nonfamilial causes. (Faraone SV, Biederman J, Friedman D. I Am Acad Child Adolesc Psychiatry March 2000;39:300-307).

MOVEMENT DISORDERS

TOURETTE SYNDROME, ADHD AND OTHER COMORBIDITY

Tourette syndrome (TS) and its associated conditions are reviewed from University College and the National Hospital for Neurology and Neurosurgery, London, UK. Once considered rare, the prevalence estimate for Tourette syndrome is now given as 5 per 10,000. For children in special education, the frequency of TS was 12% and tics occurred in 28%. Comparing a group of 35 children in special education classes with 35 in regular classes, one study showed the incidence of tics was 26% and 6%, respectively. The age of onset of TS ranges from 2 to 21 years, with a mean of 7 years. Motor tics usually precede phonic (or vocal) tics that have a later onset at 11 years. ADHD occurs in a large proportion of TS patients, ranging from 21 to 90% of clinic populations, and far exceeding the 2-19% estimated in the general population. In recruits of the Israeli Army during 1 year, the rate of ADHD among those with TS was 8.3% compared with 3.9% in individuals without TS. Both ADHD and TS have a lower incidence with increasing age. Some forms of obsessive compulsive symptoms and behavior may be genetically related to TS. Self inflicting behavior is another comorbid disorder, related to TS and OCD. Other associated disorders include anxiety, depression, and personality disorders. Autosomal dominant inheritance or genetic heterogeneity are suggested but not proven. Environmental factors in etiology include pre- and perinatal insults, infections, and pediatric autoimmune neuropsychiatric disorder associated with group A b-hemolytic streptococcal infections (PANDAS). In addition to streptococcus, herpes simplex type 1 and Borrelia burgdorferi of Lyme disease have also been implicated, but not universally accepted in etiology. Tic symptoms are most severe at age 10 years and usually remit by late adolescence in 30-40% of cases. Stress will exacerbate and prolong symptoms. Management includes supportive reassurance, relaxation training, and pharmacotherapy. A detailed review of medications and their side effects, with abundant references to studies are provided. (Robertson MM. Tourette syndrome, associated conditions and the compexities of treatment. Brain March 2000;123:425-462). (Respond: Professor Mary M Robertson, Department of Psychiatry and Behavioral Sciences, University College London, 2nd Floor, Wolfson Building, 48 Riding House Street, London W1N 8AA, UK).

COMMENT. The author is to be congratulated on a very complete review of the literature, supported by numerous references. In the author's clinic the most commonly prescribed medications in children with TS are clonidine in one-third, followed by sulpiride, haloperidol and fluoxetine. In the UK, most of the agents are neither recommended for children, nor licensed for use in TS. Many patients with milder symptoms require only reassurance and psycho-education.

Ziprasidone treatment of children and adolescents with Tourette's syndrome: a pilot study is reported from the Children's Hospital, Cincinnati. (Sallee FR, Kurlan R, Goetz CG et al. I Am Acad Child Adolesc Psychiatry March 2000;39:292-299). Ziprasidone was more effective than placebo in reducing global severity and total tic scores on the Yale Scale and video tic counts in 28 patients aged 7 to 17 years for a 56 day trial. An initial dose of 5 mg/day was increased to a mean daily dose of 28 mg. Mild transient somnolence was the the most common adverse effect, and only 1 child developed akathisia.