

Differential Neurologic Exam/Cognitive Characteristics of Methylphenidate Versus Pemoline Responsive Boys with ADD/LD

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Attention disorders (ADD) and learning disorders (LD) represent a heterogeneous group of developmental conditions. These two may be co-morbid. Psychostimulant medication often improves attentional deficits. Methylphenidate (MPD) and pemoline (Pem) are two psychostimulants with differing properties which may enhance attention as well as other aspects of cognition. Identifiable subgroups of ADD/LD with differential responsiveness to these two agents has not been reported in studies utilizing prior diagnostic categories and limited assessment measures.^{1,2} This study compares, from a referral population database, the neurologic examination and cognitive characteristics of 24 ADD +/- LD school-age males (mean 11.5 years, range 8-13), of average intelligence (mean FSIQ 96, range 89-112) in 12 of whom MPD or Pem each had documented cognitive benefits versus baseline assessment. Six subjects were studied at two different points in time with each drug -- no order effect detected.

Differential characteristics in MPD responders $P < .05$ included $P < VIQ$, slowed timed motor exam, choreiform movements, elevated hyperactivity scores on DSM-IV rating scales, weak Digit Span performance, impaired visual spatial memory, weak arithmetic skills, weak reading comprehension skills, daytime hypersomnia by pupillometry.

In Pem responders, $P < .05$ included $V < PIQ$, flat verbal learning curve on Rey Auditory Verbal Learning Test, right lateralized impaired visual vigilance on Letter Cancellation Task, weak reading decoding skills.

These data suggest that MPD responders may be more apt to demonstrate perceptual motor deficits whereas Pem responders are more apt to demonstrate verbal deficits. The extent to which these observations obtain in larger populations of ADD/LD students remains to be determined.

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