alcohol exposure need to be protected from later environmental influences that may negatively affect an already damaged developing brain.

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## Suggested Clinical Guidelines

*For Young Children:*

The most common way children with FASD present to psychiatrists in clinical settings continues to be a form of ADHD. Although stimulants have been used with success since the 1930's in children with behavioral problems it is fair to say that researchers still vary on their opinion as to which type of ADHD they generally work best. The two studies of psychostimulants in children with FASD showed that they appear to work best in children with ADHD, Combined Type or Hyperactive/ Impulsive type. It seems that Dexedrine (dextroamphetamine) may be a better initial psychostimulant to use before Ritalin (methylphenidate), but Adderall (a mixture of dextroamphetamine and amphetamine) is also proving to be a good alternative.

Effective medications for children with FASD who present with ADHD and co-morbid conduct disorder include:

- Tenex (guanfacine), a medication used for impulsive children that appears to be safe.
- The so-called "atypical" anti-psychotics most often used in treating severe psychotic syndromes; examples include Risperdal (risperidone) or Zyprexa (olanzepine). They are being used for children with FASD and ADHD who have severe hyperactivity and disruptive behavior problems. But, each medication has some side effects. Risperidal has been shown to cause "frontal lobe pruning" of synapses in recent animal studies. While some "pruning" is a normal developmental phenomenon, children with FASD are already suffering from loss of brain connections and a medication-enhanced pruning may cause adverse effects. Zyprexa may cause marked weight gain.
- Older anti-psychotics such as Mellaril (thioridazine) and Neuleptil (pericyazine) may be used in liquid form and appear to be generally safe.
- Buspar (buspirone) may also be effective with this group of children and is remarkably safe. It has been shown to be effective with children who show unusual sensitivity to stimuli such as noise or touch not even noticed by others.

The children with ADHD and severe disruptive behavioral problems, often called "conduct disordered," really appear to be a different clinical population than the children with FASD and ADHD alone. It is likely that as our clinical knowledge increases we will be able to describe more specific cognitive, language and neurological qualities of these children. These are the children for whom it is essential to assess the home environment as the "conduct disorder" symptoms may reflect a chaotic environment more than the acquired brain damage of prenatal alcohol exposure.

Medications effective in FASD with ADHD and co-morbid mood disorder include Wellbutrin (bupropion) and Selective Seratonin Reuptake Inhibitors (SSRI's) such as Prozac, Paxil, Luvox, Zoloft and Celexa, which appear to settle children with FASD who have a depressive or irritable mood with their ADHD symptomatology.

All of these medications can all be effective in settling ADHD symptoms when used alone.

*For Adolescents:*

Those with FASD may have acquired addictive disorders due to a chemical sensitivity brought on by prental alcohol exposure. Naltrexone (Revia), first used to control opiate drug addiction, appears to have a role in breaking the cycle of this addiction. This medication also has a role in adolescents with recurrent self-abusive behavior that may be related to an "autistic-like" quality.

Adolescents may present extreme intermittent explosive episodes, and an EEG should be done to rule out a seizure disorder. Even without proof of seizure activity, certain anti-convulsants such as Tegretol (carbamazepine) or Valproic Acid and its cousin Depakote, are useful for controlling impulsive behavior. Unfortunately, each of these medications has troublesome side effects. Valproic Acid may, in girls, cause polycystic ovaries and their associated hormone problems.

*For Adults and Adolescents:*

Some may have severe mood swings or bipolar disorder "unmasked" by an excessive dosage of an SSRI or psychostimulant. The medication may precipitate a manic episode in a patient with FASD who may be sensitive to medication because of the underlying brain damage.

Adults may present with panic attacks brought on by times of stress when already shaky cognitive systems collapse, such as when trying to add numbers too quickly at a cash register, or doing too many different tasks at a job. Medications that strengthen the inhibitory systems of the brain seem to be a good fit for many with FASD; Neurontin (gabapentin) is an example.

These general comments act as a companion to my previous article in *Iceberg*, December 1997, which mentioned specific medications that appeared to be safe to use and other medications that were generally not safe to use. The tables shown in the previous paper are still relevant. ■

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