only in 3 of 12 patients treated. Median duration of KLS is 8 years (range 0.5 to 41 years). Course is longer for women, and shorter in cases with high number of episodes in first year.

ATTENTION DEFICIT DISORDERS

CARDIOVASCULAR EFFECTS OF LONGER-TERM, HIGH-DOSE OROS METHYLPHENIDATE IN ADOLESCENTS WITH ADHD

The short-term and longer-term cardiovascular safety of high daily doses of OROS methylphenidate (MPH) of up to 1.5 mg/kg in 114 adolescents with ADHD is reported from Massachusetts General Hospital, Boston, MA. Small but statistically significant increase in diastolic BP and heart rate were observed at 6 weeks, without further increases up to 6 months' follow-up. The mean total daily dose of OROS-MPH at 6 weeks was 63.1 +/- 25.0 mg; 50% of subjects were taking >72 mg daily; at month 6 these doses were 67.2 +/- 24.3 mg and >72 mg, respectively. A small but statistically significant increase in systolic BP was observed over time. No changes in ECG were observed and no serious cardiovascular adverse events occurred. (Hammerness P, Wilens T, Mick E, et al. Cardiovascular effects of longer-term, high-dose OROS methylphenidate in adolescents with attention deficit hyperactivity disorder. **J Pediatr** July 2009;155:84-89). (Reprints: Dr Paul Hammerness, Pediatric Psychopharmacology, 185 Alewife Brook Parkway, Suite 2000, Cambridge, MA 02138. E-mail: phammerness@partners.org).

COMMENT. Small but statistically significant increases in blood pressure and heart rate were observed in adolescents treated with relatively higher doses of OROS methylphenidate, without changes in the ECG. The CV effects noted in adolescents with higher doses were similar to the previously documented effects in children with lower doses of OROS-MPH. In an editorial, Dr Stephen R Daniels advises caution in patients with BP elevation or tachycardia (**J Pediatr** 2009;155:A3).

COMPARATIVE CARDIAC RISKS OF METHYLPHENIDATE AND AMPHETAMINES IN TREATMENT OF ADHD

The risk for adverse cardiac events in subjects between 3 and 20 years of age treated with methylphenidate or amphetamine salts for ADHD was determined in a retrospective study at University of Florida, Gainesville, FL. Cardiac events were defined as first ED visit for cardiac disease or symptoms. The percentage of patients observed for at least 6 months on stimulants was similar for MPH (54.5%) and amphetamines (52.6%). A total of 456 youth visited the ED for cardiac reasons during 52,783 years of follow-up. The risk for cardiac ED visits was similar among current users of MPH or amphetamines. Periods of former use had a similar risk in subjects exposed. Variables showing positive associations with ED visits with both models were use of bronchodilators, use of antidepressants, antipsychotics at age 15 and older, congenital anomalies, and history of circulatory disease or cardiac symptoms. (Winterstein AG, Gerhard T, Shuster J, Saidi A. Cardiac safety of methylphenidate versus amphetamine salts in the treatment of ADHD. **Pediatrics** July 2009;124:e75-e80). (Respond:

AG Winterstein PhD, College of Pharmacy, University of Florida, PO Box 100496, Gainesville, FL 32610. E-mail: almut@ufl.edu).

COMMENT. Spontaneous reports of adverse drug reactions to the FDA show a higher risk of cardiac events with amphetamines than methylphenidate. (**FDA News**;March 14, 2007). The above authors report a 20% increased risk for ED visits for cardiac symptoms for all stimulants combined (Winterstein AG et al. **Pediatrics** 2007;120(6):e1484). The present study did not confirm the previous report that amphetamines might carry a higher risk of adverse cardiac events than MPH. Further long-term population-based studies are indicated to define the risks of stimulant-induced serious heart events and the prophylactic utility of routine electrocardiograms before and during treatment.

DIFFUSION TENSOR IMAGING ABNORMALITIES IN THE CEREBELLUM OF CHILDREN WITH ADHD AND EPILEPSY/ADHD

Diffusion tensor imaging was used to investigate cerebellar structure in children with combined epilepsy/ADHD and ADHD alone, at the University of Basel, Switzerland. By generating fractional anisotropy (FA) maps, the extent to which water diffusion is greater in one direction compared with others, the organization of white matter in the brain is computed. Healthy controls (n=12) exhibited more FA in the left and right middle cerebellar peduncle compared with 8 boys with combined epilepsy/ADHD, and more FA in the right middle cerebellar peduncle compared with 14 boys with developmental ADHD. Deficient cerebellar connections were demonstrated in both patient groups. Inattention and other ADHD problems in both epilepsy/ADHD and ADHD patients are based on the same neurobiological mechanisms that involve the middle cerebellar peduncle. (Bechtel N, Kobel M, Penner I-K, et al. Decreased fractional anisotropy in the middle cerebellar peduncle in children with epilepsy and/or attention deficit/hyperactivity disorder: A preliminary study. **Epilepsy & Behav** July 2009;15:294-298). (Respond: Dr Nina Bechtel, Dept Cognitive Psychology and Methodology, University of Basel, Missionsstrasse, 60/62, 4055 Basel, Switzerland. E-mail: nina.bechtel@unibas.ch).

COMMENT. One in 5 children with epilepsy has comorbid ADHD (Gross-Tsur et al, 1997). A study involving 203 patients found 60% of children with epilepsy had either ADHD-Inattentive subtype or ADHD-Combined. (Sherman EMS et al, 2007). Quality of life was impaired 2-fold in children with epilepsy complicated by ADHD-I, and 4-fold with ADHD-C comorbidity, when compared to normal controls. Impairment of attention is more likely with generalized epilepsies than with focal epilepsies, in most studies.

Approximately one in 4 children with ADHD has an abnormal EEG, without clinical seizures. The significance of subclinical seizure discharges in children with ADHD is controversial. In addition to EEG abnormalities, a neurobiological basis for ADHD is also demonstrated by MRI brain volume studies, PET studies, and neurological soft signs. MRI volumetric studies have found decreased volume of the total brain, right prefrontal cortex, cerebellar vermis, corpus callosum, and basal ganglia. (Castellanos FX et al. **Arch Gen Psychiatry** 1996;53:607-616). These developmental abnormalities correlate with fronto-striatal-cerebellar circuit dysfunction, neuropsychological deficits, and response to stimulant