



ADHD

ATTENTION DEFICIT HYPERACTIVITY DISORDER


Laboratorio per la Salute
Materno Infantile


MARIO NEGRI
ISTITUTO DI RICERCHE
FARMACOLOGICHE

NEWSLETTER

Numero 8 - Agosto 2008

J Dev Behav Pediatr. 2008 Aug;29:335.

American Academy of Pediatrics/American Heart Association clarification of statement on cardiovascular evaluation and monitoring of children and adolescents with heart disease receiving medications for ADHD: May 16, 2008.

Anon.

J Clin Psychiatry. 2008;69:1150-56.

Effects of stimulant medication on neuropsychological functioning in young adults with attention-deficit/hyperactivity disorder.

Biederman J, Seidman LJ, Petty CR, et al.

Objective: The main goal of this study was to evaluate the impact of stimulant medication on executive function deficits in a group of adolescents and young adults with attention-deficit/hyperactivity disorder (ADHD; DSM-III-R criteria).

Method: Male and female subjects aged 15 to 25 years were divided into 3 groups: subjects with ADHD treated with stimulants who took their medication at the time of testing (ADHD active stimulant treatment: N = 26), subjects with ADHD who had not taken stimulant medication in the past month (ADHD no stimulant treatment: N = 94), and non-ADHD control subjects (controls: N = 133). The neuropsychological battery assessed domains of cognitive functioning known to be relevant in ADHD, including tests of executive functions and learning and memory. Data were collected from July 1998 to April 2003.

Results: The ADHD no stimulant treatment group had significantly lower aggregate scores compared with the controls for the total aggregate, working memory, interference control, processing speed, sustained attention, and verbal learning domains (all $p < .001$). The ADHD active stimulant treatment group had significantly poorer scores on the total aggregate ($p = .002$), interference control ($p < .001$), and processing speed ($p = .003$) domains compared with the controls. The ADHD active stimulant treatment subjects scored significantly higher on the domains of sustained attention ($p = .04$) and verbal learning ($p = .03$) compared with the ADHD no stimulant treatment subjects.

Conclusions: Our study showed that subjects with ADHD who took stimulant medication had higher neuropsychological measures of attention compared with subjects with ADHD who did not take stimulant medication, but differences were not found for other measures of executive function.

(copyright) 2008 PHYSICIANS POSTGRADUATE PRESS, INC.

Health Serv Outcomes Res Methodol. 2008;8:134-58.

Risk factors for discontinuing drug therapy among children with ADHD.

Bokhari FAS, Heiland F, Levine P, et al.

Compliance with drug therapy is of major concern to clinicians as well as policy makers since uncontrolled symptoms due to noncompliance present health risks for patients and may lead to social costs.

Per la ricerca degli articoli pubblicati nella letteratura scientifica nel mese in esame sono state consultate le banche dati Medline, Embase e PsycINFO utilizzando le seguenti parole chiave (o i loro sinonimi): 'Attention deficit disorder', 'Attention deficit hyperactivity disorder', 'Infant', 'Child', 'Adolescent', 'Human'. Sono qui riportate le referenze considerate rilevanti e pertinenti.

Noncompliance comes in the form of skipped dosages as well as discontinuation well before a clinician deems it appropriate. The problem is especially severe in behavioral disorders among children where the symptoms can last well beyond adolescence. We use pharmacy dispensing and clinical diagnosis data on children diagnosed with attention-deficit hyperactivity disorder (ADHD) and who are on ADHD-related medications. The paper shows how the pharmacy refill data fit naturally into a discrete time hazard rate framework, and then compares estimates from alternative definitions of discontinuation. We use a long follow-up period (up to 6 years), allow for a flexible duration dependence and account for unobserved heterogeneity. The expected duration is about 18 months with significant differences across race, gender, copays, medication switching, and seasonality. We find that African-American, Hispanic and, Asian children are about 39% more likely, on average, to quit therapy in a given month than white children. Similarly, compared to a child that initiates drug therapy at age 9, a child that starts therapy at age 10 is 26.4% more likely to discontinue at any given time. Earlier literature using the hazard approach reports smaller associations between these covariates and durations. We show that this could be because of ignored unobserved heterogeneity, use of a relatively short follow-up study design and monotonic duration dependence. Finally, our results are of particular relevance to clinicians as well as to policy makers given recent changes in federal and state policies that may make early detection and diagnosis of ADHD among children less likely.

(copyright) Springer Science+Business Media, LLC 2008.

J Abnorm Child Psychol. 2008;36:941-53.

Affective decision-making and externalizing behaviors: The role of autonomic activity.

Bubier JL, Drabick DAG.

We tested a conceptual model involving the inter-relations among affective decision-making (indexed by a gambling task), autonomic nervous system (ANS) activity, and attention-deficit/hyperactivity disorder (ADHD) and oppositional defiant disorder (ODD) symptoms in a largely impoverished, inner city sample of first through third grade children (N=63, 54% male). The present study hypothesized that impaired affective decision-making and decreased sympathetic and parasympathetic activation would be associated with higher levels of ADHD and ODD symptoms, and that low sympathetic and parasympathetic activation during an emotion-inducing task would mediate the relation between affective decision-making and child externalizing symptoms. In support of our model, disadvantageous decision-making on a gambling task was associated with ADHD hyperactivity/impulsivity symptoms among boys, and attenuated sympathetic activation during an emotion-inducing task mediated this relation. Support for the model was not found among girls.

(copyright) 2008 Springer Science+Business Media, LLC.

Brain Res. 2008;1219:159-68.

Alerting deficits in children with attention deficit/hyperactivity disorder: Event-related fMRI evidence.

Cao Q, Zang Y, Zhu C, et al.

Attention deficit/hyperactivity disorder (ADHD) is one of the most common but poorly understood developmental disorders in childhood. Although neuropsychological studies demonstrate that children with ADHD have attentional alerting deficits, the neurobiological bases of such deficits have not been examined extensively. In this study, by using functional magnetic resonance imaging (fMRI), we explored the neural correlates of intrinsic alertness and phasic alertness deficits in ADHD by comparing twelve boys with ADHD (13.4 (plus or minus) 1.7 years) with 13 age-matched normal controls (13.2 (plus or minus) 1.2 years) in a cued target detection task. Behaviorally, compared with the controls, the ADHD group showed a higher overall error rate and a larger reaction time variability in performing the task. At the neural level, children with ADHD showed less activation than the controls in frontal (middle and superior frontal gyrus), parietal (inferior parietal lobe, precuneus) and putamen regions. These results demonstrate that children with ADHD have deficits in alerting functions and these deficits are related to the abnormal activities in frontal and parietal regions subserving top-down attention control processes.

(copyright) 2008 Elsevier B.V. All rights reserved.

Reading and Writing. 2008 Aug;21:661-74.

Cognitive profiling in Chinese developmental dyslexia with attention-deficit/hyperactivity disorders.

Chan WSR, Hung SF, Liu SN, et al.

The cognitive profiles of children with Developmental Reading Disorder (RD) and Attention-Deficit/Hyperactivity Disorders (ADHD) have been extensively studied in alphabetic language communities. Deficits in phonological processing and rapid naming have been implicated as core features of RD although whether the latter is a deficit specific to RD remains controversial. Similar research aiming to explore the cognitive profiles of children with both RD and ADHD in non-alphabetic language communities is limited. The specificity of rapid naming deficit to RD among Chinese has yet to be studied. In the first study, 43 Chinese children with confirmed diagnoses of RD + ADHD were assessed on their cognitive abilities in relating to reading. In the second study, the specificity deficit hypothesis of rapid naming to RD but not ADHD was examined. A digit naming test was administered to the RD + ADHD group (43 subjects) and an ADHD only group (49 subjects). In regard to cognitive profiling, rapid naming and orthographic knowledge were found to be the most common deficits among the Chinese RD + ADHD group. This comorbid group was also found to have a significant deficit performance on the rapid naming task than the ADHD only group. The present findings support the double dissociation hypothesis in cognitive deficit between RD and ADHD. The results of both studies are discussed with reference to the findings of the Western counterparts. (PsycINFO Database Record (c) 2008 APA, all rights reserved) (from the journal abstract).

Neuroendocrinol Lett. 2008;29:320-27.

Clinical and molecular-genetic markers of ADHD in children.

Drtilkova I, Sery O, Theiner P, et al.

Objectives: The objective was to make a contribution to deepening the knowledge of the etiopathogenesis of ADHD.

Design: In an association study design, an analysis of polymorphisms of selected genes was conducted in 119 hyperkinetic boys and a control group of boys, aged 7-13. Furthermore several psychologically determined subgroups were identified. A connection between psychological functions (endophenotypes) and genes were looked for.

Results: There was a statistically significant difference found in allelic and genotype frequencies of the TaqI A polymorphism of the DRD2 gene. The frequency of the allele A1 in hyperkinetic boys and the control subjects was 0.26 and 0.15, respectively ($p < 0.003$). A statistically significant occurrence of atypical genotypes (8/10, 7/10 and 10/11) of the DAT1 gene was also found in hyperkinetic boys and a connection between the M235 polymorphism of the angiotensinogen gene and the positive family history of psychiatric illness was found in probands ($p = 0.031$). Significant correlations between the results of some neuropsychological tests and genes for neuro-/immunomodulators (IL-6, TNF-alpha) and the gene for the brain-derived neurotrophic factor (BDNF) were found.

Conclusion: The study showed a statistically significant prevalence of A1 allele of the DRD gene in the hyperkinetic group. We also found a significantly higher incidence of atypical DAT genotypes in the hyperkinetic group. Furthermore we found significant connections with particular gene polymorphisms which may hypothetically represent a neurodevelopmental risk factor in the etiopathogenesis of the disorder (IL-2, IL-6, TNF-alpha, BDNF). We further found a connection of the M235 polymorphism of the AGT (angiotensinogen) gene to positive family history of psychiatric illness ($p = 0.031$). As for cognitive characteristics, we identified three subtypes with different cognitive performance profiles. This finding shows interindividual variability of cognitive style in the group of hyperkinetic boys. (copyright) 2008 Neuroendocrinology Letters.

Child Adolesc Psychiatry Ment Health. 2008;2.

ADHD characteristics: I. Concurrent co-morbidity patterns in children & adolescents.

Elia J, Ambrosini P, Berrettini W.

Objective: 342 Caucasian subjects with attention deficit/hyperactivity disorder (ADHD) were recruited from pediatric and behavioral health clinics for a genetic study. Concurrent comorbidity was assessed to characterize the clinical profile of this cohort.

Methods: Subjects 6 to 18 years were diagnosed with the Schedule for Affective Disorders & Schizophrenia for School aged Children (K-SADS-P IVR).

Results: The most prevalent diagnoses co-occurring with ADHD were Oppositional Defiant Disorder (ODD) (40.6%), Minor Depression/Dysthymia (MDDD) (21.6%), and Generalized Anxiety Disorder (GAD) (15.2%). In Inattentive ADHD (n = 106), 20.8% had MDDD, 20.8% ODD, and 18.6% GAD; in Hyperactive ADHD (n = 31) 41.9% had ODD, 22.2% GAD, and 19.4% MDDD. In Combined ADHD, (n = 203), 50.7% had ODD, 22.7% MDDD and 12.4% GAD. MDDD and GAD were equally prevalent in the ADHD subtypes but, ODD was significantly more common among Combined and Hyperactive ADHD compared to Inattentive ADHD. The data suggested a subsample of Irritable prepubertal children exhibiting a diagnostic triad of ODD, Combined ADHD, and MDDD may account for the over diagnosing of Bipolar Disorder.

Conclusion: Almost 2/3rd of ADHD children have impairing comorbid diagnoses; Hyperactive ADHD represents less than 10% of an ADHD sample; ODD is primarily associated with Hyperactive and Combined ADHD; and, MDDD may be a significant morbidity for ADHD youths from clinical samples.
(copyright) 2008 Elia et al; licensee BioMed Central Ltd.

Child Adolesc Ment Health. 2008;13:122-29.

Five years on: Public sector service use related to mental health in young people with ADHD or hyperkinetic disorder five years after diagnosis.

Ford T, Fowler T, Langley K, et al.

Background: Little is known about ongoing service use among young people with ADHD, but this information is important to the development of services to support these young people.

Methods: A cohort of young people with ADHD or hyperkinetic disorder (n = 115) was followed up five to seven years after diagnosis. Details are presented of their use of public sector services over the 12 months preceding reassessment, compared to young people with ADHD from a large epidemiological study.

Results: Most children remained in contact with CAMHS, with high rates of contact with schools, educational professionals and the criminal justice system. Nearly all had taken medication at some point, while many still were using it. There were low reported rates of psychological and group interventions within the last twelve months, but this does not rule out earlier access to such treatments.

Conclusions: Children with ADHD utilise long-term support from public sector services, and cross agency strategies or clinics may help to optimise functioning. (copyright) 2008 Association for Child and Adolescent Mental Health.

J Child Psychol Psychiatry Allied Discip. 2008;49:848-57.

What's in a game: The effect of social motivation on interference control in boys with ADHD and autism spectrum disorders.

Geurts HM, Luman M, Van Meel CS.

Background: Children with attention deficit hyperactivity disorder (ADHD) and with autism spectrum disorders (ASD) are known to have cognitive control deficits. Some studies suggest that such deficits may be reduced when motivation is increased through tangible reinforcers. Whether these deficits can also be modulated by non-tangible reinforcers has hardly been studied.

Methods: Therefore, the effect of social motivation on the ability to suppress irrelevant information (i.e., interference control) was investigated in 22 ADHD boys, 22 ASD boys, and 33 typically developing (TD) boys. An adapted Eriksen Flanker task was administered under a motivational condition in which the boys were told that they were competing with peers, and under a neutral condition in which standard instructions were given.

Results: In comparison with TD boys, boys with ADHD were impaired even when no interference was present, while this was not the case for the ASD boys. All groups benefited from the motivation manipulation, i.e., their performance increased when they thought they were competing with peers. Although the boys with ADHD were still slower than TD boys when motivated, they performed as accurately as TD boys. Children with ASD also improved slightly in accuracy and response speed, but this did not reach significance.

Conclusion: Children with ADHD are able to exert sufficient cognitive control when they are motivated, which is in line with the current models of ADHD. However, motivation seems to have a general effect on performance and is not solely related to cognitive control abilities. In contrast, this effect was not obtained in children with ASD.

(copyright) 2008 The Authors.

J Pediatr Urol. 2008;4:306-07.

Methylphenidate-associated enuresis in attention deficit hyperactivity disorder.

Ghanizadeh A.

This is a case report of possible association of methylphenidate and enuresis in an 11-year-old boy with attention deficit hyperactivity disorder.

(copyright) 2007 Journal of Pediatric Urology Company.

J Abnorm Child Psychol. 2008;36:865-85.

Item response theory analyses of the parent and teacher ratings of the DSM-IV ADHD rating scale.

Gomez R.

The graded response model (GRM), which is based on item response theory (IRT), was used to evaluate the psychometric properties of the inattention and hyperactivity/impulsivity symptoms in an ADHD rating scale. To accomplish this, parents and teachers completed the DSM-IV ADHD Rating Scale (DARS; Gomez et al., Journal of Child Psychology and Psychiatry, 40, 265-274, 1999) for a group of 1,475 primary school-aged children. The results for the discrimination parameters showed that all symptoms for both groups of respondents were generally good for discriminating their respective latent traits. For virtually all symptoms, their threshold values showed moderate to large increases in the level of the latent trait at each subsequent response dichotomy, with the symptoms being especially good at representing the appropriate traits from mean to moderately high trait levels. The item information function values for most symptoms indicated reasonable reliability from, approximately, the mean trait levels to moderately high trait levels. These findings indicate good psychometric properties for the parent and teacher ratings of the DARS. The implications of the findings for the use of the DARS and other similar scales are discussed.

(copyright) 2008 Springer Science+Business Media, LLC.

J Abnorm Child Psychol. 2008;36:955-67.

Parent ratings of ADHD symptoms: Differential symptom functioning across Malaysian Malay and Chinese children.

Gomez R, Vance A .

This study examined differential symptom functioning (DSF) in ADHD symptoms across Malay and Chinese children in Malaysia. Malay (N=571) and Chinese (N=254) parents completed the Disruptive Behavior Rating Scale, which lists the DSM-IV ADHD symptoms. DSF was examined using the multiple indicators multiple causes (MIMIC) structural equation modeling procedure. Although DSF was found for a single inattention (IA) symptom and three hyperactivity-impulsivity (HI) symptoms, all these differences had low effect sizes. Controlling for these DSF, Chinese children had higher IA and HI latent factor scores. However the effect sizes were small. Together, these findings suggest adequate support for invariance of the ADHD symptoms across these ethno-cultural groups. The implications of the findings for cross-cultural invariance of the ADHD symptoms are discussed.

(copyright) 2008 Springer Science+Business Media, LLC.

Am J Med Genet Part B Neuropsychiatr Genet. 2008;147:600-05.

Association study for genes at chromosome 5p13-q11 in attention deficit hyperactivity disorder.

Laurin N, Lee J, Ickowicz A, et al.

Linkage of attention deficit hyperactivity disorder (ADHD) to the short arm-centromeric region of chromosome 5 has been reported in multiple studies. The overlapping region (5p13-q11) contains a number of strong candidate genes for ADHD, based on their role in brain function or neurodevelopment. The aim of this study was to investigate some of the top candidates among these genes in relation to ADHD in a sample of 245 nuclear families from the Toronto area. We investigated the genes for the glial cell-derived neurotrophic factor (GDNF), the fibroblast growth factor 10 (FGF10), islet-1 (ISL1), the hyperpolarized potassium channel (HCN1) and the integrin alpha 1 (ITGA1). In addition to these genes, we assessed the 3' region of the SLC1A3 gene, a glutamate transporter implicated in ADHD by a previous association study. A total of 36 polymorphisms were selected across the six genes. We performed family-based association and haplotype analyses. ADHD is a dimensional disorder, with symptoms of inattention and hyperactivity-impulsivity

therefore, we also conducted quantitative analysis in relation to symptom scores for both dimensions. Single marker and haplotype analyses yielded little evidence of association for any of the genes tested in this study. Moreover, we were unable to replicate the positive association findings reported for SLC1A3. Our results suggest that these six genes are unlikely to be susceptibility genes in the chromosome 5p13-q11 region and other genes should now be considered for priority study.
(copyright) 2007 Wiley-Liss, Inc.

Dev Med Child Neurol. 2008;50:608-12.

Differences in motor imagery between children with developmental coordination disorder with and without the combined type of ADHD.

Lewis M, Vance A, Maruff P, et al.

It has been proposed, and questioned, whether motor impairments in attention-deficit-hyperactivity disorder, combined type (ADHD-C) alone, developmental coordination disorder (DCD) alone, and ADHD-C and comorbid DCD (ADHD-C/DCD) may arise from disruption to a common set of cognitive functions and their related neural substrate. This study examined movement durations for real and imagined movements in a visually guided pointing task in 58 prepubertal children aged 8 to 12 years old with ADHD-C alone (n = 14), ADHD-C/DCD (n = 14), DCD alone (n = 15), and an age-, sex-, and Full-scale IQ-matched healthy comparison group (n = 15). There were 10 males and 4 or 5 females in each group. The DCD alone group demonstrated an inability to generate imagined movements that was not present in the ADHD-C group, with or without comorbid DCD, or healthy comparison participants. These findings add to the emerging literature characterizing intended and actual motor impairments associated with DCD alone.
(copyright) 2008 Mac Keith Press.

Journal of Research in Personality. 2008 Aug;42:895-913.

Trait mechanisms in youth with and without attention-deficit/hyperactivity disorder.

Martel MM, Nigg JT, Lucas RE.

Relations of temperament and personality traits within children and adolescents with ADHD and non-ADHD controls were examined. A two-process structure was hypothesized involving top-down effortful and bottom-up reactive response tendencies. Top-down processes were hypothesized to relate to inattentive ADHD symptoms, whereas bottom-up processes were hypothesized to relate to hyperactive-impulsive ADHD symptoms. Each hypothesis was tested in a sample of 179 children age 7-13 (113 boys; 107 ADHD) and then replicated in 184 adolescents age 14-17 (109 boys; 87 ADHD). All families completed a multistage diagnostic process. Youth completed laboratory measures of cognitive control, and parents completed trait ratings. Traits examined in the current study included effortful control, reactive control, resiliency, negative emotionality, neuroticism, extraversion, openness, agreeableness, and conscientiousness. Correlational relations among traits were inconclusive, but external correlations with cognitive tasks and ADHD symptoms were interpretable within the hypothesized two-process framework. Results provide partial support for a distinction between effortful and reactive traits and suggest this distinction is useful in relation to understanding ADHD.

(PsycINFO Database Record (c) 2008 APA, all rights reserved) (from the journal abstract).

Brain Dev. 2008;30:454-60.

Use of clonidine in children with autism spectrum disorders.

Ming X, Gordon E, Kang N, et al.

Children with autism spectrum disorders (ASD) often exhibit sleep and behavioral disorders. Treatment of sleep disorders can be difficult in these children. Clonidine, an (alpha)2-adrenergic receptor agonist, has been shown to be effective in reducing impulsivity, inattention, and hyperactivity, as well as in serving as a sedative for medical procedures. An open labeled retrospective study of clonidine in treatment of insomnia, and/or hyperactivity, inattention, mood disorder, and aggressive behaviors was conducted using parent reports of sleep initiation and maintenance, as well as behaviors prior and during clonidine treatment. Clonidine was effective in reducing sleep initiation latency and night awakening, to a less degree in improving attention deficits hyperactivity, mood instability and aggressiveness in this cohort of 19 children

with ASD. The side effects were largely tolerable. Further evaluation with placebo-controlled double-blind clinical trial of clonidine use in ASD will provide more insight into the clinical efficacy and safety of the medicine in ASD.

(copyright) 2007 Elsevier B.V. All rights reserved.

J Pediatr Neurol. 2008;6:209-19.

A monozygotic twin design to investigate etiological factors for DCD and ADHD.

Pearsall-Jones JG, Piek JP, Martin NC, et al.

The high level of comorbidity between Developmental Coordination Disorder (DCD) and Attention Deficit Hyperactivity Disorder (ADHD) suggests that these disorders may have a shared etiology. We used a co-twin control design to study monozygotic (MZ) twins concordant and discordant for DCD and ADHD. In a total of 922 sets of MZ twins, 866 sets were eligible. We found equal numbers of DCD concordant and discordant sets; more ADHD concordant than discordant sets; nine sets in which both twins met criteria for DCD+ADHD; 773 sets of twins did not meet criteria for either DCD or ADHD. The only significant sex difference between groups was for ADHD discordant sets, with more males than females. For DCD groups there were no significant sex differences, with slightly more girls than boys affected in both groups. There was a greater number of oxygen perfusion complications in DCD affected than unaffected twins, suggesting that, given equal numbers of DCD concordant and discordant sets and a similar number of DCD girls and boys, the role of pre- and perinatal environmental factors is stronger in the etiology of DCD than in ADHD. Factors such as placental difficulties and hypoxia have also been related to cerebral palsy, which suggests that DCD may fall on the upper end of a continuum of movement disorder that includes cerebral palsy. The results suggest different etiological pathways for DCD and ADHD. Second born twins were at greater risk for oxygen perfusion difficulties in sets concordant for DCD, ADHD, and unaffected for either.

(copyright) 2008 IOS Press. All rights reserved.

Pediatrics. 2008 Aug;122:451-53.

Cardiovascular monitoring and stimulant drugs for attention-deficit/hyperactivity disorder.

Perrin JM, Friedman RA, Knilans TK.

Res Dev Disabil. 2008;29:398-407.

The behavior flexibility rating scale-revised (BFRS-R): Factor analysis, internal consistency, inter-rater and intra-rater reliability, and convergent validity.

Peters-Scheffer N, Didden R, Green VA, et al.

We examined the psychometric properties of the behavior flexibility rating scale-revised (BFRS-R), a new scale intended for assessing behavioral flexibility in individuals with developmental disabilities. Seventy-six direct care staff members and 56 parents completed the BFRS-R for 70 children with developmental disabilities. Factor analysis revealed three factors (i.e., Flexibility towards objects, Flexibility towards the environment, and Flexibility towards persons) and results of several analyses indicated an excellent internal consistency and good intra-rater and inter-rater reliability of the total scale. These data suggest that the BFRS-R may provide a reliable rating of behavioral flexibility when used by direct-care staff and parents of children with developmental disabilities.

(copyright) 2007 Elsevier Ltd. All rights reserved.

J Abnorm Child Psychol. 2008;36:825-37.

Working memory deficits in boys with attention-deficit/hyperactivity disorder (ADHD): The contribution of central executive and subsystem processes.

Rappaport MD, Alderson RM, Kofler MJ, et al.

The current study investigated contradictory findings from recent experimental and meta-analytic studies concerning working memory deficits in ADHD. Working memory refers to the cognitive ability to temporarily

store and mentally manipulate limited amounts of information for use in guiding behavior. Phonological (verbal) and visuospatial (nonverbal) working memory were assessed across four memory load conditions in 23 boys (12 ADHD, 11 typically developing) using tasks based on Baddeley's (Working memory, thought, and action, Oxford University Press, New York, 2007) working memory model. The model posits separate phonological and visuospatial storage and rehearsal components that are controlled by a single attentional controller (CE: central executive). A latent variable approach was used to partial task performance related to three variables of interest: phonological buffer/rehearsal loop, visuospatial buffer/rehearsal loop, and the CE attentional controller. ADHD-related working memory deficits were apparent across all three cognitive systems-with the largest magnitude of deficits apparent in the CE-even after controlling for reading speed, nonverbal visual encoding, age, IQ, and SES.
(copyright) 2008 Springer Science+Business Media, LLC.

Am J Psychiatry. 2008;165:889-97.

Dissociated functional brain abnormalities of inhibition in boys with pure conduct disorder and in boys with pure attention deficit hyperactivity disorder.

Rubia K, Halari R, Smith AB, et al.

Objective: Inhibitory dysfunction may be a transdiagnostic etiopathophysiology of disruptive behavior disorders. Functional magnetic resonance imaging (fMRI) of inhibitory control has only been investigated in patients with attention deficit hyperactivity disorder (ADHD), including comorbidity with conduct disorder, showing frontal-striatal dysfunction. This study investigates differences and commonalities in functional neural networks mediating inhibitory control between medication-naive adolescents with pure conduct disorder and those with pure ADHD to identify biological markers that distinguish these clinically overlapping disorders.

Method: Event-related fMRI was used to compare brain activation of 13 boys with noncomorbid conduct disorder, 20 with noncomorbid ADHD, and 20 normal boys during an individually adjusted tracking stop task that measures the neural substrates of inhibition and stopping failure.

Results: During successful inhibition, only patients with ADHD showed reduced activation in the left dorsolateral prefrontal cortex in relation to comparison subjects and patients with conduct disorder. During inhibition failures compared to go responses, both patient groups shared underactivation in the posterior cingulate gyrus in relation to comparison subjects. Patients with conduct disorder showed reduced activation in bilateral temporal-parietal regions compared to the other groups, which did not differ in this measure.

Conclusions: Patients with pure ADHD or pure conduct disorder show qualitative differences in their brain abnormality patterns during inhibitory control. Inhibition-mediating prefrontal regions appear to be specifically reduced in ADHD, whereas posterior temporal-parietal, performance monitoring networks are specifically dysfunctional in conduct disorder. The findings provide pioneering evidence that distinct neurobiological abnormalities may be underlying the overlapping behavioral phenotype of the two disruptive disorders.

Am J Emerg Med. 2008;26:661-64.

Procedural sedation for fracture reduction in children with hyperactivity.

Schmerler BL, Cohen DM, Leder MS, et al.

Objective: Children with attention-deficit/hyperactivity disorder (ADHD) have a higher rate of more severe injuries than the general population. However, their ADHD may cause them to respond differently to procedural sedation required for treatment. The purpose of this article is to compare procedural sedation for children with and without ADHD.

Methods: Retrospectively, 44 patients with ADHD and 41 controls sedated with fentanyl and midazolam for forearm-fracture reduction in the emergency department (ED) at a children's hospital were identified. Drug dosages, vital signs, and sedation scores were compared.

Results: Drug dosages, vital signs, and sedation scores did not significantly differ between cases and controls. Mean ED visit duration was significantly longer for patients with ADHD than for controls as was sedation duration.

Conclusions: Children with and without ADHD were equally sedated with the same total drug dosages. The differences in sedation duration and visit duration warrant further investigation.

(copyright) 2008 Elsevier Inc. All rights reserved.

J Abnorm Child Psychol. 2008;36:903-13.

The effects of incentives on visual-spatial working memory in children with attention-deficit/hyperactivity disorder.

Shiels K, Hawk J, Lysczek CL, et al.

Working memory is one of several putative core neurocognitive processes in attention-deficit/hyperactivity disorder (ADHD). The present work seeks to determine whether visual-spatial working memory is sensitive to motivational incentives, a laboratory analogue of behavioral treatment. Participants were 21 children (ages 7-10) with a diagnosis of ADHD-combined type. Participants completed a computerized spatial span task designed to assess storage of visual-spatial information (forward span) and manipulation of the stored information (backward span). The spatial span task was completed twice on the same day, once with a performance-based incentive (trial-wise feedback and points redeemable for prizes) and once without incentives. Participants performed significantly better on the backward span when rewarded for correct responses, compared to the no incentive condition. However, incentives had no effect on performance during the forward span. These findings may suggest the use of motivational incentives improved manipulation, but not storage, of visual-spatial information among children with ADHD. Possible explanations for the differential incentive effects are discussed, including the possibility that incentives prevented a vigilance decrement as task difficulty and time on task increased.

(copyright) 2008 Springer Science+Business Media, LLC.

Prostaglandins Leukotrienes Essent Fatty Acids. 2008;78:311-26.

Cognitive effects of polyunsaturated fatty acids in children with attention deficit hyperactivity disorder symptoms: A randomised controlled trial.

Sinn N, Bryan J, Wilson C.

This study investigated effects of PUFA and micronutrient supplementation on cognition in children with ADHD symptoms. In a randomised controlled trial, 7-12-year-old children with symptoms (greater-than or equal to) 2 S.D. on Conners' ADHD Index were given PUFA, PUFA+multivitamins/minerals (MVM), or placebo for 15 weeks, and then all children were given PUFA+MVM for an additional 15 weeks. After 15 weeks there were improvements in a test of the ability to switch and control attention (Creature Counting) in the PUFA groups compared to placebo (N=129, p=0.002). This improvement was also observed in the placebo group after taking PUFA from weeks 16 to 30 (N=104). There were no significant improvements in other cognitive measures, or with additional micronutrient supplementation. However, improvements in cognitive performance mediated previous parent-reported improvements in inattention, hyperactivity and impulsivity [N. Sinn, J. Bryan, Effect of supplementation with polyunsaturated fatty acids and micronutrients on ADHD-related problems with attention and behaviour, J. Dev. Behav. Pediatr. 28 (2) (2007) 82-91], suggestive of a common neurological mechanism for these symptoms.

(copyright) 2008 Elsevier Ltd. All rights reserved.

Child Care Health Dev. 2008;34:596-602.

Inattentive/overactive children with histories of profound institutional deprivation compared with standard ADHD cases: A brief report.

Sonuga-Barke EJS, Rubia K.

Background: The Inattention/Overactivity/Impulsiveness (I/OA) behavioural cluster diagnostic of ADHD is recognized as a characteristic outcome of early institutional care.

Methods: We compared the symptom and neuropsychological profiles of children with a history of I/OA and early severe deprivation (D-I/OA: n = 13) with standard clinical ADHD cases (S-ADHD; N = 20) and children who had experienced deprivation but were not pervasively I/OA (ERA-controls; n = 22). The mean age of testing was around 13 years. D-I/OA and ERA-controls were selected from the English and Romanian Adoptees (ERA) study and had spent their early lives in the extremely depriving Romanian institutions of the Ceausescu regime and were later adopted into UK families.

Results: ADHD symptoms for male D-I/OA and S-ADHD cases showed marked similarities across symptom domains. In contrast, girls with D-I/OA were more similar to ERA controls than to ADHD cases. Longitudinal data suggested that this was due to a remission of symptoms in D-I/OA girls. Neuropsychological profiles of males and females with D-I/OA, however, were similar: both were more impaired than S-ADHD and ERA controls.

Discussion: Children with D-I/OA were more neuropsychologically impaired than S-ADHD despite the fact that only boys showed a persistent pattern of ADHD symptoms. These results need replication in a larger sample with groups matched for gender. (copyright) 2008 The Authors Journal compilation (copyright) 2008 Blackwell Publishing Ltd.

Ann Pharmacother. 2008;42:1142-43.

Poison centers detect an unexpectedly frequent number of adverse drug reactions to lisdexamfetamine.

Spiller HA, Griffith JRK, Anderson DL, et al.

Child Care Health Dev. 2008;34:584-95.

Behaviour problems and social competence deficits associated with symptoms of attention-deficit/hyperactivity disorder: Effects of age and gender.

Thorell LB, Rydell AM.

Background: Previous research has shown that children with high levels of attention-deficit/hyperactivity disorder (ADHD) symptoms often have a wide variety of associated behaviour problems. However, relatively little is known regarding to what extent these associated behaviour problems are present to the same degree in younger as well as older children and in girls as well as in boys.

Methods: This study used parent ratings to examine effects of age and gender on behaviour problems, social competence, negative impact on everyday life, and family burden among pre-school and school-aged children high in ADHD symptoms (n = 60) and comparison children (n = 499).

Results: With regard to age, the pre-school children did not differ from the school-aged children on any of the different types of problem behaviour or with regard to social competence. The interactions between age and group were not significant. The behaviour problems of older children did, however, have more negative impact on the child's daily life and induced higher levels of family burden compared with problems of younger children, especially among children with high levels of ADHD symptoms. Boys were more severely affected than girls with regard to ADHD symptom severity, most associated problem behaviours, as well as negative impact and family burden. Significant interactions of ADHD symptoms and gender were also found, which indicated that gender differences were primarily found among children with high levels of ADHD symptoms.

Conclusions: Children with high levels of ADHD symptoms have many associated behaviour problems, even in pre-school years, and boys with high levels of ADHD symptoms are more severely affected compared with girls.

(copyright) 2008 The Authors Journal compilation (copyright) 2008 Blackwell Publishing Ltd.

Pediatrics. 2008 Aug;122:368-74.

Does connection to primary care matter for children with attention-deficit/hyperactivity disorder?

Toomey SL, Finkelstein J, Kuhlthau K.

OBJECTIVE: Whether high-quality primary care in the form of a medical home effectively meets the health care needs of children with attention-deficit/hyperactivity disorder is unknown. The objectives of this study were to (1) describe the percentage who report unmet health care need, (2) evaluate whether having a medical home is associated with lower risk for having unmet needs, and (3) compare the impact of having a medical home on unmet need for children with attention-deficit/hyperactivity disorder with those with asthma.

METHODS: Cross-sectional analysis was conducted of the National Survey of Children's Health, 2003, a nationally representative sample. The primary outcome variable was parent-reported unmet health care need. Multivariate logistic regression tested the impact of having a medical home on unmet needs for children with attention-deficit/hyperactivity disorder and asthma.

RESULTS: The National Survey of Children's Health interviewed parents of 6030 children who had attention-deficit/hyperactivity disorder and 6133 children who had asthma and were between the ages of 6 and 17 years. A total of 16.8% of children with attention-deficit/hyperactivity disorder had at least 1 unmet need compared with 6.7% of children with asthma. Although the proportion of children with a medical home was comparable, children with attention-deficit/hyperactivity disorder were 3.5 times more likely to have an unmet need than were children with asthma. Children with asthma who have a medical home have less than half

the likelihood of reporting an unmet need in comparison with those without a medical home; however, among children with attention-deficit/hyperactivity disorder, having a medical home was not associated with decreased likelihood of reporting an unmet need.

CONCLUSIONS: Having a medical home is not associated with fewer unmet needs for children with attention-deficit/hyperactivity disorder. Our results suggest that high-quality primary care may not be as successful at meeting the needs of children with behavioral health conditions compared with those with physical conditions.

J Psychopathol Behav Assess. 2008;30:180-92.

Parent and teacher ratings on the IOWA Conners Rating Scale.

Waschbusch DA, Willoughby MT.

The IOWA Conners Rating Scale is a widely used brief measure of inattentive-impulsive-overactive (IO) and oppositional-defiant (OD) behavior in children. This study examined the psychometric properties of this measure when completed by mothers and teachers. Results of confirmatory factor analyses indicated that a three-factor solution, conforming to current DSM-IV formulations of the disruptive behavior disorders, provided a better fit to the observed data than the currently used two-factor model, in which no distinction is made between inattentive and hyperactive-impulsive behaviors. Both new and currently used scale scores had good internal consistency and test-retest reliability and showed that boys' scores were significantly higher than girls' scores. Results held for both mother and teacher ratings. Clinical cutoff scores were proposed and performed reasonably well to screen for ADHD and ODD. Results support the IOWA Conners as a screening measure for the disruptive behavior disorders or as a tool for monitoring treatment response. (copyright) 2007 Springer Science+Business Media, LLC.

U S Pharm. 2008;33:66-71.

Recent treatment options for ADHD.

Williams S.

Hum Psychopharmacol. 2008;23:438.

5-HT functioning and aggression in children with ADHD and disruptive behaviour disorders.

Zepf FD, Poustka F.

Per ricevere la newsletter iscriversi al seguente indirizzo:

<http://crc.marionegri.it/bonati/adhdnews/subscribe.html>

Iniziativa nell'ambito del Progetto di ricerca indipendente AIFA

"Sicurezza a lungo termine dei farmaci utilizzati nel trattamento di bambini in età scolare con sindrome da deficit di attenzione e iperattività ed epidemiologia della malattia nella popolazione italiana".

ISTITUTO DI RICERCHE FARMACOLOGICHE MARIO NEGRI

Dipartimento di Salute Pubblica

Laboratorio per la Salute Materno Infantile

Via Giuseppe La Masa, 19 - 20156 Milano MI - Italia - www.marionegri.it

tel +39 02 39014.511 - fax +39 02 3550924 - mother_child@marionegri.it