

HLA-Typing in Three Families With Two Generations of Concurrent Hypersomnia and Attention Deficit Disorder

M. Clark, D.D. Duane
Institute for Developmental Behavioral Neurology / Arizona State University
Scottsdale / Tempe, Arizona

Objective: To determine if HLA-typing for DR2 and/or DQw1 are co-occurrent with hypersomnia and attention deficit disorder in more than one generation.

Background: Narcolepsy is a disorder characterized by daytime hypersomnia despite adequate nighttime rest, cataplexy, hypnagogic hallucinosis and/or sleep paralysis. Nearly 100% of patients with narcolepsy demonstrate the presence of HLA-DR2 and HLA-DQw1 antigens (Aldrich, NEJM, 1990). We have reported previously that some children, adolescents and adults with DSM-III-R-confirmed attention deficit disorder (ADD) demonstrate unusual levels of daytime drowsiness by pupillometry without sleep log evidence of nighttime sleep disturbance (Duane and Berman, Sleep Res, 1992). These subjects commonly have relatives with ADD who may also have concurrent hypersomnia. Whether this condition represents childhood onset narcolepsy or a variant of essential hypersomnia is unknown, but the confirmation of either would increase the probability of a lifetime of stimulant therapy for affected children.

Design/Methods: Retrospective analysis of a data base of developmental behavioral disorders in which: more than one family member in two generations met DSM-III-R criteria for attention deficit disorder, pupillometry confirmed daytime hypersomnia and HLA-typing for DR2 and DQw1 antigens had been carried out. Assessment protocol included: family, developmental and school history; quantitative neurologic examination; intelligence and psychoeducational assessment; neuropsychological cognitive measures; pupillometry (Micromeritics, Farmington, CT) in which fluctuations and decrease in pupil size reflect fatigue and drowsiness; EEG and evoked potential studies (Bio-Logic, Mundelein, IL), routine serologic studies including thyroid and sex steroid endocrine function; Achenbach Child Behavior Checklist; Conners rating scale; Children's Depression Index, Minnesota Multiphasic Personality Inventory; sleep log if hypersomnia is suggested by pupillometry.

Results: Three families met the above criteria (a) father, son and daughter, (b) father and son, (c) father and son. In the first family, the father and daughter were both positive for the above HLA antigens, but the son was negative. The two affected father and son pairs were both positive for both HLA antigens.

Conclusions: These studies suggest that there may be an association between familial narcolepsy and attention deficit disorder; however, the frequency of such an association, and whether attention deficit disorder resides in such instances in a similar gene locus to narcolepsy is unclear. Prospective studies of multiple family members affected with ADD and narcolepsy, evaluated with HLA-typing, and conventional sleep and wakefulness investigations may clarify this question.

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