NEWSLETTER

Attention Deficit Hyperactivity Disorder

INDICE:

N. 43 anno IV - maggio 2011

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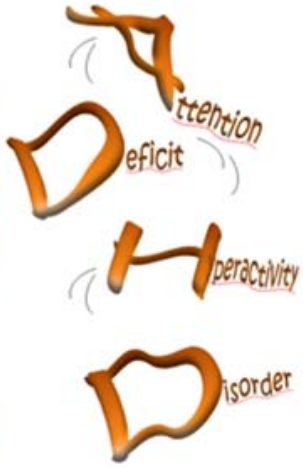
1961 - 2011



Dal 1° giugno u.s. è attivo il Registro ADHD della Regione Lombardia.

I dati dei nuovi casi che affluiranno ai Centri di Riferimento Regionali, indipendentemente dal tipo di trattamento che riceveranno, verranno raccolti nel nuovo Registro. Questa iniziativa, supportata da uno scientifico progetto regionale, va a sostituire in prospettiva il registro Nazionale, ampliando la raccolta di informazioni al fine di monitorare l'intero percorso diagnostico-terapeutico dell'ADHD in regione Lombardia.

I risultati di questo Progetto potranno essere utili anche per le altre Regioni che vorranno attivarsi con proprie iniziative, o in collaborazione con altre Regioni, nell'ambito delle cure dei disturbi neuropsichiatrici dell'età evolutiva.

Il follow-up dei pazienti già registrati nel registro Nazionale continuerà in quest'ultimo.

BIBIOGRAFIA ADHD MAGGIO 2011

Acta Neuropsychol. 2009;7:182-92.

CHILDHOOD EEG COHERENCE AS A PREDICTOR OF ADULT ATTENTION-DEFICIT/HYPERACTIVITY DISORDER.

Clarke AR, Barry RJ, Dupuy FE, et al.

Attention-Deficit/Hyperactivity Disorder (AD/HD) is a common psychiatric disorder of childhood that continues to affect many people as adults. At present it is not possible to determine in childhood who will have the disorder as an adult. The aim of this study was to determine whether EEG coherence differences exist between children who outgrow the disorder and those who continue to be symptomatic as adults. Pre-treatment EEGs were recorded during an eyes-closed resting condition from 38 boys diagnosed with AD/HD and 38 age-matched control subjects. Coherence was calculated for 8 intrahemispheric electrode pairs (4 in each hemisphere), and 8 in -terhemispheric electrode pairs, within each of the delta, theta, alpha and beta bands. A second assessment was performed on the AD/HD subjects 11 years after the initial assessment to determine whether subjects met criteria for adult AD/HD. Across the entire AD/HD sample, increased frontal delta and theta coherences were found compared with controls. Both inter hemispheric and intrahemispheric coherence differences were found in the delta and theta bands between those who outgrew the disorder and these who continued to have AD/HD as adults. Increased frontal delta and theta coherences appear to be the most reliable coherence markers of childhood AD/HD. Children who later outgrow the disorder have coherence anomalies different from those who continue to have AD/HD as adults. These results suggest that coherence measures might serve as a mar ker that can be used clinically in childhood to predict adult AD/HD

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Per la ricerca degli articoli pubblicati nella letteratura scientifica nel mese in esame sono state consultate le banche dati Medline, Embase, PsycINFO e PsycArticle 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.

Alcohol Clin Exp Res. 2011;35:1114-21.

COMPARISON OF VERBAL LEARNING AND MEMORY IN CHILDREN WITH HEAVY PRENATAL ALCOHOL EXPOSURE OR ATTENTION-DEFICIT/HYPERACTIVITY DISORDER.

Crocker N, Vaurio L, Riley EP, et al.

Background: Children with fetal alcohol spectrum disorders (FASD) have deficits in verbal learning and recall. However, the specificity of these deficits has not been adequately tested. In the current study, verbal learning and memory performance of children with heavy prenatal alcohol exposure was compared to children with attention-deficit/hyperactivity disorder (ADHD), a disorder commonly seen in alcohol-exposed children.

Methods: Performance on the California Verbal Learning Test-Children's Version (CVLT-C) was examined in 3 groups of children (N=22/group): (i) heavy prenatal alcohol exposure and ADHD (ALC), (ii) nonexposed with ADHD (ADHD), and (iii) nonexposed typically developing (CON). Groups were matched on age, sex, race, ethnicity, handedness, and socioeconomic status (SES).

Results: Group differences were noted on learning trials (CON>ADHD>ALC). On the delayed recall trial, CON children performed better than both clinical groups, who did not differ from each other. Children in the ALC group demonstrated poorer recognition than children in the CON and ADHD groups, who did not differ from each other. Marginally significant group differences were noted on retention of previously learned material. Post hoc analyses indicated that ADHD children showed worse retention relative to the CON group, whereas retention in the ALC children remained intact.

Conclusions: These data suggest that children with heavy prenatal alcohol exposure and nonexposed children with ADHD show differential patterns of deficit on the CVLT-C. Performance of alcohol-exposed children reflects inefficient encoding of verbal material, whereas performance of the ADHD group may be better characterized by a deficit in retrieval of learned material. Differences noted between clinical groups add to a growing neurobehavioral profile of FASD that may aid in differential diagnosis.

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Behav Ther. 2011;42:170-82.

CHANGES IN SELF-PERCEPTIONS IN CHILDREN WITH ADHD: A LONGITUDINAL STUDY OF DEPRESSIVE SYMPTOMS AND ATTRIBUTIONAL STYLE.

McQuade JD, Hoza B, Murray-Close D, et al.

This study examined positive self-perceptions in relation to depressive symptoms and attributional style in a sample of 88 boys with attention-deficit/hyperactivity disorder (ADHD) assessed at baseline and at a 2- to 3-year follow-up. Change in boys' self-perceptions of competency in the scholastic, social, and behavioral domains was examined as a predictor of changes in depressive symptoms and depressive attributional style. Additionally, teacher-rated perceptions of competency at baseline and follow-up were considered as unique predictors. Results indicated that across all three domains, a reduction in children's self-perceptions of competency over time predicted greater depressive symptoms at follow-up, even when controlling for teacher-rated competency. Analyses also suggested that a reduction in self-perceptions in the social domain was the strongest relative predictor of later depressive symptoms and also predicted greater depressive attributional style at follow-up. In contrast, teacher-rated competency was not a significant predictor of depressive symptoms or attributional style at follow-up. Results support a protective function of positive self-perceptions in regards to depressive cognitions over a 2- to 3-year period for children with ADHD. However, literature suggesting risks for other negative outcomes also is discussed.

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Biol Psychiatry. 2011;69:839-46.

DEVELOPMENTAL TRAJECTORIES OF THE CORPUS CALLOSUM IN ATTENTION-DEFICIT/ HYPERACTIVITY DISORDER.

Gilliam M, Stockman M, Malek M, et al.

Background: It was recently found that the development of typical patterns of prefrontal, but not posterior, cortical asymmetry is disrupted in right-handed youth with attention-deficit/hyperactivity disorder (ADHD). Using longitudinal data, we tested the hypothesis that there would be a congruent disruption in the growth of the anterior corpus callosum, which contains white matter tracts connecting prefrontal cortical regions.

Methods: Areas of five subregions of the corpus callosum were quantified using a semiautomated method from 828 neuroanatomic magnetic resonance scans acquired from 236 children and adolescents with ADHD (429 scans) and 230 typically developing youth (399 scans), most of whom had repeated neuroimaging. Growth rates of each diagnostic group were defined using mixed-model linear regression.

Results: Right-handed participants with ADHD showed a significantly higher rate of growth in the anterior-most region of the corpus callosum (estimated annual increase in area of .97%, SEM .12%) than their typically developing peers (annual increase in area of .32% SEM .13%; t = 3.64, p = .0003). No significant diagnostic differences in growth rates were found in any other regions in right-handed participants, and no significant diagnostic differences were found in non-right-handed participants.

Conclusions: As hypothesized, we found anomalous growth trajectories in the anterior corpus callosum in ADHD. This disrupted anterior callosal growth may reflect, or even drive, the previously reported disruption in the development of prefrontal cortex asymmetry. The finding documents the dynamic, age-dependent nature of callosal and congruent prefrontal cortical abnormalities characterizing ADHD.

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Birth Defects Res Part A Clin Mol Teratol. 2011;91:315.

THE ROLE OF ENVIRONMENTAL CONTAMINANTS IN ADHD.

Yoltqn K.

Attention deficit hyperactivity disorder (ADHD) is the most commonly diagnosed behavior disorder of childhood. It is characterized by inattention, poor concentration, disorganization, hyperactivity, and impulsivity and accounts for 30-40% of all referrals to child guidance clinics. Approximately 9% of US children meet criteria for a diagnosis of ADHD with even more experiencing associated behavior problems that may pose an enormous challenge to families, teachers, and health professionals. Childhood externalizing symptoms such as aggression, hyperactivity, and conduct problems, as well as deficits in attention and impulse control, appear to be on the rise with no clear cause. Several environmental contaminants have been linked with a greater likelihood of developing behavior problems and ADHD. This session will review current evidence linking exposures to environmental toxicants to the development of ADHD-related behavior problems. We will discuss established environmental toxicants such as childhood exposure to lead and tobacco smoke, as well as emerging toxicants such as prenatal exposure to organophosphate pesticides and bisphenol A (BPA). Postnatal lead exposure is clearly associated with behavior problems and ADHD based on several cohort and longitudinal studies, and there are compelling links with even longer-term effects such as juvenile delinquency and adult criminality. Childhood tobacco exposure (SHS or ETS) has been associated with an increased incidence of externalizing behavior problems, especially in boys. However, few studies adequately assess both prenatal and postnatal exposure, and researchers struggle to delineate the specific contributions to child behavior from these two periods of exposure. Newer emerging environmental toxicants are also being implicated in the increase in ADHD-like behaviors, but evidence is currently limited. Prenatal organophosphate pesticide exposure has been associated with increased risk for general behavior problems as well as meeting diagnostic criteria for ADHD. Research on the effects of human prenatal BPA exposure is in its infancy but early studies suggest a possible connection between this estrogenic toxicant and child behavior changes that are sexually dimorphic. The state of the evidence with respect to each of these toxicants is vastly different. Gaps and recommended research directions will also be briefly addressed.

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Birth Defects Res Part A Clin Mol Teratol. 2011;91:314.

PRENATAL CIGARETTE SMOKE EXPOSURE AND EFFECTS ON OFFSPRING ATTENTION, ACTIVITY, AND ADHD: AN UPDATE.

Cornelius MD, Willford JA.

A review of the scientific literature will be presented that includes findings on the relation between prenatal cigarette smoke exposure (PCSE) and effects on exposed offspring attention, activity levels and ADHD disorder. Studies will be drawn from human and animal literature databases and will be compared for consistency and inconsistency with discussion about methodological issues that may affect the results. In addition, recent findings from our Pittsburgh longitudinal study on prenatal cigarette smoke exposure among offspring of teenage mothers will be presented. In this study, adolescent mothers (mean age 16 years, range 12-18 yrs) were interviewed about their tobacco use during pregnancy. Offspring (n = 318) were followed and assessed over multiple time points. PCSE effects were found on several behavioral outcomes including attention and activity measures at ages 6, 10, and 14 years.

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BMC Psychiatry. 2011;11.

THE IMPACT OF STUDY DESIGN AND DIAGNOSTIC APPROACH IN A LARGE MULTI-CENTRE ADHD STUDY: PART 2: DIMENSIONAL MEASURES OF PSYCHOPATHOLOGY AND INTELLIGENCE.

Muller UC, Asherson P, Banaschewski T, et al.

Background: The International Multi-centre ADHD Genetics (IMAGE) project with 11 participating centres from 7 European countries and Israel has collected a large behavioural and genetic database for present and future research. Behavioural data were collected from 1068 probands with ADHD and 1446 unselected siblings. The aim was to describe and analyse questionnaire data and IQ measures from all probands and siblings. In particular, to investigate the influence of age, gender, family status (proband vs. sibling), informant, and centres on sample homogeneity in psychopathological measures.

Methods: Conners' Questionnaires, Strengths and Difficulties Questionnaires, and Wechsler Intelligence Scores were used to describe the phenotype of the sample. Data were analysed by use of robust statistical multi-way procedures.

Results: Besides main effects of age, gender, informant, and centre, there were considerable interaction effects on questionnaire data. The larger differences between probands and siblings at home than at school may reflect contrast effects in the parents. Furthermore, there were marked gender by status effects on the ADHD symptom ratings with girls scoring one standard deviation higher than boys in the proband sample but lower than boys in the siblings sample. The multi-centre design is another important source of heterogeneity, particularly in the interaction with the family status. To a large extent the centres differed from each other with regard to differences between proband and sibling scores.

Conclusions: When ADHD probands are diagnosed by use of fixed symptom counts, the severity of the disorder in the proband sample may markedly differ between boys and girls and across age, particularly in samples with a large age range. A multi-centre design carries the risk of considerable phenotypic differences between centres and, consequently, of additional heterogeneity of the sample even if standardized diagnostic procedures are used. These possible sources of variance should be counteracted in genetic analyses either by using age and gender adjusted diagnostic procedures and regional normative data or by adjusting for design artefacts by use of covariate statistics, by eliminating outliers, or by other methods suitable for reducing heterogeneity.

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BMC Psychiatry. 2011;11.

THE IMPACT OF STUDY DESIGN AND DIAGNOSTIC APPROACH IN A LARGE MULTI-CENTRE ADHD STUDY. PART 1: ADHD SYMPTOM PATTERNS.

Muller UC, Asherson P, Banaschewski T, et al.

Background: The International Multi-centre ADHD Genetics (IMAGE) project with 11 participating centres from 7 European countries and Israel has collected a large behavioural and genetic database for present and future research. Behavioural data were collected from 1068 probands with the combined type of attention deficit/hyperactivity disorder (ADHD-CT) and 1446 'unselected' siblings. The aim was to analyse the IMAGE sample with respect to demographic features (gender, age, family status, and recruiting centres) and psychopathological characteristics (diagnostic subtype, symptom frequencies, age at symptom detection, and comorbidities). A particular focus was on the effects of the study design and the diagnostic procedure on the homogeneity of the sample in terms of symptom-based behavioural data, and potential consequences for further analyses based on these data.

Methods: Diagnosis was based on the Parental Account of Childhood Symptoms (PACS) interview and the DSM-IV items of the Conners' teacher questionnaire. Demographics of the full sample and the homogeneity of a subsample (all probands) were analysed by using robust statistical procedures which were adjusted for unequal sample sizes and skewed distributions. These procedures included multi-way analyses based on trimmed means and winsorised variances as well as bootstrapping.

Results: Age and proband/sibling ratios differed between participating centres. There was no significant difference in the distribution of gender between centres. There was a significant interaction between age and centre for number of inattentive, but not number of hyperactive symptoms. Higher ADHD symptom frequencies were reported by parents than teachers. The diagnostic symptoms differed from each other in their frequencies. The face-to-face interview was more sensitive than the questionnaire. The differentiation between ADHD-CT probands and unaffected siblings was mainly due to differences in hyperactive/impulsive symptoms.

Conclusions: Despite a symptom-based standardized inclusion procedure according to DSM-IV criteria with defined symptom thresholds, centres may differ markedly in probands' ADHD symptom frequencies. Both the diagnostic procedure and the multi-centre design influence the behavioural characteristics of a sample and, thus, may bias statistical analyses, particularly in genetic or neurobehavioral studies.

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BMC Psychiatry. 2011;11.

THE IMPACT OF ADHD AND CONDUCT DISORDER IN CHILDHOOD ON ADULT DELINQUENCY: A 30 YEARS FOLLOW-UP STUDY USING OFFICIAL CRIME RECORDS.

Mordre M, Groholt B, Kjelsberg E, et al.

Background: Few longitudinal studies have explored lifetime criminality in adults with a childhood history of severe mental disorders. In the present study, we wanted to explore the association between adult delinquency and several different childhood diagnoses in an in-patient population. Of special interest was the impact of disturbance of activity and attention (ADHD) and mixed disorder of conduct and emotions on later delinquency, as these disorders have been variously associated with delinquent development.

Methods: Former Norwegian child psychiatric in-patients (n = 541) were followed up 19-41 years after hospitalization by record linkage to the National Register of Criminality. On the basis of the hospital records, the patients were re-diagnosed according to ICD-10. The association between diagnoses and other baseline factors and later delinquency were investigated using univariate and multivariate Cox regression analyses.

Results: At follow-up, 24% of the participants had been convicted of criminal activity.In the multivariate Cox regression analysis, conduct disorder (RR = 2.0, 95%CI = 1.2-3.4) and hyperkinetic conduct disorder (RR = 2.7, 95% CI = 1.6-4.4) significantly increased the risk of future criminal behaviour. Pervasive developmental disorder (RR = 0.4, 95%CI = 0.2-0.9) and mental retardation (RR = 0.4, 95%CI = 0.3-0.8) reduced the risk for a criminal act. Male gender (RR = 3.6, 95%CI = 2.1-6.1) and chronic family difficulties (RR = 1.3, 95% CI = 1.1-1.5) both predicted future criminality.

Conclusions: Conduct disorder in childhood was highly associated with later delinquency both alone or in combination with hyperactivity, but less associated when combined with an emotional disorder. ADHD in childhood was no more associated with later delinquency than the rest of the disorders in the study population. Our finding strengthens the assumption that there is no direct association between ADHD and criminality.

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Brain Dev. 2011;33:462-69.

EXECUTIVE AND INTELLECTUAL FUNCTIONS IN ATTENTION-DEFICIT/HYPERACTIVITY DISORDER WITH AND WITHOUT COMORBIDITY.

Trani MD, Casini MP, Capuzzo F, et al.

Background: Recent neuropsychological theories have targeted deficient executive functions (EF) as the main characteristic of Attention Deficit Hyperactivity Disorder (ADHD), but the nature of the neuropsychological deficits remains elusive and findings are heterogeneous. In particular, it is still unclear whether ADHD subtypes and comorbidity affect intellectual and executive functioning, because large variability has been found in different patient populations. Furthermore, the role of IQ in EF deficits in individuals with ADHD has been debated.

Methods: The aim of the present research was to study in detail the relationship between EF, ADHD subtypes, and comorbid diagnosis by taking into account the potential role of IQ. For this purpose, 23 children (aged from 5 to 16. years; 20 males and 3 females) with a diagnosis of ADHD were selected.

Results: Data show no differences between children with different subtypes of ADHD on measures of EF, but they evidence differences on EF measures in children with different comorbidities (internalizing versus externalizing disorder). Namely, compared to the internalizing disorders group, the children with externalizing disorders obtained significantly lower scores on different measures of EF (i.e., verbal working memory and categorical fluency), but these differences were strictly dependent on IQ level.

Conclusions: Comorbidity patterns, rather than ADHD subtypes, appear to be more valid for defining the neuropsychological features of the ADHD endophenotype. Moreover, general intelligence seems to play a substantial role in the cognitive processes underling the disorder, especially in relation to externalizing aspects.

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Brain Dev. 2011;33:454-55.

EXECUTIVE FUNCTIONS IN CHILDREN: DIVERSITY OF ASSESSMENT METHODOLOGY AND ITS RELATION TO ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD).

Inagaki M.

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Brain Dev. 2011;33:480-86.

RESTLESS LEG SYNDROME IN ADHD CHILDREN: LEVETIRACETAM AS A REASONABLE THERAPEUTIC OPTION.

Gagliano A, Arico I, Calarese T, et al.

The comorbidity of Attention Deficit Hyperactivity Disorder (ADHD) with sleep disorders has been extensively studied. In particular, Restless Legs Syndrome (RLS) appears to be consistently more frequent in children with ADHD. Several papers also draw attention to the frequent occurrence of epileptic seizures and EEG abnormalities in ADHD children. We performed a preliminary open label study to evaluate the efficacy of Levetiracetam (LEV) to ameliorate the sleep pattern and reduce RLS symptoms in children with a complex comorbidity between Attention Deficit Hyperactivity Disorder (ADHD), RLS and focal interictal epileptic discharges (IEDs) on EEG. We recruited seven children (all males, aged between 5 and 12. years) who fulfilled the following criteria: ADHD diagnosis combined subtype; presence of idiopathic RLS;

and presence of focal IEDs on EEG. All children were given LEV at a starting dose of approximately 10-20. mg/kg/day followed by 10. mg/kg/day incrementing at 1-week intervals up to 50-60. mg/kg/day given in two separate doses. At a 3 and 6. month follow-up, all children showed significant improvement ($p < 0.05$) in global International RLS Rating Scale (IRLS-RS). Parents' reports revealed improved sleep quality with fewer awakenings and restorative sleep in their children. LEV was well tolerated and no major side effects were reported. With an accessory report we observed the reduction of epileptiform EEG activity during sleep. In most patients (6 on 7) the discharges completely disappeared; in the last patient epileptiform EEG activity was significantly reduced. These children may represent a subgroup of ADHD patients in which the hyperactivity and attention difficulties might be aggravated by sleep disturbances and by IEDs. LEV could represent a therapeutic option for these comorbid conditions.

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Brain Res. 2011;1388:56-68.

METHYLPHENIDATE DOES NOT IMPROVE INTERFERENCE CONTROL DURING A WORKING MEMORY TASK IN YOUNG PATIENTS WITH ATTENTION-DEFICIT HYPERACTIVITY DISORDER.

Prehn-Kristensen A, Krauel K, Hinrichs H, et al.

Patients with attention-deficit/hyperactivity disorder (ADHD) show deficits in working memory (WM) which may be related to prefrontal dysfunction. Methylphenidate (MPH) can restore WM deficits in ADHD by enhancing prefrontal activity. At the same time, changes in striatal activation could cause ADHD patients to be more interference-sensitive during working memory tasks. However, it is unclear whether MPH reduces WM distractibility in ADHD. In this fMRI study, 12 ADHD patients and 12 healthy controls participated on two separate days in a delayed-match-to-sample test. During the delay interval, a distractor stimulus was presented in half of the trials. Children and adolescents with ADHD received MPH only on one of the two sessions. Behavioral data analyses revealed that MPH normalized WM in ADHD. However, MPH did not improve WM performance when a distractor was presented during the delay interval. Functional images showed that MPH enhanced prefrontal activity during the delay in ADHD patients when no distractor was present. If the delay was interrupted by a distractor, only healthy controls showed activation of the caudate. In patients with ADHD, however, in line with behavioral data, MPH did not enhance caudate activity. In healthy youth, caudate activity is involved in interference control allowing the successful maintenance of information in working memory even in the presence of distraction. Our findings suggest that interference control, linked to caudate activity, is not adequately enhanced by MPH in ADHD.

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Ceska Slov Neurol Neurochir. 2011;74:157-62.

HYPERKINETIC DISORDER/ATTENTION DEFICIT HYPERACTIVITY DISORDER IN CHILDREN WITH EPILEPSY.

Cahova P, Pejcochova J, Oslejskova H.

Hyperkinetic disorder, also known as attention deficit hyperactivity disorder (HKD/ADHD), is a neurodevelopmental disorder characterised by an age-related and inappropriate rate of hyperactivity with impulsivity together with an inability to remain focused on tasks or activities. HKP/ADHD incidence in children with epilepsy is estimated to be as high as 30%-40%. Several studies show that in children with ADHD the presence of epileptiform discharges can be found in 6%-51 % of cases. The hypothesis that the comorbid incidence of epilepsy and ADHD may be merely coincidental is not accepted. Cognitive and behavioural changes in patients with epilepsy used to be explained as the consequences of recurrent seizures, the influence of antiepileptic medication and the substantial substrate of epilepsy. However, in the majority of ADHD and epilepsy children, the onset of ADHD symptomatology precedes the onset of clinical seizures. The onset of spontaneous seizures arises out of a complex process of epileptogenesis that involves a cascade of transcriptional changes involving the processes of plasticity, apoptosis and neurogenesis. All of these changes may influence the behavioural and cognitive profile before seizure onset. The pathophysiology of ADHD is explained by disturbances in the prefrontal-thalamo-striato-cortical

neuronal circuits. It is the frontal lobe that is important to the understanding of the common neurobiological substrate of ADHD and epilepsy.

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Child Psychiatry Hum Dev. 2011 Apr;42:152-65.
The utility of home problem pervasiveness and severity in classifying children identified with attention-deficit/hyperactivity disorder.
Barry TD, Pinard FA, Barry CT, et al.
Given the propensity for clinical assessment of Attention-Deficit/Hyperactivity Disorder (ADHD) to focus on core behavioral symptoms, the current study examined how well other predictors classified children who were diagnosed with ADHD by licensed practitioners. Participants were 91 children (39 ADHD-identified, 52 without ADHD), aged 8 to 13 years. In addition to significantly more ADHD symptoms, the ADHD-identified group exhibited significantly more externalizing problems and internalizing symptoms, less adaptive functioning, and greater problem pervasiveness and severity. Binary logistic regression analyses indicated that problem pervasiveness and severity significantly predicted diagnostic group membership when controlling for other predictors, and pervasiveness added unique variance beyond measures of core ADHD symptoms. Diagnostic utility analyses showed measurement of problem pervasiveness and severity to be a useful tool in the identification of ADHD. Findings provide support for the practical use of a parent-report measure of impairment in the home as part of evidence-based assessment of ADHD.

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Child Psychiatry Hum Dev. 2011 Apr;42:243-55.
ESTIMATED PREVALENCE OF ATTENTION-DEFICIT/HYPERACTIVITY DISORDER IN A SAMPLE OF PANAMANIAN SCHOOL-AGED CHILDREN.
Sánchez EY, Velarde S, Britton GB.
The present study investigated the prevalence of ADHD in a school sample of children ages 6–11 years in the city of Panama. The assessment battery included the Conners' Parent and Teacher Rating Scales, the Structured Developmental History of the Behavioral Assessment System for Children (BASC-2), and the Wechsler Intelligence Scale for Children (WISC-III). The prevalence of ADHD (N = 229) was 7.4%, with an estimate of 1.8% for the predominantly inattentive subtype, 3.1% for the predominantly hyperactive/impulsive subtype, and 2.6% for the combined subtype. The prevalence rate of ADHD is relatively low in Panama compared to those reported for samples in neighboring countries. Moreover, ADHD children were unlikely to have been identified or referred to psychological or special education assessments. Our findings confirm that ADHD is overlooked in some cultures and that a significant number of children with ADHD-related impairments are not receiving optimal intervention.

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Child Psychiatry Hum Dev. 2011 Apr;42:134-51.
SOCIAL ADJUSTMENT AMONG TAIWANESE CHILDREN WITH SYMPTOMS OF ADHD, ODD, AND ADHD COMORBID WITH ODD.
Tseng WL, Kawabata Y, Gau SS-F.
This study examined social problems at school and relationships with peers, siblings, mothers, and fathers among children with ADHD only (n = 41), ODD only (n = 14), ADHD + ODD (n = 47), and normal controls (n = 204) from a school-based sample of 2,463 first to ninth graders in Taiwan. ADHD and ODD symptoms were determined by teacher and mother reports on the Conners' Rating Scales and social adjustment problems were assessed by mother reports on the Social Adjustment Inventory for Children and Adolescents. Results indicated that relative to normal controls, children with ADHD + ODD displayed greater levels of social adjustment problems across domains (i.e., school, peers, siblings, and parents)

while children with ADHD were significantly more impaired only in social adjustment at schools and children with ODD were more impaired only in social adjustment at home. Some similarities and differences in our findings, in relation to the Western literature, were discussed.

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Child Care Health Dev. 2011 May;37:446-55.

DEVELOPMENT OF THE CHILDREN'S ATTRIBUTIONS ABOUT PSYCHOLOGICAL PROBLEMS IN THEIR PEERS SCALE.

SWORDS L, HENNESSY E, HEARY C.

Background: Research has shown that children's beliefs about the causes of psychological problems are related to their attitudes and reactions towards affected peers. This study describes the development of the Children's Attributions about Psychological Problems in their Peers (CAPPP) Scale, which assesses children's beliefs about the causes of an internalizing and an externalizing condition.

Methods: The 16 items comprising the CAPPP are derived from previous qualitative research findings. Five hundred and ninety-five young people, drawn from five different age groups spanning early childhood to late adolescence, completed a CAPPP Scale for each of two vignettes describing the behaviour of hypothetical peers with attention deficit hyperactivity disorder (ADHD) and depression.

Results: Modifications following consideration of psychometric properties and conceptual fit resulted in a 12-item scale. For both the ADHD and depression conditions, the components that emerged were 'Volition','Recent Life Stress', 'Family Factors' and 'School Factors'.

Conclusions: The present study represents the first field trial of the CAPPP. Results suggest that children's and adolescents' beliefs about the causes of psychological problems are multidimensional and incorporate both individual and environmental factors.

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Child Care Health Dev. 2011 May;37:430-39.

A comparison of children with ADHD in a natural and built setting.

van den Berg AE, van den Berg CG.

Background: A link has been suggested between children's disconnection from nature and the recent surge in childhood disorders such as Attention Deficit Hyperactivity Disorder (ADHD). Research on benefits of nature for healthy children provides some support for such a link. However, only a few studies have directly examined the influence of contact with nature on children with ADHD. Aim: The aim of the present research was to gain more insight into the behaviour and emotional and cognitive functioning of children with ADHD in a natural and built setting.

Methods: Two groups of six children (age 9–17) who stayed at care farms for children with ADHD in the Netherlands were systematically observed, questioned, and tested during visits to a wooded area and a small town.

Results: Both groups performed better on a concentration task in the woods than in the town, despite the fact that all children visited the town after the woods and thus their scores in the town were possibly inflated by learning effects. However, the behaviour and emotional functioning in the two settings differed between the groups. One group of children liked the woods better than the town and displayed more positive behaviours and feelings in the natural environment. The other group of children liked the town equally well as the woods and displayed positive behaviours and feelings in both settings, although they showed somewhat more non-social, aggressive, inattentive, impulsive and hyperactive behaviour in the town than in the woods.

Conclusions: These results suggest that natural areas provide a consistent positive environment for children with ADHD. However, more research is needed to obtain a fuller understanding of the influences of the physical environment on children with ADHD.

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Clin Neurophysiol. 2011 May;122:942-50.

NEUROFEEDBACK IN CHILDREN WITH ADHD: SPECIFIC EVENT-RELATED POTENTIAL FINDINGS OF A RANDOMIZED CONTROLLED TRIAL.

Wangler S, Gevensleben H, Albrecht B, et al.

Objective: In a randomized controlled trial, we could demonstrate clinical efficacy of neurofeedback (NF) training for children with ADHD (Gevensleben et al., 2009a). The present investigation aimed at learning more about the neuronal mechanisms of NF training.

Methods: Children with ADHD either completed a NF training or a computerized attention skills training (ratio 3:2). NF training consisted of one block of theta/beta training and one block of slow cortical potential (SCP) training, each comprising 18 training units. At three times (pre-training, between the two training blocks and at post-training), event-related potentials (ERP) were recorded during the Attention Network Test. ERP analysis focused on the P3, reflecting inter alia attentional resources for stimulus evaluation, and the contingent negative variation (CNV), primarily related to cognitive preparation.

Results: After NF training, an increase of the CNV in cue trials could be observed, which was specific for the SCP training. A larger pre-training CNV was associated with a larger reduction of ADHD symptomatology for SCP training.

Conclusions: CNV effects reflect neuronal circuits underlying resource allocation during cognitive preparation. These distinct ERP effects are closely related to a successful NF training in children with ADHD. In future studies, neurophysiological recordings could help to optimize and individualize NF training. Significance: The findings contribute to a better understanding of the mechanisms underlying NF training in children with ADHD.

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Clin Psychopharmacol Neurosci. 2011;9:29-35.

SWITCHING FROM METHYLPHENIDATE-IMMEDIATE RELEASE (MPH-IR) TO METHYLPHENIDATE-OROS (OROS-MPH): A MULTI-CENTER, OPEN-LABEL STUDY IN KOREA.

Kim BN, Kim YN, Cheong US, et al.

Objective: The objective of this study was to evaluate the efficacy and safety of methylphenidate HCL OROS extended-release (OROS-MPH) among children with attention deficit hyperactivity disorder (ADHD) who had been previously treated with methylphenidate HCL immediate-release (MPH-IR).

Methods: The sample included 102 children aged 6-12 (9.4(plus or minus)2.6) years who had been diagnosed with ADHD according the criteria of the Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition (DSM-IV; American Psychiatric Association, 1994) and who were attending seven centers in Korea. All participants had been medicated with a stable dose of MPH (10-60 mg/day) for at least 3 weeks before entry into the study. Doses of OROS-MPH were comparable to daily doses of MPH. Efficacy was assessed at baseline (day 0) and at day 28 with the Inattentive-Overactive with Aggression (IOWA) Conners Rating Scale, which was completed by parents/caregivers and teachers, the Peer Interaction Rating Items, which were completed by teachers, and the Clinical Global Impression (CGI) scale, which was completed by child psychiatrists. Paired t-tests were used, and P-values were set at the 0.05 level.

Results: Of the subjects, 92.2% were boys and 79.4% were students in the first to fourth grades of elementary school. 72% were diagnosed with the combined type of ADHD, 23% were diagnosed with the inattentive type, and 5% were diagnosed with the hyperactive-impulsive type. The results of the parents' responses to the Inattention/Hyperactivity (I/H) and Oppositional/Defiant (O/D) subscales of the IOWA Conners scale indicated statistically significant improvement in childrens behavior after 4 weeks of treatment with OROS-MPH (t=6.28, p<.001, t=4.12, p<.001). However, the teachers' responses to the Conners I/H and O/D subscales indicated no significant improvement at 4 weeks. The teachers also reported no significant improvements under the OROS-MPH compared with the MPH-IR condition with respect to peer interactions. Scores on the CGI scale showed that 46.1% of children with ADHD were rated by psychiatrists as "minimally improved", 27.5% as "much improved," 1.0% as "very much improved," 3.9% as "minimally worse," and 16.7% as showing "no change". Children exhibited significantly fewer tics with OROS-MPH treatment than with MPH-IR treatment (19.6% vs. 27.7%). We found no differences between in sleep and appetite problems according to medication.

Conclusion: The results of this study indicated that an MPH-IR regimen can be successfully changed to a once-daily OROS-MPH regimen without any serious adverse effects. The changes in parent/caregiver IOWA Conners ratings suggested that OROS-MPH improved the control of symptoms after school, a finding that is consistent with the 12-h duration of action of this medication. Because the therapeutic effect of OROS-MPH is sufficiently longer than that of a b.i.d. dose of MPH-IR, OROS-MPH had significant positive effects on oppositional/defiant behavior in addition to its effects on the core symptoms of ADHD.

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CNS Spectr. 2011;16.

IMPROVING COMMUNICATION IN ADHD CARE: RESULTS FROM IN-OFFICE LINGUISTIC RESEARCH.

Mattingly G, Surman CB, Mao AR, et al.

Introduction: An in-office linguistic study was conducted to help improve understanding of how to better evaluate and treat attention-deficit/hyperactivity disorder (ADHD).

Methods: Naturally occurring interactions were recorded among 7 psychiatrists and 23 patients and 8 pediatricians along with 22 patients and their parents. Participants were interviewed separately post-visit. Transcripts of interactions and interviews were analyzed using sociolinguistic techniques.

Results: Visits were variable in length and lacked concrete treatment plans. In the pediatric setting, children were typically excluded from dialogues, accounting for only 8% of words spoken. School was the primary metric used to evaluate symptoms. Pediatricians allayed parents' concerns about stimulant therapy by promising to prescribe the lowest possible dose, rather than discussing titrating to an optimal dose. Adults were evaluated idiosyncratically without the use of scales or tools. Stimulants were positioned as short-term "trials" without strong physician recommendations.

Discussion: Conversations about stimulant therapy lacked goal- and expectation-setting. Also missing from conversations was a definitive treatment plan based on the core symptoms of ADHD. Incorporating open-ended questions and tools or rating scales may result in a more effective and efficient in-office dialogue.

Conclusion: Further research is warranted to assess the efficacy of communication strategies to enhance in-office discussions of ADHD and stimulant therapy.

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Cyberpsychology, Behavior, and Social Networking. 2011 Mar;14:115-22.

DOES COMPUTERIZED WORKING MEMORY TRAINING WITH GAME ELEMENTS ENHANCE MOTIVATION AND TRAINING EFFICACY IN CHILDREN WITH ADHD?

Prins PJM, Dovis S, Ponsioen A, et al.

This study examined the benefits of adding game elements to standard computerized working memory (WM) training. Specifically, it examined whether game elements would enhance motivation and training performance of children with ADHD, and whether it would improve training efficacy. A total of 51 children with ADHD aged between 7 and 12 years were randomly assigned to WM training in a gaming format or to regular WM training that was not in a gaming format. Both groups completed three weekly sessions of WM training. Children using the game version of the WM training showed greater motivation (i.e., more time training), better training performance (i.e., more sequences reproduced and fewer errors), and better WM (i.e., higher scores on a WM task) at post-training than children using the regular WM training. Results are discussed in terms of executive functions and reinforcement models of ADHD. It is concluded that WM training with game elements significantly improves the motivation, training performance, and working memory of children with ADHD. The findings of this study are encouraging and may have wide-reaching practical implications in terms of the role of game elements in the design and implementation of new intervention efforts for children with ADHD.

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Drug Topics. 2010;154.
FDA APPROVES VYVANSE FOR TREATING ADHD IN TEENS.
Anon.

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Eur J Hum Genet. 2011;19:577-82.
EPISTASIS BETWEEN NEUROCHEMICAL GENE POLYMORPHISMS AND RISK FOR ADHD.
Segurado R, Bellgrove MA, Manconi F, et al.
A number of genes with function related to synaptic neurochemistry have been genetically associated with attention deficit/ hyperactivity disorder. However, susceptibility to the development of common psychiatric disorders by single variants acting alone, can so far only explain a small proportion of the heritability of the phenotype. It has been postulated that the unexplained 'dark heritability' may at least in part be due to epistatic effects, which may account for the small observed marginal associations, and the difficulties with replication of positive findings. We undertook a comprehensive exploration of pair-wise interactions between genetic variants in 24 candidate genic regions involved in monoaminergic catabolism, anabolism, release, re-uptake and signal transmission in a sample of 177 parent-affected child trios using a case-only design and a case-pseudocontrol design using conditional logistic regression. Marker-pairs thresholded on interaction odds ratio (OR) and P-value are presented. We detected a number of interaction ORs >4.0, including an interesting correlation between markers in the ADRA1B and DBH genes in affected individuals, and several further interesting but smaller effects. These effects are no larger than you would expect by chance under the assumption of independence of all pair-wise relations; however, independence is unlikely. Furthermore, the size of these effects is of interest and attempts to replicate these results in other samples are anticipated.

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Eur J Paediatr Neurol. 2011;15:247-53.
IS THERE AN INCREASED RISK FOR DRUG TREATED ATTENTION DEFICIT/HYPERACTIVITY DISORDER IN CHILDREN BORN AFTER IN VITRO FERTILIZATION?
Kallen AJB, Finnstrom OO, Lindam AP, et al.
Background: There is mounting evidence that children born after in vitro fertilization (IVF) run an increased risk of neurological complications and notably cerebral palsy. Whether developmental disturbances occur more often than expected is debated. Aim: To investigate the risk for ADHD in children conceived after IVF.
Methods: Children conceived after IVF and born between 1982 and 2005 were identified from all IVF clinics in Sweden. Children who developed attention deficit/hyperactivity disorder (ADHD) were identified with the use of a register over all prescribed drugs in Sweden, using prescriptions for methylphenidate or atomixetine as indicators of ADHD. Maternal and neonatal characteristics were obtained by linkage with the Medical Birth Register and relevant confounders were adjusted for using Mantel-Haenszel procedures. We studied 28 158 children born after IVF and compared them with 2 417 886 children in the population.
Results: After adjustment for year of birth, maternal age, parity, smoking, BMI, and maternal education and after exclusion of women who did not cohabit, a weak but statistically significant association was found with an odds ratio = 1.18, 95% confidence interval 1.03-1.36. The effect was stronger in girls (OR = 1.40) than boys (OR = 1.11) but this difference could be random. After adjustment for length of involuntary childlessness, the OR decreased slightly and lost statistical significance.
Conclusions: The study suggests a weak association between IVF and drug treated ADHD.

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Eur Psychiatry. 2011;26:265-69.

Trends in prescribing of psychotropic medications for inpatient adolescents in Israel: A 10 years retrospective analysis.

Gilat Y, Ben-Dor DH, Magen A, et al.

We examined the trends in prescribing psychotropic drugs to children and adolescents within an inpatients adolescent psychiatric ward in Israel. Data of 414 subjects, ranging from 12- to 22-year-old, covering the years 1997, 2002 and 2007, was examined retrospectively. Analyzed variables included the number and type of drug prescriptions per patient at discharge, the subjects' age at discharge and the number of diagnoses per patient at discharge. Analysis of variance (ANOVA) with repeated measures was used to evaluate changes between the three calendar years, along the 10-year study period, while Pearson (chi)2 test was performed for categorical variables. Over the study period the mean age at discharge decreased significantly, by about a year and a half, the mean number of diagnoses increased significantly, from 1.6 to 2.4 diagnoses per patient and the total number of drugs prescribed at discharge increased significantly from 1.48 to 1.93 per patient. Overall, the number of patients who were prescribed mood stabilizers increased by 14%, those who were prescribed antidepressants increased by almost 24%, almost 16% in antipsychotics prescriptions and 51.5% in prescriptions of atypical antipsychotics. Typical antipsychotic prescriptions decreased by 35.5% and accordingly, the number of patients who were prescribed agents for the treatment of extra-pyramidal side effects decreased by almost 24%. Due to a low number of inpatients with attention deficit and hyperactivity disorder (ADHD), no significant statistical conclusion could be drawn regarding trends in psychostimulant prescriptions. Our findings agree with other published studies from the last two decades. The growing use of psychotropic agents in children and adolescents merit a continuous concern with regard to their effects on the developing brain and impact on quality of life and to authorizing these drugs for use in specific young age subgroups.

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Exp Clin Psychopharmacol. 2011;19:145-53.

EFFECT OF METHYLPHENIDATE ON MOTIVATION IN CHILDREN WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER.

Chelonis JJ, Johnson TA, Ferguson SA, et al.

The effects of methylphenidate (MPH) on motivation were examined using a progressive ratio (PR) task in children who were prescribed MPH for the treatment of ADHD. Twenty-one children, 7 to 12 years of age, completed two test sessions, one under the effects of medication and one not. During each session, children pressed a lever to earn nickel reinforcers, where the first press resulted in a reinforcer and 10 additional presses were required for each subsequent reinforcer. Children on MPH had a significantly higher breakpoint than when off medication. This MPH-associated increase in the breakpoint manifested as a significant decrease in the interresponse times (IRT). Further, MPH administration resulted in a significant decrease in IRT variability. In contrast, MPH administration had no significant effects on the means and variability of postreinforcement pause duration. These results suggest that MPH increased motivation in children being treated for ADHD. Further, the inability of MPH to significantly reduce postreinforcement pause duration while simultaneously decreasing IRTs suggests that while MPH may increase motivation to perform an ongoing task, it may have little effect on the initiation of that task.

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Genes, Brain & Behavior. 2011 Apr;10:334-44.

STEROID SULFATASE IS A POTENTIAL MODIFIER OF COGNITION IN ATTENTION DEFICIT HYPERACTIVITY DISORDER.

Stergiakouli E, Langley K, Williams H, et al.

Deletions encompassing the X-linked STS gene (encoding steroid sulfatase) have been observed in subjects with neurodevelopmental disorders, including Attention Deficit Hyperactivity Disorder (ADHD). Recently, two single nucleotide polymorphisms (SNPs) within STS (rs12861247 and rs17268988) have been reported to be associated with ADHD risk and inattentive symptoms in ADHD respectively. Using a

UK sample of ADHD subjects (aged 5-18 years), we tested the hypothesis that rs12861247 is associated with ADHD risk using a case-control approach (comparing 327 ADHD cases with 358 male controls from the Wellcome Trust Case Control Consortium). Using a subset of males from the ADHD sample, we also examined whether variation within STS is associated with symptomatology/cognitive function in ADHD. We then tested whether SNPs associated with cognitive function in ADHD were also associated with cognitive function in healthy male subjects using a German sample (n = 143, aged 18-30 years), and whether STS was expressed in brain regions pertinent to ADHD pathology during development. We did not replicate the previously identified association with rs12861247. However, in ADHD males, variation at rs17268988 was associated with inattentive symptoms, whilst variation within STS was significantly associated with performance on three cognitive measures. Three SNPs associated with cognitive function in ADHD males were not associated with cognitive function in healthy males. STS was highly expressed in the developing cerebellar neuroepithelium, basal ganglia, thalamus, pituitary gland, hypothalamus and choroid plexus. These data suggest that genetic variants affecting steroid sulfatase expression and/or activity could influence the function of brain regions perturbed in ADHD.

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Hum Brain Mapp. 2011 Apr;32:601-11.

DISORDER-SPECIFIC DYSFUNCTIONS IN PATIENTS WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER COMPARED TO PATIENTS WITH OBSESSIVE-COMPULSIVE DISORDER DURING INTERFERENCE INHIBITION AND ATTENTION ALLOCATION.

Rubia K, Cubillo A, Woolley J, et al.

Background: Abnormalities in inhibitory control and underlying fronto-striatal networks is common to both attention deficit hyperactivity disorder (ADHD) and obsessive-compulsive-disorder (OCD). The aim of this study was to investigate disorder-specific abnormalities in neural networks mediating interference inhibition and selective attention.

Method: Event-related functional magnetic resonance imaging (fMRI) was used to compare brain activation of boys with ADHD (18), with OCD (10), and healthy boys during (20) during a Simon task that measures interference inhibition and controls for and therefore comeasures attention allocation.

Results: During interference inhibition, both patient groups shared mesial frontal dysfunction compared to controls. Disorder-specific dysfunctions were observed in OCD patients in dorsolateral prefrontal cortex during the oddball condition and in ADHD patients in inferior parietal lobe during interference inhibition and in caudate and posterior cingulate during the simpler oddball condition. The decreased activation in caudate and cingulate in ADHD was furthermore negatively correlated with ADHD symptoms and positively with OCD behavioral traits.

Conclusions: The study shows that ADHD and OCD patients have shared but also disorder-specific brain dysfunctions during interference inhibition and attention allocation. Both disorders shared dysfunction in mesial frontal cortex. Disorder-specific dysfunctions, however, were observed in dorsolateral prefrontal cortex in OCD patients and in caudate, cingulate, and parietal brain regions in ADHD patients. The disorder-specific dissociation of striato-cingulate activation that was increased in OCD compared to ADHD patients, was furthermore inversely related to the symptomatology of the two disorders, and may potentially reflect differential dopamine modulation of striatal brain regions.

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Human Physiology. 2011 Mar;37:148-60.

CHARACTERISTICS OF THE CEREBRAL MECHANISMS CONTROLLING THE LEVEL OF WAKEFULNESS, MATURITY OF COGNITIVE FUNCTIONS, AND ADAPTIVE RESPONSES IN CHILDREN WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER AND HEALTHY CHILDREN OF THE SAME AGE.

Ilyukhina VA, Krivoshchapova MN, Manzhosova GV.

Data on the characteristics of the disturbance of ultraslow cortical-brainstem, limbic-reticular, and suprasegmental mechanisms controlling the wakefulness level (WL) in six- to seven-year-old children with

attention deficit hyperactivity disorder (ADHD) and age-matched healthy children (first-year comprehensive primary school pupils) with different types of psychological adaptation have been summarized. An integrated systemic psychophysiological approach has been used to determine the characteristics of (a) the emotional-motivational and cognitive maturities and (b) the psychophysiological mechanisms of the formation of adaptive responses upon tactile interaction with an unfamiliar live object (a dolphin) in the examined groups of healthy and ADHD children.

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Int J Psychiatry Clin Pract. 2011;15:145-56.

ACADEMIC OUTCOMES IN ASIAN CHILDREN AGED 8-11 YEARS WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER TREATED WITH ATOMOXETINE HYDROCHLORIDE.

Mendez L, Singh P, Harrison G, et al.

Objective. To investigate the relationship between changes in attention-deficit/hyperactivity disorder (ADHD) core symptoms and changes in academic outcome of Asian children treated with atomoxetine.

Methods. This open-label study enrolled patients aged 8-11 years with DSM-IV-TR-defined ADHD, who were naive to ADHD medications and met the symptomatic severity threshold of 1.5 standard deviations above the age and gender norm for the ADHDRS-IV-Parent:Inv (ADHDRS) total score. Data collection occurred for 24 weeks and included academic outcome, measured by the school grade average (SGA).

Results. Of 228 patients enrolled from China (n = 82), Taiwan (n = 76), and Korea (n = 70), 77.2% completed the study. Statistically significant (P < 0.001) baseline to last observation improvements in ADHDRS and SGA scores were observed. However, no linear correlation between change in ADHDRS total score and SGA (-0.083, P = 0.293) was observed.

Conclusions. Despite significant independent improvements in core ADHD symptoms and academic grades over 24 weeks, the mean improvements observed in these measures did not appear to be correlated.

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Journal de Thérapie Comportementale et Cognitive. 2011 Mar;21:12-16.

CO-OCCURRENCE D'UN TROUBLE DÉFICIT DE L'ATTENTION AVEC OU SANS HYPERACTIVITÉ (TDA/H) ET D'UN TROUBLE RÉACTIONNEL DE L'ATTACHEMENT (TRA) CHEZ LES ENFANTS D'ÂGE SCOLAIRE VIVANT EN MILIEU SUBSTITUT: UNE ILLUSTRATION CLINIQUE.

Dutray B.

ADHD and reactive attachment disorder are common comorbid disorders among children in foster care. Paul's story is an illustration of clinical reasoning when both diagnoses are suspected. We suggest therapeutic and educational interventions targeting the child's symptoms.

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Journal of Abnormal Child Psychology: An official publication of the International Society for Research in Child and Adolescent Psychopathology. 2011 May;39:541-52.

TREATMENT RESPONSE IN CP/ADHD CHILDREN WITH CALLOUS/UNEMOTIONAL TRAITS.

Haas SM, Waschbusch DA, Pelham WE, Jr., et al.

The current study examines the role of callous/unemotional (CU) traits in response to treatment among children with conduct problems (CP) and attention-deficit/hyperactivity disorder (ADHD). Fifty-four children with CP/ADHD and 16 controls (age = 9.48, SD = 1.58) took part in a summer treatment and research program. Simple correlations showed that CU and CP were associated with a number of treatment outcome measures. When examined together in regression analyses, CU and CP were uniquely associated with three treatment outcomes each (CU—improvement in social skills and problem solving, negative behaviors in time-out; CP—time-outs per day, peer ratings, peer dislike). The implications for

these findings with regard to treatment response in children with CP/ADHD with and without CU traits are explored.

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Journal of Abnormal Child Psychology: An official publication of the International Society for Research in Child and Adolescent Psychopathology. 2011 Apr;39:437-49.

THE ROLE OF MATERNAL AND CHILD ADHD SYMPTOMS IN SHAPING INTERPERSONAL RELATIONSHIPS.

Griggs MS, Mikami AY.

The current study investigated the influence of maternal ADHD symptoms on: (a) mothers' own social functioning; (b) their child's social functioning; and (c) parent–child interactions following a lab-based playgroup involving children and their peers. Participants were 103 biological mothers of children ages 6–10. Approximately half of the children had ADHD, and the remainder were comparison youth. After statistical control of children's ADHD diagnostic status and mothers' educational attainment, mothers' own inattentive ADHD symptoms predicted poorer self-reported social skills. Children with ADHD were reported to have more social problems by parents and teachers, as well as received fewer positive sociometric nominations from playgroup peers relative to children without ADHD. After control of child ADHD status, higher maternal inattention and hyperactivity/impulsivity each predicted children having more parent-reported social problems; maternal inattention predicted children receiving more negative sociometric nominations from playgroup peers. There were interactions between maternal ADHD symptoms and children's ADHD diagnostic status in predicting some child behaviors and parent–child relationship measures. Specifically, maternal inattention was associated with decreased prosocial behavior for children without ADHD, but did not influence the prosocial behavior of children with ADHD. Maternal inattention was associated with mothers' decreased corrective feedback and, at a trend level, decreased irritability toward their children with ADHD, but there was no relationship between maternal inattention and maternal behaviors for children without ADHD. A similar pattern was observed for maternal hyperactivity/impulsivity and mothers' observed irritability towards their children. Treatment implications of findings are discussed.

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Journal of Abnormal Child Psychology: An official publication of the International Society for Research in Child and Adolescent Psychopathology. 2011 Apr;39:451-62.

THE ACADEMIC EXPERIENCE OF MALE HIGH SCHOOL STUDENTS WITH ADHD.

Kent KM, Pelham WE, Jr., Molina BSG, et al.

This study compared the high school academic experience of adolescents with and without childhood ADHD using data from the Pittsburgh ADHD Longitudinal Study (PALS). Participants were 326 males with childhood ADHD and 213 demographically similar males without ADHD who were recruited at the start of the follow-up study. Data were collected yearly from parents, teachers and schools. The current study used assessment points at which the participants were currently in or had recently completed grades 9, 10, 11, and 12. Results indicated that adolescents with ADHD experienced significant academic impairment in high school relative to comparison adolescents, including lower overall and main academic subject grade point averages (GPA), lower levels of class placement (e.g. remedial vs. honors), and higher rates of course failure. In addition, teacher reports indicated that adolescents with ADHD completed and turned in a significantly lower percentage of assignments and were significantly less likely to be working up to their potential. Adolescents with ADHD were also significantly more likely to be absent or tardy during the academic year, and they were over eight times more likely than adolescents without ADHD to drop out of high school. These findings demonstrate that children with ADHD continue to experience severe academic impairment into high school.

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Journal of Abnormal Child Psychology: An official publication of the International Society for Research in Child and Adolescent Psychopathology. 2011 May;39:527-39.

POSITIVE ILLUSIONS OF SOCIAL COMPETENCE IN GIRLS WITH AND WITHOUT ADHD.

Ohan JL, Johnston C.

We compared social self-competence ratings in 9–12 year old girls with (n = 42) versus without (n = 40) ADHD, relative to ratings of the girls' social competence made by mothers, teachers, and blind raters during a social laboratory task. Relative to scores from mothers, teachers, and the lab-task, girls with ADHD over-estimated their competence significantly more than control girls. Over-estimates were greater for girls with ADHD who also had heightened oppositional-defiant symptoms, or lower depressive symptoms. Over-estimates were positively related to a socially desirable reporting bias for girls with ADHD, but not for control girls, suggesting that girls with ADHD attempt to present themselves in an unduly positive, self-protective light. For girls with ADHD, over-estimates also were positively related to maladjustment and negatively related to adjustment. However, for girls without ADHD, over-estimates were positively related to adjustment. Overall, over-estimates of competence function differently in girls with and without ADHD.

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Journal of Abnormal Child Psychology: An official publication of the International Society for Research in Child and Adolescent Psychopathology. 2011 May;39:513-25.

THE RELATIONSHIP BETWEEN SLUGGISH COGNITIVE TEMPO, SUBTYPES OF ATTENTION-DEFICIT/HYPERACTIVITY DISORDER, AND ANXIETY DISORDERS.

Skirbekk B, Hansen BH, Oerbeck B, et al.

The objective of the present study was to examine the relationship between sluggish cognitive tempo (SCT), subtypes of attention-deficit/hyperactivity disorder (ADHD), and anxiety disorders (AnxDs). One hundred and forty-one children (90 males, 51 females) aged 7–13 years were assigned to four groups, i.e., referred children with comorbid AnxDs and ADHD (n = 25), ADHD (n = 39), AnxDs (n = 41), and nonreferred controls (n = 36). Furthermore we explored the association between SCT and several neurocognitive measures (reaction time, verbal memory, and spatial memory). Diagnoses were established using Kiddie-SADS P/L. SCT was assessed using a 17-item mother-reported questionnaire. SCT correlated significantly with inattentiveness, regardless of the subtype of ADHD. Furthermore, we found significant differences in the levels of SCT among the four groups, with the highest SCT scores observed in the comorbid group. SCT correlated with variability in spatial memory; in contrast, there was no correlation between SCT and reaction time.

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J Abnorm Psychol. 2011 May;120:427-42.

DOES ATTENTION-DEFICIT/HYPERACTIVITY DISORDER HAVE A DIMENSIONAL LATENT STRUCTURE? A TAXOMETRIC ANALYSIS.

Marcus DK, Barry TD.

An understanding of the latent structure of attention-deficit/hyperactivity disorder (ADHD) is essential for developing causal models of this disorder. Although some researchers have presumed that ADHD is dimensional and others have assumed that it is taxonic, there has been relatively little research directly examining the latent structure of ADHD. The authors conducted a set of taxometric analyses using data from the NICHD Study of Early Child Care and Youth Development (ns between 667 and 1,078). The results revealed a dimensional latent structure across a variety of different analyses and sets of indicators for inattention, hyperactivity/impulsivity, and ADHD. Furthermore, analyses of correlations with associated features indicated that dimensional models demonstrated stronger validity coefficients with these criterion

measures than dichotomous models. These findings jibe with recent research on the genetic basis of ADHD and with contemporary models of ADHD.

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J Adolesc. 2011;34:485-92.

ADOLESCENTS' BELIEFS ABOUT SOURCES OF HELP FOR ADHD AND DEPRESSION.

Swords L, Hennessy E, Heary C.

The peer group begins to become a source of support during late childhood and adolescence making it important to understand what type of help young people might suggest to a friend with an emotional or behavioral problem. Three groups of young people participated in the study with average ages of 12 (N = 107), 14 (N = 153) and 16 years (N = 133). All participants were presented with vignettes describing fictional peers, two of whom had symptoms of clinical problems (ADHD and depression) and a third comparison peer without symptoms. Results indicate that all participants distinguished between clinical and comparison vignette characters and they believed that the characters with clinical symptoms needed help. The 16-year-olds were more likely to differentiate between the two clinical vignettes in terms of the type of help suggested. The results are discussed in light of previous research on adolescents' understanding of sources of help for mental health problems.

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J Adolesc. 2011;34:433-43.

COGNITIVE BEHAVIOUR THERAPY FOR ADOLESCENT OFFENDERS WITH MENTAL HEALTH PROBLEMS IN CUSTODY.

Mitchell P, Smedley K, Kenning C, et al.

Many studies have identified high levels of mental health problems among adolescents in custody and there is increasing evidence that mental health problems in this population are associated with further offending and mental health problems into adulthood. Despite recent improvements in mental health provision within custodial settings there is little evidence of structured interventions being offered or of their effectiveness being evaluated. A cognitively based intervention was developed and offered to adolescents with a variety of mental health problems in different secure settings, and the outcomes compared with a control group. Although this small-scale study did not identify significant differences in outcomes for the two groups, both recruitment and retention in therapy were good, and potential candidates were not excluded on the basis of learning difficulties or co-morbidity. The study demonstrated the viability of a delivering cognitively based intervention for common mental health problems within secure settings.

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J Affective Disord. 2011;131:312-19.

AGGRESSION, ADHD SYMPTOMS, AND DYSPHORIA IN CHILDREN AND ADOLESCENTS DIAGNOSED WITH BIPOLAR DISORDER AND ADHD.

Doerfler LA, Connor DF, Toscano J.

Background: This study had two objectives: (1) examine characteristics of aggression in children and adolescents diagnosed with bipolar disorder and (2) determine whether the CBCL pediatric bipolar disorder profile differentiated youngsters with bipolar disorder from youngsters with ADHD.

Method: Children and adolescents referred to a pediatric psychopharmacology clinic were systematically evaluated for psychopathology using a psychiatrist-administered diagnostic interview, parent- and teacher-report rating scales assessing the child's behavior, and child-completed self-report scales. In this sample, 27 children and adolescents were diagnosed with bipolar disorder and 249 youngsters were diagnosed with ADHD without co-occurring bipolar disorder. These two groups were compared to determine whether there were significant differences on various measures of psychopathology.

Results: Youngsters diagnosed with bipolar disorder were more verbally aggressive and exhibited higher levels of reactive aggression than youngsters with ADHD without co-occurring bipolar disorder. Youngsters with bipolar disorder also reported higher levels of depressive symptoms than youngsters with ADHD without bipolar disorder. The CBCL pediatric bipolar disorder profile did not accurately identify youngsters diagnosed with bipolar disorder.
Conclusions: The present findings present a picture of manic youngsters as verbally aggressive and argumentative, who respond with anger when frustrated. Youngsters diagnosed with bipolar disorder and ADHD exhibited significant levels of impulsive behavior and attention problems, but youngsters with bipolar disorder also exhibited significant levels of aggressive behavior and dysphoric mood. Finally, the CBCL pediatric bipolar disorder profile did not accurately identify youngsters who were diagnosed with bipolar disorder.

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Journal of Attention Disorders. 2011 May;15:328-37.
DISTINGUISHING FEATURES OF CUBAN CHILDREN REFERRED FOR PROFESSIONAL HELP BECAUSE OF ADHD: LOOKING BEYOND THE SYMPTOMS.
Schneider BH, Normand S, del Pilar Soteras de Toro M, et al.
Objective: To distinguish Cuban children clinically referred because of ADHD from an at-risk community sample and a community control group in terms of symptoms, associated difficulties and impairment of family and peer relations.
Method: Parents and teachers of 1,036 children (6-8 years old) completed an established ADHD rating scale and a behavioral screening measure, including peer functioning. We also administered a structured clinical interview and measures of family impairment to the clinical sample and to an at-risk community-based subsample.
Results: Although both clinical and at-risk groups displayed more externalizing and internalizing symptoms than controls, referred children were not only characterized by higher levels of ADHD symptoms, but also by greater impairment of family and peer relations than at-risk community children or community controls.
Conclusion: The findings suggest that ADHD has major consequences on the family and peer functioning of Cuban children, which may lead to their referral for treatment.

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Journal of Attention Disorders. 2011 May;15:321-27.
THE CHILD'S EXPERIENCE OF ADHD.
Sciberras E, Efron D, Iser A.
Objective: This study aimed to investigate the agreement between parent- and child-reported quality of life (QoL) and the self-perceptions of children with ADHD.
Method: A cross-sectional survey of school-aged children with ADHD and their parents was undertaken.
Results: Parents reported their child's QoL as lower than the children rated themselves in most QoL domains. Children reporting higher QoL than their parents had higher self-worth, than children who reported lower QoL. There was no difference in ADHD or oppositional symptoms or child age for children reporting higher versus lower QoL than their parents. Children reported experiencing ADHD symptoms and positive aspects in taking stimulant medication.
Conclusion: It is important to elicit the report of both parents and children for understanding the functional impairment of children with ADHD. Children who report lower child QoL than their parents have lower overall self-worth; these children may be at risk for developing internalizing difficulties.

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Journal of Attention Disorders. 2011 May;15:310-20.

ALERTING, ORIENTING, AND EXECUTIVE ATTENTION IN CHILDREN WITH ADHD.

Mullane JC, Corkum PV, Klein RM, et al.

Objective: This study evaluated the alerting, orienting, and executive attention abilities of children with ADHD and their typically developing (TD) peers using a modified version of the adult attention network test (ANT-I).

Method: A total of 25 children with ADHD, Combined Type (ADHD-C, mean age = 9.20 years), 20 children with ADHD, Predominantly Inattentive Type (ADHD-I, mean age = 9.58 years), and 45 TD children (mean age = 9.41 years) matched on age and intelligence to the ADHD group completed the ANT-I.

Results: As hypothesized, children with ADHD (n = 45) displayed significantly weaker alerting and executive attention than TD children (n = 45) but did not differ from TD children in orienting ability. Children with ADHD-C (n = 25) did not differ from children with ADHD-I (n = 20) on any of the three networks.

Conclusions: Results supported the growing body of evidence that has found alerting and executive attention deficits in children with ADHD.

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Journal of Attention Disorders. 2011 May;15:269-85.

ITEM RESPONSE THEORY ANALYSES OF PARENT AND TEACHER RATINGS OF THE ADHD SYMPTOMS FOR RECODED DICHOTOMOUS SCORES.

Gomez R, Vance A, Gomez A.

Objective: The two-parameter logistic model (2PLM) was used to evaluate the psychometric properties of the inattention (IA) and hyperactivity/impulsivity (HI) symptoms.

Method: To accomplish this, parents and teachers completed the Disruptive Behavior Rating Scale (DBRS) for a group of 934 primary school-aged children.

Results: The results for the discrimination parameters showed that all the IA and HI symptoms for both groups of respondents were generally good for discriminating those with and without IA and HI, respectively. For virtually all symptoms, their threshold values showed endorsement of the symptoms when the underlying trait levels were at least 1 to 1.5 SD above the mean. The item information function values for most symptoms indicated reasonable reliability from around the mean trait levels to moderately high trait levels.

Conclusion: These findings indicate good discrimination and reliability for parent and teacher ratings of the DBRS for identifying children with relatively high levels of the ADHD symptoms.

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J Child Adolesc Psychopharmacol. 2011;21:111-20.

Psychomotor functioning and alertness with guanfacine extended release in subjects with attention-deficit/hyperactivity disorder.

Kollins SH, Lopez FA, Vince BD, et al.

Objectives: To determine whether treatment with guanfacine extended release (GXR) in subjects with attention-deficit/hyperactivity disorder (ADHD) disrupted psychomotor functioning and alertness, or impacted daytime sleepiness.

Method: This was a randomized, double-blind, placebo-controlled, multicenter, phase 2, dose-optimization, noninferiority, laboratory classroom study of GXR (1, 2, and 3 mg/day) in 182 subjects aged 6 to 17 years with ADHD. Psychomotor functioning and alertness were assessed through several measures, including the Choice Reaction Time (CRT) test from the Cambridge Neuropsychological Test Automated Battery. Sedative effects were examined via spontaneously reported adverse events of sedation, somnolence, and hypersomnia as well as fatigue and lethargy, and with two validated subject- and observer-rated sleepiness scales. Standard efficacy measures for ADHD also were included. Cardiovascular and laboratory parameters were assessed.

Results: There were no significant differences between the GXR and placebo groups on measures of psychomotor functioning or alertness from the CRT at endpoint (least-square mean difference: 2.5 [95% confidence interval (CI): -22.9, 28.0], p = 0.8 for CRT; 2.5 [95% CI: -21.5, 26.4], p = 0.84 for correct responses; 15.5 [95% CI: -45.1, 14.1], p = 0.30 for movement time; and -8.2 [95% CI: -54.1, 37.6] p = 0.72 for total time). Most sedative adverse events were mild to moderate, occurred during dose titration, decreased with dose maintenance, and resolved during the study period. One subject in the GXR group discontinued due to fatigue and somnolence. GXR was not associated with increased daytime sleepiness. GXR treatment was associated with significant improvement in ADHD symptoms (6.3 [95% CI: 2.7, 9.8], p = 0.001 for ADHD Rating Scale IV total scores at endpoint).
Conclusions: At doses that resulted in significant improvement in ADHD symptoms, impairment on cognitive tasks was not observed. Daytime sleepiness did not differ with GXR compared with placebo. Results suggest that the beneficial effects of GXR on ADHD symptoms are independent of sedation.

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J Child Adolesc Psychopharmacol. 2011;21:97-110.

ATOMOXETINE VERSUS PLACEBO IN CHILDREN AND ADOLESCENTS WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER AND COMORBID OPPOSITIONAL DEFIANT DISORDER: A DOUBLE-BLIND, RANDOMIZED, MULTICENTER TRIAL IN GERMANY.

Dittmann RW, Schacht A, Helsberg K, et al.

Objectives: The primary objective of this study was to evaluate the efficacy of atomoxetine (ATX, target dose 1.2 mg/kg daily) on symptoms of oppositional defiant disorder (ODD) in children and adolescents with attention-deficit/hyperactivity disorder (ADHD). A secondary objective was to compare fast versus slow up-titration of ATX.
Methods: This was a 3-arm, 9-week, randomized, placebo-controlled, double-blind study in ADHD patients (6-17 years) with comorbid ODD (Diagnostic and Statistical Manual of Mental Disorders, 4th edition [DSM-IV] criteria A-C) or conduct disorder (CD). ATX-treatment arms were as follows-ATX-fast: 7 days 0.5 mg/kg, then 1.2 mg/kg; ATX-slow: 7 days each at 0.5 and 0.8 mg/kg, then 1.2 mg/kg. Primary outcome was the Swanson, Nolan, and Pelham Rating Scale-Revised (SNAP-IV) ODD-score after 9 weeks (Mixed Effects Model for Repeated Measures, ATX-up-titration groups pooled).
Results: In total, 181 patients were randomized, and 180 evaluated (ATX-fast/ATX-slow/ placebo: 60/61/59). Baseline characteristics were comparable (84.4% boys; mean age 11.0 years; DSM-IV: 100% ADHD, 75.6% with combined type, 74.4% ODD, 24.4% CD; SNAP-IV ODD-scores, mean (plus or minus) standard deviation 15.5 (plus or minus) 4.35). At week 9, SNAP-IV ODD scores were significantly lower versus placebo in both ATX-groups (least square mean [95% confidence interval]: ATX-fast 8.6 [7.2;9.9]; ATX-slow 9.0 [7.7;10.3]; placebo 12.0 [10.6;13.5]; least square mean, ATX-pooled minus placebo: -3.2 [-5.0, -1.5], effect size: -0.69, p < 0.001). SNAP-IV ADHD-scores, CD symptoms (investigator-rated Attention-Deficit and Disruptive Behavior Disorders Instrument, disruptive behavior), Clinical Global Impressions-Severity, and individual treatment behaviors showed corresponding results. Post-hoc analyses indicated interrelationships between the medication effects on ADHD, ODD, and CD symptom scores. For ATX-slow, time to early dropout was significantly longer versus placebo (Hazard Ratio [95% confidence interval]: 3.57 [1.42;8.94]; p = 0.007). Clinically relevant adverse effects (fatigue, sleep disorders, nausea, and gastrointestinal complaints; weeks 1-3) were reported in 60.0% of ATX-fast, 44.3% of ATX-slow, and 18.6% of placebo group patients.
Conclusions: ATX for 9 weeks significantly reduced symptoms of ODD/CD and ADHD; slower ATX-up-titration may be better tolerated.

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J Child Adolesc Psychopharmacol. 2011;21:139-48.

INFORMED CONSENT AND STIMULANT MEDICATION: ADOLESCENTS' AND PARENTS' ABILITY TO UNDERSTAND INFORMATION ABOUT BENEFITS AND RISKS OF STIMULANT MEDICATION FOR THE TREATMENT OF ATTENTION-DEFICIT/HYPERACTIVITY DISORDER.

Schachter D, Tharmalingam S, Kleinman I.

Background: This study of informed consent examines understanding of information needed to consent to stimulant treatment for attention-deficit/ hyperactivity disorder (ADHD). The understanding of adolescents with ADHD, their parents, control adolescents, and their parents is compared.

Method: Fifty-eight ADHD and 64 control adolescents between the ages of 12 and 16 and their parents were studied. Baseline understanding of information was determined. Subjects received information relevant to informed consent for stimulation medication and afterward were evaluated on their recall understanding and their final understanding.

Results: Knowledge was increased after the information session for all subjects. There was no significant difference between unadjusted baseline, recall, and final knowledge of control adolescents and parents. Although unadjusted baseline, recall, and final knowledge of ADHD adolescents is significantly less than that of parents, 78% of ADHD adolescents had final understanding scores within 2 standard deviations of parents' scores. After controlling for baseline understanding and cognitive variables, there was no significant difference between understanding of ADHD adolescents and ADHD parents, whereas control adolescents understanding scores were higher than that of their parents. Understanding was highly associated with mathematics achievement in all groups.

Conclusion: The majority of adolescents with ADHD, both with and without a history of stimulant medication treatment, have understanding that is similar to their parents and their inclusion in the informed consent process should be encouraged. Extra care should be afforded to those adolescents with low numeracy or literacy to ensure their understanding.

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J Child Adolesc Psychopharmacol. 2011 Feb;21:21-32.

A COMPARISON OF ATOMOXETINE ADMINISTERED AS ONCE VERSUS TWICE DAILY DOSING ON THE SCHOOL AND HOME FUNCTIONING OF CHILDREN WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER.

Waxmonsky JG, Waschbusch DA, Akinnusi O, et al.

Objective: This secondary analysis examined the efficacy and tolerability of atomoxetine (ATX) dosed once (QD) versus twice (BID) daily in 55 children aged 6–12 with attention-deficit/hyperactivity disorder (ADHD).

Methods: The original 8-week trial was designed to assess the benefits of adding behavioral therapy to ATX. In it, all subjects were treated openly with ATX, with 50% randomly assigned to additional behavioral treatments. Every subject was started on QD dosing with a target dose of 1.2 mg/kg per day. A switch to BID dosing was allowed at study midpoint to improve tolerability and efficacy. Subjects not responding to ATX at midpoint were also given the option of 0.6 mg/kg dose increase. ADHD and oppositional defiant disorder (ODD) symptoms, global functioning, side effects, and classroom performance were measured weekly.

Results: There were 22 subjects (40%) who switched to BID dosing at midpoint (mean dose = 1.56 mg/kg per day) with the other 33 remaining on QD dosing (mean dose = 1.33 mg/kg per day). The BID group did not display any improvement in parent-rated ODD symptoms during the first 4 weeks of the study on QD dosing, but there was a significant improvement seen after the addition of the second ATX dose ($p < 0.05$). However, BID dosing was not associated with differential rates of change for parent-rated ADHD symptoms or impairment, teacher ratings, or other measures of classroom functioning. BID dosing was associated with decreased rates of stomachaches ($p < 0.05$) but more persistent appetite loss than QD dosing. The degree of improvement observed during the first half of the study in ratings of global impairment and ODD but not ADHD symptoms predicted a switch to BID dosing at midpoint ($p < 0.05$).

Conclusions: The addition of an afternoon dose of ATX was associated with improved control of ODD symptoms at home, with no change in school functioning.

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J Child Adolesc Psychopharmacol. 2011 Feb;21:1-19.

ZINC FOR ATTENTION-DEFICIT/HYPERACTIVITY DISORDER: PLACEBO-CONTROLLED DOUBLE-BLIND PILOT TRIAL ALONE AND COMBINED WITH AMPHETAMINE.

Arnold LE, DiSilvestro RA, Bozzolo D, et al.

Objective: To explore effects of zinc supplementation in American children with attention-deficit/hyperactivity disorder (ADHD). Mideastern trials reported significant benefit from 13–40 mg elemental zinc as the sulfate.

Method: We randomly assigned 52 children aged 6–14 with DSM-IV ADHD to zinc supplementation (15 mg every morning [qAM] or two times per day [b.i.d.] as glycinate, n = 28) or matched placebo (n = 24) for 13 weeks: 8 weeks monotherapy and then 5 weeks with added d-amphetamine (AMPH). AMPH dose was weight-standardized for 2 weeks and then clinically optimized by week 13. Zinc glycinate was chosen as having less gastrointestinal discomfort than sulfate. Hypotheses were that zinc would improve inattention more than placebo by effect size of d > 0.25 at 8 weeks; zinc+AMPH would improve ADHD symptoms more than placebo+AMPH by d > 0.25, and optimal dose of AMPH with zinc would be 20% lower than with placebo. An interim analysis requested by the National Institute of Mental Health resulted in an increased dosage, so that 20 received 15 mg/day qAM and 8 received 30 mg/day (15 mg b.i.d.)

Results: Only the third hypothesis was upheld: Optimal mg/kg AMPH dose with b.i.d. zinc was 37% lower than with placebo. Other clinical outcomes were equivocal, sometimes favoring zinc, sometimes placebo, but objective neuropsychological measures mostly favored b.i.d. zinc (d = 0.36–0.7). Safety tests and adverse events were not different between groups. Copper and iron blood indices were not impaired by 8 weeks of 30 mg/day zinc.

Conclusion: Doses up to 30 mg/day of zinc were safe for at least 8 weeks, but clinical effect was equivocal except for 37% reduction in amphetamine optimal dose with 30 mg/day zinc (not with 15 mg). Possible reasons for difference from mideastern reports include endemic diets, population genetics, relative rate of zinc deficiency, difference in background nutrition, insufficient dosage or absorption, or wrong anion (sulfate may be necessary for reported benefit). Dose may be especially important: All visually impressive advantages over placebo appeared only with 15 mg b.i.d. rather than once a day. Future research should use larger doses than 15 mg/day, provide a basic recommended daily allowance/intake multivitamin/mineral supplement for all to standardize background nutrition, select participants for low zinc, and consider the issue of anion interaction.

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J Child Adolesc Psychopharmacol. 2011;21:133-38.

METHYLPHENIDATE TREATMENT AND DYSKINESIA IN CHILDREN WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER.

Balazs J, Dallos G, Kereszteny A, et al.

Objectives: Case reports suggest a relationship between methylphenidate treatment and dyskinesia in attention-deficit/hyperactivity disorder (ADHD). The aim of the current study was (a) to investigate abnormal involuntary movements of children with ADHD before and after the administration of methylphenidate and (b) to investigate the effect of a provocative assessment method used to make latent dyskinesia visible, which is included in the Abnormal Involuntary Movement Scale (AIMS).

Methods: Participants, aged 6-18, were recruited from a Child and Adolescent Psychiatric Hospital and Outpatient Clinic (Vadaskert Foundation), Budapest, Hungary. Using a structured diagnostic interview (Mini International Neuropsychiatric Interview Kid), 37 children were included in the ADHD group and 34 children in the control group. The AIMS was used to observe and score dyskinesia.

Results: There was a significant difference between the baseline total AIMS score in the ADHD and the control groups, with the ADHD subjects evidencing substantially higher severity than controls. Provocation, as applied with the administration of the AIMS, significantly increased the AIMS total score in both groups. The administration of methylphenidate had no effect on the total score of the AIMS. In the ADHD group, we observed a significant negative relationship between the patients' age and the overall severity on the AIMS. In contrast, in the control group we detected a significant positive relationship between the patients' age and the overall severity on the AIMS before and no relationship after provocation.
Conclusions: Methylphenidate- treated children with ADHD had more dyskinesia than children in the control group. Dyskinesia did not worsen after a single dose of methylphenidate. Higher dyskinesia scores in the methylphenidate-treated younger age group warrant caution in the methylphenidate treatment of ADHD; however, further studies are needed to clarify the possible causal relationship between dyskinesia and methylphenidate treatment and/or age and/or the disease itself.

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J Child Adolesc Psychopharmacol. 2011 Feb;21:57-66.

MEDICATION REFUSAL IN CHILDREN WITH OPPOSITIONAL DEFIANT DISORDER OR CONDUCT DISORDER AND COMORBID ATTENTION-DEFICIT/HYPERACTIVITY DISORDER: MEDICATION HISTORY AND CLINICAL CORRELATES.

Demidovich M, Kolko DJ, Bukstein OG, et al.

Objective: This study examines the characteristics of 96 children with attention-deficit/hyperactivity disorder (ADHD) and their families who refused a recommendation for medication as part of their treatment for disruptive disorders.
Methods: The ADHD cases were taken from a sample of 139 youth (age 6–11) who were recruited for a clinical trial that compared the administration of a modular psychosocial treatment in an outpatient clinic or community settings. Medication management was an optional treatment module for children with ADHD in both conditions. Children who were (vs. were not) taking medication at intake, and children who accepted (vs. refused) medication recommendations during the study were compared on diagnostic and clinical measures related to child, school, parent, and family domains of functioning.
Results: Parents of 30% of the children refused study medication for ADHD. Parental medication acceptability and intake correlated highly with both medication history and study refusal of medication. Increased parental self-efficacy and emotional support for their youth correlated with medication refusal. No demographics and few child or school factors were associated with medication refusal. Medication use was associated with reductions in some key ADHD symptoms, but did not affect disruptive behaviors as did the psychosocial interventions.
Conclusion: Medication refusers remain poorly understood but certain correlates, such as parental self-efficacy, parental emotional support for their youth, and medication acceptability, warrant further evaluation.

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J Child Adolesc Psychopharmacol. 2011;21:121-31.

ACADEMIC, BEHAVIORAL, AND COGNITIVE EFFECTS OF OROS(REGISTERED TRADEMARK) METHYLPHENIDATE ON OLDER CHILDREN WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER.

Wigal SB, Wigal T, Schuck S, et al.

Objective: To assess the effect of Osmotic-Release Oral System (OROS) methylphenidate (MPH) on a variety of measures evaluating academic performance, cognition, and social behavior in children with attention-deficit/hyperactivity disorder (ADHD).
Methods: This double-blind, randomized, placebo-controlled, crossover laboratory school study enrolled 78 children aged 9-12 years with ADHD who responded to OROS MPH. After determining individualized OROS MPH dosing (18-54 mg/day), 71 subjects received blinded treatment (OROS MPH or placebo then vice versa) on each of 2 laboratory school days, separated by 1 week. Primary efficacy was measured by Permanent Product Measure of Performance at 4 hours after study drug administration.

Results: Treatment with OROS MPH resulted in statistically significant improvement in Permanent Product Measure of Performance and Swanson, Kotkin, Agler, M-Flynn, and Pelham scores, measures of response time, and of working memory compared to placebo. Other measures did not meet all pre-established criteria for significance (maintenance of the overall type I error rate at 5%). Adverse events were consistent with previous reports of stimulant medications used in the management of ADHD. There were no discontinuations due to adverse events, and no serious adverse events or deaths.
Conclusions: OROS MPH dosed to reduce core symptoms of ADHD to within the normal range also improved performance on a variety of academic tasks in school-aged children compared to placebo. Adverse effects reported were consistent with prior studies. Clinical Trial Registry Information: Double-Blind, Randomized, Placebo-Controlled, Crossover Study Evaluating the Academic, Behavioral and Cognitive Effects of Concerta on Older Children with ADHD, URL:
http://clinicaltrials.gov/ct2/show/NCT00799409, unique identifier: NCT00799409.

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J Clin Psychopharmacol. 2011;31:309-17.
DO PHENOTYPIC CHARACTERISTICS, PARENTAL PSYCHOPATHOLOGY, FAMILY FUNCTIONING, AND ENVIRONMENTAL STRESSORS HAVE A ROLE IN THE RESPONSE TO METHYLPHENIDATE IN CHILDREN WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER?: A NATURALISTIC STUDY FROM A DEVELOPING COUNTRY.
Chazan R, Borowski C, Pianca T, et al.
Little is known about the effect of clinical characteristics, parental psychopathology, family functioning, and environmental stressors in the response to methylphenidate in children with attention-deficit/hyperactivity disorder (ADHD) followed up in a naturalistic setting. Data from cultures outside the United States are extremely scarce. This is a longitudinal study using a nonrandom assignment, quasi-experimental design. One hundred twenty-five children with ADHD were treated with methylphenidate according to standard clinical procedures, and followed up for 6 months. The severity of ADHD symptoms was assessed by the Swanson, Nolan, and Pelham rating scale. In the final multivariate model, ADHD combined subtype ($P < 0.001$) and comorbidity with oppositional defiant disorder ($P = 0.03$) were both predictors of a worse clinical response. In addition, the levels of maternal ADHD symptoms were also associated with worse prognosis ($P < 0.001$). In the context of several adverse psychosocial factors assessed, only undesired pregnancy was associated with poorer response to methylphenidate in the final comprehensive model ($P = 0.02$). Our study provides evidence for the involvement of clinical characteristics, maternal psychopathology, and environmental stressors in the response to methylphenidate. Clinicians may consider adjuvant strategies when negative predictors are present to increase the chances of success with methylphenidate treatment.

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J Neural Transm. 2011;118:275-84.
ADHD AND EEG-NEUROFEEDBACK: A DOUBLE-BLIND RANDOMIZED PLACEBO-CONTROLLED FEASIBILITY STUDY.
Lansbergen MM, Van Dongen-Boomsma M, Buitelaar JK, et al.
Electroencephalography (EEG)-neurofeedback has been shown to offer therapeutic benefits to patients with attention-deficit/hyperactivity disorder (ADHD) in several, mostly uncontrolled studies. This pilot study is designed to test the feasibility and safety of using a doubleblind placebo feedback-controlled design and to explore the initial efficacy of individualized EEG-neurofeedback training in children with ADHD. Fourteen children (8-15 years) with ADHD defined according to the DSM-IV-TR criteria were randomly allocated to 30 sessions of EEG-neurofeedback (n = 8) or placebo feedback (n = 6). Safety measures (adverse events and sleep problems), ADHD symptoms and global improvement were monitored. With respect to feasibility, all children completed the study and attended all study visits and training sessions. No significant adverse effects or sleep problems were reported. Regarding the expectancy, 75% of children and their parent(s) in the active neurofeedback group and 50% of children and their parent(s) in the placebo feedback group thought they received placebo feedback training. Analyses revealed significant improvements of ADHD symptoms over time, but changes were similar for both groups. This pilot study shows that it is feasible to

conduct a rigorous placebo-controlled trial to investigate the efficacy of neurofeedback training in children with ADHD. However, a double-blind design may not be feasible since using automatic adjusted reward thresholds may not work as effective as manually adjusted reward thresholds. Additionally, implementation of active learning strategies may be an important factor for the efficacy of EEG neurofeedback training. Based on the results of this pilot study, changes are made in the design of the ongoing study.

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J Pediatr Endocrinol Metab. 2011;24:229-31.
CO-EXISTENCE OF ADHD, AUTOIMMUNE HYPOTHYROIDISM AND PITUITARY MACROADENOMA PRESENTING IN A BEHAVIOUR CLINIC: A CASE REPORT AND BRIEF REVIEW OF THE LITERATURE.
Banerjee J, Bhojani S, Emcy N.

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J Psychiatr Res. 2011;45:808-13.
THE INFLUENCE OF TELEVISION AND VIDEO GAME USE ON ATTENTION AND SCHOOL PROBLEMS: A MULTIVARIATE ANALYSIS WITH OTHER RISK FACTORS CONTROLLED.
Ferguson CJ.
Background: Research on youth mental health has increasingly indicated the importance of multivariate analyses of multiple risk factors for negative outcomes. Television and video game use have often been posited as potential contributors to attention problems, but previous studies have not always been well-controlled or used well-validated outcome measures. The current study examines the multivariate nature of risk factors for attention problems symptomatic of attention deficit hyperactivity disorder and poor school performance.
Method: A predominantly Hispanic population of 603 children (ages 10-14) and their parents/guardians responded to multiple behavioral measures. Outcome measures included parent and child reported attention problem behaviors on the Child Behavior Checklist (CBCL) as well as poor school performance as measured by grade point average (GPA).
Results: Results found that internal factors such as male gender, antisocial traits, family environment and anxiety best predicted attention problems. School performance was best predicted by family income. Television and video game use, whether total time spent using, or exposure to violent content specifically, did not predict attention problems or GPA.
Interpretation: Television and video game use do not appear to be significant predictors of childhood attention problems. Intervention and prevention efforts may be better spent on other risk factors.

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J Psychiatry Neurosci. 2011;36:216.
PSYCHOPHARMACOLOGY FOR THE CLINICIAN.
Hechtman L.

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Journal of Psychoeducational Assessment. 2011 Apr;29:114-24.
PREDICTORS OF SOCIAL SKILLS FOR PRESCHOOL CHILDREN AT RISK FOR ADHD: THE RELATIONSHIP BETWEEN DIRECT AND INDIRECT MEASUREMENTS.
Thomas LB, Shapiro ES, DuPaul GJ, et al.
The relationship between direct and indirect measurements of social skills and social problem behaviors for preschool children at risk for attention deficit hyperactivity disorder (ADHD) was examined. Participants

included 137 preschool children, aged 3 to 5 years, at risk for ADHD, who were participating in a larger study examining the effects of early intervention for young children. Teachers rated the social skills and social problems of the participants. Direct observation data of participants were also collected at preschool during free play. Results support previous research on social skills assessment and suggest that indirect and direct measures may not be measuring the same aspect of social skills. Thus, a variety of evaluation tools are necessary to comprehensively assess the social skills of preschool children with social challenges.

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Journal of the American Academy of Child & Adolescent Psychiatry. 2011 Apr;50:395-405.

EFFICACY AND SAFETY OF LISDEXAMFETAMINE DIMESYLATE IN ADOLESCENTS WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER.

Findling RL, Childress AC, Cutler AJ, et al.

Objective: To examine lisdexamfetamine dimesylate (LDX) efficacy and safety versus placebo in adolescents with attention-deficit/hyperactivity disorder (ADHD).

Method: Adolescents (13 through 17) with at least moderately symptomatic ADHD (ADHD Rating Scale IV: Clinician Version [ADHD-RS-IV] score >28) were randomized to placebo or LDX (30, 50, or 70 mg/d) in a 4-week, forced-dose titration, double-blind study. Primary and secondary efficacy measures were the ADHD-RS-IV, Clinical Global Impressions-Improvement (CGI-I), and Youth QOL-Research Version (YQOL-R). Safety assessments included treatment-emergent adverse events (TEAEs), vital signs, laboratory findings, physical examinations, and ECG.

Results: Overall, 314 participants were randomized; 309 were in efficacy analyses and 49 withdrew (11 due to TEAEs). Least squares mean (SE) change from baseline at endpoint in ADHD-RS-IV total scores were -18.3 (1.25), -21.1 (1.28), -20.7 (1.25) for 30, 50, and 70 mg/d LDX, respectively; -12.8 (1.25) for placebo ($p = .0056$ versus placebo for each). Differences in ADHD-RS-IV total scores favored all LDX doses versus placebo at all weeks ($p = .0076$). On the CGI-I, 69.1% of participants were rated very much/much improved at endpoint with LDX all doses versus placebo (39.5%) ($p < .0001$). YQOL-R changes at endpoint scores for LDX groups versus placebo were not significant. Commonly reported LDX (all doses combined) TEAEs (=5%) were decreased appetite, headache, insomnia, decreased weight, and irritability. Small mean increases in pulse and blood pressure and no clinically meaningful trends in ECG changes were noted with LDX.

Conclusions: LDX at all doses was effective versus placebo in treating adolescent ADHD and demonstrated a safety profile consistent with previous LDX studies.

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J Am Acad Child Adolesc Psychiatry. 2011;50:480-89.

STIMULANT ADHERENCE AND ACADEMIC PERFORMANCE IN URBAN YOUTH WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER.

Marcus SC, Durkin M.

Objective: This analysis assessed whether stimulant adherence was associated with improvement in academic grade point average (GPA) among children diagnosed with and treated for attention-deficit/hyperactivity disorder (ADHD).

Method: Medicaid claims were merged with academic records from Philadelphia public schools of Medicaid-eligible children in first through eighth grades who were diagnosed with ADHD and who had filled one or more stimulant prescription. Students diagnosed with mental retardation, autism, or speech, hearing, visual, or language impairments were excluded. Marking periods were scored for GPA (range: 04.0) based on English, mathematics, social studies, and science grades and for stimulant adherence (medication possession ratio < 0.70). Random and fixed-effects models estimated the effects of stimulant adherence on GPA, between all adherent and nonadherent marking periods in aggregate and within individual student's marking periods, respectively.

Results: A total of 3,543 students contributed 29,992 marking periods, of which 18.6% were adherent. Mean GPA was significantly higher during stimulant-adherent (2.18) than stimulant-nonadherent (1.99) marking periods in aggregate ($p < .0001$). The regression coefficient representing within-student association between stimulant adherence and GPA over time was 0.108 ($p < .0001$), indicating that adherence was associated with a 0.108 increase in GPA. In stratified analyses, analogous coefficients were 0.106 for boys, 0.111 for girls, 0.078 for elementary students, and 0.118 for middle school students (all $p < .0001$). The association was stronger among students with (0.139) than without (0.088) comorbid disruptive behavior disorders (both $p < .0001$).
Conclusions: Stimulant adherence, although found to be low among urban elementary and middle school students diagnosed with ADHD, was associated with a marginal improvement in GPA.

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J Am Acad Dermatol. 2011;64:1218-19.
BLUE TOES AFTER STIMULANT THERAPY FOR PEDIATRIC ATTENTION DEFICIT HYPERACTIVITY DISORDER.
Al Aboud A, Abrams M, Mancini AJ.

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Klin Psikofarmakol Bul. 2011;21:42-48.
P50 SENSORY GATING IN CHILDREN AND ADOLESCENTS WITH ADHD AND EFFECTS OF METHYLPHENIDATE ADMINISTRATION ON P50 SENSORY GATING.
Durukan I, Yucel M, Erdem M, et al.
P50 sensory gating in children and adolescents with ADHD and effects of methylphenidate administration on P50 sensory gating Objective: The P50 is thought to reflect a sensory gating mechanism and prevent information overload in humans. Failure to inhibit the P50 auditory event evoked response can occur in attention deficit hyperactivity disorder (ADHD) patients. The aims of the present study were to examine the inhibition of the P50 auditory event evoked potential and the effects of methyphenidate administration on P50 parameters in children and adolescents diagnosed with ADHD. Methods: Twenty-two drug-free subjects, aged 9-14, who were diagnosed with ADHD (the combined type) according to the DSM-IV criteria, and 18 mentally and physically healthy subjects, aged 9-12, were included in the study. First, P50 parameters were measured in drug-free ADHD subjects and healthy controls. Following this measurement, 10 mg of methylphenidate was administered to the ADHD group. The P50 measurement was repeated 1 hour following methylphenidate administration in the ADHD subjects. The healthy control group was not re-examined. Results: A significant difference was found in P50 test latency, test amplitude, and P50 ratio values between the ADHD group and healthy controls. Significant differences were also found in conditioning latency, test latency, test amplitude, and P50 ratio values between before and after methyphenidate administration in the ADHD group. Conclusions: The results of the present study point out an association between P50 and ADHD and they also show that methyphenidate administration increases the P50 suppression level. Since, this is the first study evaluating sensory gating in children and adolescents with ADHD, it should be considered as a preliminary study. Further studies with large study samples are warranted.

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Mol Psychiatry. 2011;16:491-503.
GENOME-WIDE COPY NUMBER VARIATION ANALYSIS IN ATTENTION-DEFICIT/ HYPERACTIVITY DISORDER: ASSOCIATION WITH NEUROPEPTIDE Y GENE DOSAGE IN AN EXTENDED PEDIGREE.
Lesch KP, Selch S, Renner TJ, et al.
Attention-deficit/hyperactivity disorder (ADHD) is a common, highly heritable neurodevelopmental syndrome characterized by hyperactivity, inattention and increased impulsivity. To detect micro-deletions

and micro-duplications that may have a role in the pathogenesis of ADHD, we carried out a genome-wide screen for copy number variations (CNVs) in a cohort of 99 children and adolescents with severe ADHD. Using high-resolution array comparative genomic hybridization (aCGH), a total of 17 potentially syndrome-associated CNVs were identified. The aberrations comprise 4 deletions and 13 duplications with approximate sizes ranging from 110 kb to 3 Mb. Two CNVs occurred de novo and nine were inherited from a parent with ADHD, whereas five are transmitted by an unaffected parent. Candidates include genes expressing acetylcholine-metabolizing butyrylcholinesterase (BCHE), contained in a de novo chromosome 3q26.1 deletion, and a brain-specific pleckstrin homology domain-containing protein (PLEKHB1), with an established function in primary sensory neurons, in two siblings carrying a 11q13.4 duplication inherited from their affected mother. Other genes potentially influencing ADHD-related psychopathology and involved in aberrations inherited from affected parents are the genes for the mitochondrial NADH dehydrogenase 1 (alpha) subcomplex assembly factor 2 (NDUFAF2), the brain-specific phosphodiesterase 4D isoform 6 (PDE4D6) and the neuronal glucose transporter 3 (SLC2A3). The gene encoding neuropeptide Y (NPY) was included in a ~3 Mb duplication on chromosome 7p15.2-15.3, and investigation of additional family members showed a nominally significant association of this 7p15 duplication with increased NPY plasma concentrations (empirical family-based association test, P0.023). Lower activation of the left ventral striatum and left posterior insula during anticipation of large rewards or losses elicited by functional magnetic resonance imaging links gene dose-dependent increases in NPY to reward and emotion processing in duplication carriers. These findings implicate CNVs of behaviour-related genes in the pathogenesis of ADHD and are consistent with the notion that both frequent and rare variants influence the development of this common multifactorial syndrome.

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Neurology. 2011 Feb;76:615-21.

MOTOR CORTEX INHIBITION: A MARKER OF ADHD BEHAVIOR AND MOTOR DEVELOPMENT IN CHILDREN.

Gilbert DL, Isaacs KM, Augusta M, et al.

Objective: Attention-deficit/hyperactivity disorder (ADHD) is a childhood-onset behavioral diagnosis in which children often fail to meet age norms in development of motor control, particularly timed repetitive and sequential movements, motor overflow, and balance. The neural substrate of this motor delay may include mechanisms of synaptic inhibition in or adjacent to the motor cortex. The primary objective of this study was to determine whether transcranial magnetic stimulation (TMS)–evoked measures, particularly short interval cortical inhibition (SICI), in motor cortex correlate with the presence and severity of ADHD in childhood as well as with commonly observed delays in motor control.

Methods: In this case-control study, behavioral ratings, motor skills, and motor cortex physiology were evaluated in 49 children with ADHD (mean age 10.6 years, 30 boys) and 49 typically developing children (mean age 10.5 years, 30 boys), all right-handed, aged 8–12 years. Motor skills were evaluated with the Physical and Neurological Examination for Subtle Signs (PANESS) and the Motor Assessment Battery for Children version 2. SICI and other physiologic measures were obtained using TMS in the left motor cortex.

Results: In children with ADHD, mean SICI was reduced by 40% ($p < 0.0001$) and less SICI correlated with higher ADHD severity ($r = -0.52$; $p = 0.002$). Mean PANESS motor development scores were 59% worse in children with ADHD ($p < 0.0001$). Worse PANESS scores correlated modestly with less SICI ($r = -.30$; $p = 0.01$).

Conclusion: Reduced TMS-evoked SICI correlates with ADHD diagnosis and symptom severity and also reflects motor skill development in children.

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Neurology. 2011 Feb;76:622-28.

QUANTIFYING EXCESSIVE MIRROR OVERFLOW IN CHILDREN WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER.

MacNeil LK, Xavier P, Garvey MA, et al.

Objectives: Qualitative observations have revealed that children with attention-deficit/hyperactivity disorder (ADHD) show increased overflow movements, a motor sign thought to reflect impaired inhibitory control. The goal of this study was to develop and implement methods for quantifying excessive mirror overflow movements in children with ADHD.

Methods: Fifty right-handed children aged 8.2–13.3 years, 25 with ADHD (12 girls) and 25 typically developing (TD) control children (10 girls), performed a sequential finger-tapping task, completing both left-handed (LHFS) and right-handed finger sequencing (RHFS). Phasic overflow of the index and ring fingers was assessed in 34 children with video recording, and total overflow in 48 children was measured by calculating the total angular displacement of the index and ring fingers with electrogoniometer recordings.

Results: Phasic overflow and total overflow across both hands were greater in children with ADHD than in TD children, particularly during LHFS. Separate gender analyses revealed that boys, but not girls, with ADHD showed significantly more total phasic overflow and total overflow than did their gender-matched control children.

Conclusions: The quantitative overflow measures used in this study support past qualitative findings that motor overflow persists to a greater degree in children with ADHD than in age-matched TD peers. The quantitative findings further suggest that persistence of mirror overflow is more prominent during task execution of the nondominant hand and reveal gender-based differences in developmental neural systems critical to motor control. These quantitative measures will assist future physiologic investigation of the brain basis of motor control in ADHD.

Neuropediatrics. 2011;42:30-31.

METHYLPHENIDATE-INDUCED VISUAL HALLUCINATIONS.

Porfirio MC, Giana G, Giovinazzo S, et al.

An 11-year-old boy with attention deficit/hyperactivity disorder (ADHD) presented with visual hallucinations several years after starting methylphenidate (MPH). The hallucinations resolved upon discontinuation of the drug. Reports of toxic hallucinosis during treatment with MPH are rare. Although the pathogenetic mechanism is unclear, the occurrence of hallucinations may be explained by a chronic increase in synaptic dopamine. Clinicians should be aware of this possible rare adverse manifestation occurring at therapeutic doses.

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Neuropsychopharmacology. 2011 Apr;36:1060-72.

EFFECTS OF STIMULANT MEDICATION, INCENTIVES, AND EVENT RATE ON REACTION TIME VARIABILITY IN CHILDREN WITH ADHD.

Epstein JN, Brinkman WB, Froehlich T, et al.

This study examined the effects of methylphenidate (MPH) on reaction time (RT) variability in children with attention deficit hyperactivity disorder (ADHD). Using a broad battery of computerized tasks, and both conventional and ex-Gaussian indicators of RT variability, in addition to within-task manipulations of incentive and event rate (ER), this study comprehensively examined the breadth, specificity, and possible moderators of effects of MPH on RT variability. A total of 93 children with ADHD completed a 4-week within-subject, randomized, double-blind, placebo-controlled crossover trial of MPH to identify an optimal dosage. Children were then randomly assigned to receive either their optimal MPH dose or placebo after which they completed five neuropsychological tasks, each allowing trial-by-trial assessment of RTs. Stimulant effects on RT variability were observed on both measures of the total RT distribution (ie, coefficient of variation) as well as on an ex-Gaussian measure examining the exponential portion of the RT distribution (ie, t). There was minimal, if any, effect of MPH on performance accuracy or RT speed. Within-task incentive and ER manipulations did not appreciably affect stimulant effects across the tasks. The pattern of significant and pervasive effects of MPH on RT variability, and few effects of MPH on accuracy and RT speed suggest that MPH primarily affects RT variability. Given the magnitude and breadth of

effects of MPH on RT variability as well as the apparent specificity of these effects of MPH on RT variability indicators, future research should focus on neurophysiological correlates of effects of MPH on RT variability in an effort to better define MPH pharmacodynamics.

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Occup Environ Med. 2011.

URINARY TRICHLOROPHENOL LEVELS AND INCREASED RISK OF ATTENTION DEFICIT HYPERACTIVITY DISORDER AMONG US SCHOOL-AGED CHILDREN.

Xu X, Nembhard WN, Kan H, et al.

Background: Trichlorophenols (TCPs) are organochlorine compounds which are ubiquitous in the environment and well known for their carcinogenic effects. However, little is known about their neurotoxicity in humans. Objectives: Our goal was to examine the association between body burden of TCPs (ie, 2,4,5-TCP and 2,4,6-TCP) and attention deficit hyperactivity disorder (ADHD).

Methods: We calculated ORs and 95% CIs from logistic regression analyses using data from the 1999-2004 National Health and Nutrition Examination Survey (NHANES) to evaluate the association between urinary TCPs and parent-reported ADHD among 2546 children aged 6-15 years.

Results: Children with low levels (<3.58 (mu)g/g) and high levels ((greater-than or equal to)3.58 (mu)g/g) of urinary 2,4,6-TCP had a higher risk of parent-reported ADHD compared to children with levels below the limit of detection (OR 1.54, 95% CI 0.97 to 2.43 and OR 1.77, 95% CI 1.18 to 2.66, respectively; p for trend=0.006) after adjusting for covariates. No association was found between urinary 2,4,5-TCP and parent-reported ADHD.

Conclusion: Exposure to TCP may increase the risk of behavioural impairment in children. The potential neurotoxicity of these chemicals should be considered in public health efforts to reduce environmental exposures/contamination, especially in countries where organochlorine pesticides are still commonly used.

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Pediatr Blood Cancer. 2011;57:110-18.

ADHD AND SECONDARY ADHD CRITERIA FAIL TO IDENTIFY MANY AT-RISK SURVIVORS OF PEDIATRIC ALL AND BRAIN TUMOR.

Kahalley LS, Conklin HM, Tyc VL, et al.

Background: Post-treatment attention problems experienced by pediatric cancer survivors have been described as similar to symptoms of Attention-Deficit/Hyperactivity Disorder (ADHD) experienced in physically healthy children.

Accordingly, the objectives of this study were to: (a) estimate the rate of occurrence of ADHD and secondary ADHD (SADHD) in a sample of pediatric cancer survivors, (b) compare the rate of ADHD/SADHD among survivors to the prevalence of ADHD in the general population, and (c) examine clinical correlates of ADHD/SADHD in this sample.

Procedure: Survivors of pediatric ALL or brain tumor (n=100) participated in an assessment of attention including a Computerized Performance Measure [Conners' Continuous Performance test-II (CPT-II)], parent and self-report measures (Conners 3), and a structured diagnostic interview for ADHD and other psychological disorders [Diagnostic Interview for Children and Adolescents-IV (DICA-IV)].

Results: Binomial tests revealed that the rate of ADHD/SADHD in our sample (9%) was significantly greater than the lower limits of ADHD prevalence among children in the US (3%; P<0.001), while no difference was identified compared to the upper limits of ADHD prevalence (7%; P>0.05). Many additional survivors (>25% of the sample) obtained clinical elevations on Conners 3 scales but did not meet ADHD/SADHD criteria.

Conclusions: Attentional deficits experienced by pediatric cancer survivors do not appear to resemble the clinical presentation of ADHD or SADHD. Many survivors with cognitive and behavioral difficulties related to

attention were not identified using this diagnostic approach. Findings offer needed clarification to guide researchers and clinicians in conceptualizing, assessing, and intervening on attentional late effects.

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Pediatrics. 2011;127:858-65.

PRETERM BIRTH AND ATTENTION-DEFICIT/HYPERACTIVITY DISORDER IN SCHOOLCHILDREN.

Lindstrom K, Lindblad F, Hjern A.

OBJECTIVE: Previous studies have demonstrated an increased risk for attention-deficit/hyperactivity disorder (ADHD) in follow-up studies of preterm survivors from NICUs. In this study we analyzed the effect of moderate as well as extreme preterm birth on the risk for ADHD in school age, taking into account genetic, perinatal, and socioeconomic confounders.

METHODS: Register study in a Swedish national cohort of 1 180 616 children born between 1987 and 2000, followed up for ADHD medication in 2006 at the age of 6 to 19 years. Logistic regression was used to test hypotheses. A within-mother-between-pregnancy design was used to estimate the importance of genetic confounding in a subpopulation of offspring (N = 34 334) of mothers who had given birth to preterm ((less-than or equal to)34 weeks) as well as term infants.

RESULTS: There was a stepwise increase in odds ratios for ADHD medication with increasing degree of immaturity at birth; from 2.1 (1.4-2.7) for 23 to 28 weeks' gestation, to 1.6 (1.4 -1.7) for 29 to 32 weeks', 1.4 (1.2-1.7) for 33 to 34 weeks', 1.3 (1.1-1.4) for 35 to 36 weeks', and 1.1 (1.1-1.2) for 37 to 38 weeks' gestation compared with infants born at 39 to 41 weeks' gestation in the fully adjusted model. The odds ratios for the within-mother-between-pregnancy analysis were very similar. Low maternal education increased the effect of moderate, but not extreme, preterm birth on the risk for ADHD.

CONCLUSION: Preterm and early term birth increases the risk of ADHD by degree of immaturity. This main effect is not explained by genetic, perinatal, or socioeconomic confounding, but socioeconomic context modifies the risk of ADHD in moderately preterm births.

Progress in Neuro-Psychopharmacology & Biological Psychiatry. 2011 Mar;35:577-87.

ROLE OF GENE–GENE/GENE–ENVIRONMENT INTERACTION IN THE ETIOLOGY OF EASTERN INDIAN ADHD PROBANDS.

Das M, Bhowmik AD, Bhaduri N, et al.

Associations between attention deficit hyperactivity disorder (ADHD) and genetic polymorphisms in the dopamine receptors, transporter and metabolizing enzymes have been reported in different ethnic groups. Gene variants may affect disease outcome by acting synergistically or antagonistically and thus their combined effect becomes an important aspect to study in the disease etiology. In the present investigation, interaction between ten functional polymorphisms in DRD4, DAT1, MAOA, COMT, and DBH genes were explored in the Indo–Caucasoid population. ADHD cases were recruited based on DSM-IV criteria. Peripheral blood samples were collected from ADHD probands (N = 126), their parents (N = 233) and controls (N = 96) after obtaining informed written consent for participation. Genomic DNA was subjected to PCR based analysis of single nucleotide polymorphisms and variable number of tandem repeats (VNTRs). Data obtained was examined for population as well as family-based association analyses. While case–control analysis revealed higher occurrence of DAT1 intron 8 VNTR 5R allele (P = 0.02) in cases, significant preferential transmission of the 7R-T (DRD4 exon3 VNTR-rs1800955) and 3R-T (MAOA-u VNTR-rs6323) haplotypes were noticed from parents to probands (P = 0.02 and 0.002 respectively). Gene–gene interaction analysis revealed significant additive effect of DBH rs1108580 and DRD4 rs1800955 with significant main effects of DRD4 exon3 VNTR, DAT1 3'UTR and intron 8 VNTR, MAOA u-VNTR, rs6323, COMT rs4680, rs362204, DBH rs1611115 and rs1108580 thereby pointing towards a strong association of these markers with ADHD. Correlation between gene variants, high ADHD score and low DBH enzymatic activity was also noticed, especially in male probands. From these observations, an impact of the studied sites on the disease etiology could be speculated in this ethnic group.

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Psychiatry Res. 2011 May;187:437-40.

IDENTIFICATION OF ATTENTION-DEFICIT-HYPERACTIVITY DISORDER AND CONDUCT DISORDER IN MEXICAN CHILDREN BY THE SCALE FOR EVALUATION OF DEFICIT OF ATTENTION AND HYPERACTIVITY.

Zambrano-Sanchez E, Martinez-Cortes JA, del Rio-Carlos Y, et al.

The objective was weighing the usefulness of a Spanish-language Scale for the evaluation of deficit of attention and hyperactivity (EDAH) to identify children with attention deficit-hyperactivity disorder (AD-HD) and conduct disorder (CD) in a sample of school-aged children. We studied 132 children from a government-run public elementary school previously selected by teachers as having learning and attention disorders. We screened children of the sample with parents' and teachers' EDAH and Diagnostic and Statistical Manual of Mental Disorders-IV edition Text Revision (DSM-IV-TR) questionnaires, and performed an interdisciplinary clinical examination for the final diagnosis. We found 81 children with AD-HD and 51 children without AD-HD. AD-HD was classified as follows: AD-HD-combined (-C), n=32; AD-HD-inattentive (-I), n=17 and AD-HD-hyperactive (-H), n=32. Cronbach's alpha calculation for the EDAH parents' questionnaire was 0.76, and for teachers, 0.80. Sensitivity of the teachers' EDAH questionnaire was 0.94, and specificity, 0.91. Sensitivity of the parents' EDAH questionnaire was 0.91, while specificity was 0.87. The data of EDAH parents' and teachers' questionnaires have a concordance of 93.1% and 80%, respectively. The correlation of scores among parents' and teachers' EDAH scales was significant. The correlation between results from parents' and teachers' DSM-IV-TR and EDAH questionnaires was also significant. Our results partially support the use of EDAH questionnaires for AD-HD and CD screening in Spanish-speaking populations.

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Psychiatry Res. 2011 May;187:204-09.

CORTISOL REACTIVITY IN BOYS WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER AND DISRUPTIVE BEHAVIOR PROBLEMS: THE IMPACT OF CALLOUS UNEMOTIONAL TRAITS.

Stadler C, Kroeger A, Weyers P, et al.

There is a body of literature demonstrating an association between altered hypothalamic pituitary adrenal (HPA) axis reactivity and aggressive behavior. Aggressive and disruptive behavior also is highly prevalent in children with attention deficit/hyperactivity disorder (ADHD). Findings on HPA-axis reactivity in ADHD, however, are rather inconsistent. Specific temperamental risk factors previously were associated with a specific subtype of severe disruptive behavior. These traits might also be characterized by a distinct neurobiological profile across ADHD and disruptive behavior disorders. In this study we focus on psychopathic traits, notably callous unemotional (CU) traits. The main objective of the present study was to investigate whether two groups of ADHD patients with high or low CU traits differed in cortisol reactivity. Subjects were 36 boys with ADHD and disruptive behavior symptoms aged 8 to 14 years. Salivary cortisol probes were taken before and repeatedly after an experimental standardized stress test. Patients scoring high on CU traits showed a blunted HPA axis reactivity to the experimentally induced stress. Results underscore the need to consider specific personality traits in investigating neurobiological correlates in ADHD with disruptive behavior problems.

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Psychological Reports. 2011 Feb;108:3-13.

USE OF GILLIAM ASPERGER'S DISORDER SCALE IN DIFFERENTIATING HIGH AND LOW FUNCTIONING AUTISM AND ADHD.

Mayes SD, Calhoun SL, Murray MJ, et al.

Little is known about the validity of Gilliam Asperger's Disorder Scale (GADS), although it is widely used. This study of 199 children with high functioning autism or Asperger's Disorder, 195 with low functioning autism, and 83 with Attention Deficit Hyperactivity Disorder (ADHD) showed high classification accuracy (autism vs ADHD) for clinicians' GADS Quotients (92%), and somewhat lower accuracy (77%) for parents' Quotients. Both children with high and low functioning autism had clinicians' Quotients (M = 99 and 101,

respectively) similar to the Asperger's Disorder mean of 100 for the GADS normative sample. Children with high functioning autism scored significantly higher on the Cognitive Patterns subscale than children with low functioning autism, and the latter had higher scores on the remaining subscales: Social Interaction, Restricted Patterns of Behavior, and Pragmatic Skills. Using the clinicians' Quotient and Cognitive Patterns score, 70% of children were correctly identified as having high or low functioning autism or ADHD.

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Psychosomatics: Journal of Consultation Liaison Psychiatry. 2011 Mar;52:160-66.

The diagnosis and treatment of attention deficit-hyperactivity disorder in children and adolescents with cystic fibrosis: A retrospective study.

Georgiopoulos AM, Hua LL.

Background: There has been minimal study of the impact of attention deficit-hyper activity disorder (ADHD) in cystic fibrosis (CF) or other chronic illness.

Objective: To examine patterns of ADHD diagnosis and treatment in CF.

Method: Retrospective chart review of all pediatric patients in the Massachusetts General Hospital (MGH) CF Program referred from 8/05-12/08 for outpatient child psychiatric consultation and diagnosed with ADHD. The medication trial resulting in the best improvement in ADHD symptoms with the most tolerable side effects was designated the Best Regimen for each patient.

Results: Of the 188 patients aged 5—18 followed in the MGH CF Program during this time, 18 (9.6%) were referred to the liaison psychiatrist and diagnosed with ADHD. Eleven (61 %) had CF treatment non-adherence as a presenting problem. Psychopharmacologic treatment of ADHD was attempted in 13 of the 18 cases. In eight cases the Best Regimen achieved a Clinical Global Impression improvement rating of much or very much improved. In three cases, the Best Regimen consisted of stimulant monotherapy; two consisted of nonstimulant monotherapy; two used a combination of two nonstimulants; and one used a combination of a stimulant and a nonstimulant.

Conclusion: ADHD is common and treatable in pediatric patients with CF. Stimulants, nonstimulants, and combination therapies are viable treatment options. The presence of ADHD or other psychiatric disorders should be considered when behavior is interfering with adherence to medical care. Further research is needed into the prevalence and treatment of ADHD in CF and its impact on medical adherence and outcomes.

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Res Dev Disabil. 2011 May;32:1154-62.

THE RELATIONSHIP BETWEEN SENSORY PROCESSING DIFFICULTIES AND LEISURE ACTIVITY PREFERENCE OF CHILDREN WITH DIFFERENT TYPES OF ADHD.

Engel-Yeger B, Ziv-On D.

Sensory processing difficulties (SPD) are prevalent among children with ADHD. Yet, the question whether different SPD characterize children with different types of ADHD has not received enough attention in the literature. The current study characterized sensory processing difficulties (SPD) of children with different types of ADHD and explored the relationship between SPD and leisure activity preference. Participants were 58 boys aged 6–10 years: 29 boys with ADHD: 15 with hyperactive–impulsive type and 14 characterized as inattentive. The controls were 29 typical peers. SPD were evaluated by The Short Sensory Profile (SSP) completed by the parents. Participants answered the preference for activities of children (PAC). According the results, SPD were manifested among children with both ADHD types. Children with both ADHD types showed significantly lower preference to participate in leisure activities than the controls. Their lower preference correlated with SPD. The findings suggest that children with different ADHD types may share common SPD, which may negatively impact their activity preference. In this study it seemed that children with ADD were more vulnerable to these impacts. SPD and participation should be considered in evaluation and intervention programs for children with ADHD in order to focus on child's

abilities, needs and preferences, and enhance intervention success, child's relationships with peers and child's well-being.

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Res Dev Disabil. 2011 May;32:883-93.

ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD) IN CHILDHOOD EPILEPSY.

Reilly CJ.

ADHD and epilepsy common are both common childhood disorders and both can have significant negative consequences on a child's behavioural, learning, and social development. Both conditions can co-occur and population studies suggest that the prevalence of ADHD in childhood epilepsy is between 12 and 17%. The prevalence of epilepsy in ADHD is lower but it is not clear if the rate of epilepsy is higher in ADHD populations than in the general population. There is a higher occurrence of ADHD – Primarily Inattentive subtype in children with epilepsy and the reasons for this are not altogether clear but attention difficulties are very prevalent in childhood epilepsy. Seizure/ epilepsy variables do not appear to be important correlates in most cases of ADHD in epilepsy although they may play a role in some cases. Individuals with both epilepsy and intellectual disability may be at higher risk for significant ADHD symptoms although screening and assessment in children with intellectual disability and epilepsy may be challenging. Children with epilepsy and ADHD are likely to be at higher risk for more negative outcomes in school and in terms of quality of life compared with children with epilepsy alone. Published studies on the treatment of ADHD in childhood epilepsy have focussed exclusively on the use of psychopharmacology and particularly methylphenidate. Although methylphenidate appears to be effective for some children with epilepsy the issue of whether it may lower seizure threshold continues to be debated. Children with epilepsy are at significant risk for ADHD and there is a need for more studies focussing on safe and efficacious interventions for symptoms of ADHD in this population.

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Sleep Med. 2011;12:471-77.

L-DOPA IMPROVES RESTLESS LEGS SYNDROME AND PERIODIC LIMB MOVEMENTS IN SLEEP BUT NOT ATTENTION-DEFICIT-HYPERACTIVITY DISORDER IN A DOUBLE-BLIND TRIAL IN CHILDREN.

England SJ, Picchietti DL, Couvadelli BV, et al.

Background: In a previous open-label study, dopaminergic agents improved Restless Legs Syndrome (RLS) and Periodic Limb Movements in Sleep (PLMS), as well as Attention-Deficit-Hyperactivity Disorder (ADHD) in children with both disorders. We therefore conducted a double-blind placebo-controlled trial of l-DOPA in ADHD children with and without RLS/PLMS.

Methods: Two groups of patients (total n=29), those with ADHD only or those with ADHD and RLS/PLMS, were randomized to l-DOPA or placebo therapy. At baseline and after therapy patients were assessed with Conners' parent and teacher rating scales; polysomnography; RLS rating scale; and neuropsychometric measures of memory, learning, attention, and vigilance.

Results: l-DOPA improved RLS/PLMS symptoms in all patients with those disorders compared with placebo (p=.007). When assessed by the Conners' Scales before therapy, ADHD was more severe in children without RLS/PLMS than in children with RLS/PLMS (p=0.006). l-DOPA had no effect on Conners' scales, sleep, or neuropsychometric tests when all patients treated with the drug were compared to those on placebo or when patients with ADHD only were compared to those with ADHD and RLS/PLMS.

Conclusions: In this first double-blind study of a dopaminergic therapy in children with RLS/PLMS, l-Dopa significantly improved RLS/PLMS but not ADHD. These results, however, should be interpreted carefully since they may have been influenced by the relatively small sample size and the baseline differences in severity of ADHD symptoms. Further work needs to be done to elucidate the relationship between dopamine, ADHD and RLS/PLMS.

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Span J Psychol. 2011 May;14:464-77.

VALIDATION STUDY OF HUMAN FIGURE DRAWING TEST IN A COLOMBIAN SCHOOL CHILDREN POPULATION.

Velez van MA, Sandoval-Garcia C, Ibanez M, et al.

The aim of this article was to assess the validity of the emotional and developmental components of the Koppitz human figure drawing test. 2420 children's drawings available in a database resulting from a previous cross sectional study designed to determine the prevalence of neurological diseases in children between 0 and 12 years old in Bogota schools were evaluated. They were scored using the criteria proposed by Koppitz, and classified into 16 groups according to age, gender, and presence/absence of learning or attention problems. The overall results were then compared with the normative study to assess whether descriptive parameters of the two populations were significantly different. There were no significant differences associated with presence/absence of learning and attention disorders or school attended within the overall sample. An Interrater reliability test has been made to assure the homogeneity of scoring by the evaluator team. There were significant differences between this population and that of the original study. New scoring tables contextualized for our population based on the frequency of appearance in this sample are presented. We can conclude that various ethnic, social, and cultural factors can influence the way children draw the human figure. It is thus important to establish local reference values to adequately distinguish between normality and abnormality. The new scoring tables proposed here should be followed up with a clinical study to corroborate their validity.

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Span J Psychol. 2011 May;14:62-73.

EVALUATING READING AND METACOGNITIVE DEFICITS IN CHILDREN AND ADOLESCENTS WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER.

Alvarado JM, Puente A, Jimenez V, et al.

The reading achievement of children and adolescents with Attention Deficit Hyperactivity Disorder (ADHD) has scarcely been explored in research conducted in the Spanish language and when it has, the results have been contradictory. The focus of the present research is to analyze participants' reading competency and metacognitive strategies as they carry out reading comprehension tasks. The sample was comprised of 187 Argentine schoolchildren aged 9 to 13 years old. 94 constituted the control group and the clinical group consisted of 93 schoolchildren diagnosed with ADHD. The metacognitive assessment was made up of two metacognitive tests, the Reading Awareness Scale (ESCOLA; acronym in Spanish) and a Spanish adaptation of Metacognitive Awareness of Reading Strategies Inventory (MARSI), and one test of reading comprehension, the Evaluation of Reading Processes for Secondary Education Students (PROLEC-SE; acronym in Spanish). Students with ADHD had lower achievement on tests o reading comprehension compared to the control group. Nevertheless, our results suggest their difficulties did not stem from readin comprehension problems, but rather from alterations in their Executive Functions, because when subjects' reading comprehensio was equalized, students with ADHD still exhibited a lower level of Metacognition, particularly when it came to planning.

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Tijdschr Psychiatr. 2011;53:305-10.

DEVELOPMENTAL COORDINATION DISORDER IN A CHILD WITH ADHD; IS DCD A DSM-IV DIAGNOSIS THAT IS NOT RECOGNISED BY CHILD PSYCHIATRY?

Muyselaar-Jellema JZ, Severijnen S.

A five-year-old boy received treatment for attention deficit hyperactivity disorder (ADHD). In connection with his motor problems he was referred to a rehabilitation centre specialising in the study and treatment of developmental coordination disorder (DCD). When treating a patient with ADHD, doctors should ask regularly about the patient's motor functioning anad, if necessary, arrange a referral. In the first instance a

young patient should be referred to a paediatric physiotherapist or, if the problems are complex, referral should be to a paediatric rehabilitation doctor. A combination of ADHD and DCD has a poorer prognosis than ADHD alone.

Eur J Clin Pharmacol
DOI 10.1007/s00228-011-1050-3

PHARMACOEPIDEMIOLOGY AND PRESCRIPTION

One-year prospective follow-up of pharmacological treatment in children with attention-deficit/hyperactivity disorder

Anna Didoni · Marco Sequi · Pietro Panei · Maurizio Bonati · on behalf of the "Lombardy ADHD Registry Group"

Received: 16 November 2010 / Accepted: 11 April 2011

Abstract
Objectives To delineate the safety and tolerability profile of methylphenidate and atomoxetine in children and adolescents with attention deficit hyperactivity disorder (ADHD) monitored for more than 1 year.
Design A cohort study analyzing data from the national ADHD register on patients from the Lombardy Region treated with MPH or atomoxetine.
Participants A total of 229 children (median age 11 years, range 6–17), enrolled in 15 regional centers between June 2007 and May 2010.
Results The prevalence rate of pharmacological treatment for ADHD was 0.23%, whereas the estimated ADHD prevalence in the population was 0.95%. In total, 73.8% of patients had been treated with atomoxetine (10–90 mg daily) or MPH (10–75 mg daily); 22% of patients also received an additional psychotropic drug. Of the treated children, 26.9% discontinued the drug prior to 1 year of treatment, mostly because of adverse effects (28.6%). No new or unexpected adverse events (rate 39.2%) were encountered. Decreased appetite, headache, and unstable mood were the leading events. The most severe events occurred in two boys: one experienced absence seizures for the first time with MPH, the other experienced hallucinations with atomoxetine. Therapy was discontinued in ten male patients (7.7%) because of adverse events. All patients with adverse effects recovered well.
Conclusions A very low rate of ADHD prevalence was estimated in Italian children compared to that reported in other countries. Although the medications for ADHD are generally well tolerated, with only mild or minor adverse effects in most cases, their rational use can only be guaranteed by disseminating and monitoring evidence-based practices and by monitoring the safety and efficacy of treatments in both the short and long terms with appropriate tools and approaches.

Keywords Attention-deficit/hyperactivity disorder · Child · Methylphenidate · Atomoxetine · Epidemiology

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Introduction

Attention deficit hyperactivity disorder (ADHD) is a heterogeneous behavioral syndrome characterized by maladaptive levels of hyperactivity, impulsivity, and inattention in early childhood that persist over time, pervade across situations, and lead to notable impairments [1, 2]. ADHD is thought to result from complex interactions between genetic and environmental factors [3]. The disorder is diagnosed by the severity and persistence of symptoms, which are associated with high levels of impairment and risk of developing co-occurring disorders. Current evidence defines that the syndrome is associated with academic difficulties, impaired family relationships, social difficulties, and conduct problems. ADHD affects 3.6% of boys and 0.85 % of girls between the ages of 5 and 15 years in the UK [4]. Worldwide, the prevalence of ADHD is estimated at 5.3%, although there is wide variability

Published online: 03 May 2011

between geographic locations [5]. There has been an increase in the clinical recognition of ADHD in recent years, with a corresponding increase in the number of children diagnosed and treated [6]. Psychosocial treatments in the form of psychoeducation, cognitive behavioral therapy, supportive coaching or help with organizing daily activities are of first choice and have been shown to be effective, in particular when parents and teachers are involved [7]. If a child or adolescent needs treatment with ADHD medication, methylphenidate, atomoxetine, and dexamfetamine are all recommended as possible choices [8, 9] although their availability on the market (i.e., a long-acting formulation) [10] differs between countries, according to regulatory and producer decisions. Drug treatment should only be started after a specialist who is an expert in ADHD has thoroughly assessed the child or adolescent and confirmed the diagnosis. Once treatment has been initiated it can be continued and monitored by the family doctor in accordance with the treatment prescribed by the specialist. These are a few of the guidelines of the Italian protocol on ADHD treatment (defined in 2003 through a consensus conference) [11]. Because of the wide concern about safety and overuse of psychotropic drugs in children, this national initiative was set up in Italy for monitoring the prevalence of drug therapy and appropriateness of care in the ADHD pediatric population. TheNational ADHD Registry was thus launched on June 2007 under the aegis of the Italian Medicines Agency (AIFA) and coordinated by the Italian National Institute of Health, following the reintroduction of methylphenidate on the market (as immediate-release tablets) and the registration of atomotexine. These are the only two drugs with a specific indication for ADHD that are available in Italy, and they are registered for use only for children aged 6–17 years.

The study reported here was undertaken to delineate the safety and tolerability profile of methylphenidate and atomoxetine in children and adolescents with attention-deficit/hyperactivity disorder (ADHD) in the Lombardy Region (the most populated and economically important region in Italy).

Methods

The Italian ADHD Registry

In Italy, patients for whom methylphenidate and atomoxetine are prescribed require a strict diagnostic assessment of the disorder prior to treatment and systematic monitoring during treatment. Since September 2007, local reference centers have been required to send patient information to a proper national registry. Data collected on each child is registered in the national registry and periodically analyzed; the findings are reported and discussed with all centers participating in the national network. Regional health authorities are responsible for the accreditation of the reference centers in regional hospitals, which are linked to the Children and Adolescent NeuroPsychiatric Services (CANPS) located in the local communities. Thus, the reference centers are the specialized hubs of the CANPS network on ADHD and there is a close association between the reference center and the CANPS. The reference center is responsible for confirmation of the diagnosis according to the *Diagnostic and Statistical Manual of Mental Disorders* (4th edn.; DSM-IV) criteria [12] and for verification of the appropriateness of the therapeutic plan established by the CANPS. The reference center also ensures the interface between the family pediatrician and the Mental Health Services (MHS) and guarantees the monthly visit and the renewal of the drug prescription, as well as the behavior therapy carried out by the CANPS. The Italian ADHD Registry therefore represents a distinctive tool, a unique experience in the international context, to assure appropriate the care and safety of drug use in ADHD children.

The national ADHD Registry contained data on 1,733 patients treated with methylphenidate and/or atomoxetine between June 2007 and May 2010; during this same period, 452 (26%) patients discontinued their treatment. Here we report on the follow-ups carried out on ADHD children being treated in 15 local ADHD centers of Lombardy Region, a northern Italian region. This dataset covers 17.1% of the national centers and 13.2% of patients in the ADHD Registry. The target population in the Lombardy region comprised 102,000 children and adolescents between 6 and 17 years of age (16.5% of the Italian population of the same age).

Data analysis

Data were entered into a SAS/STAT database (SAS, Cary, NC) for recording and analysis. Descriptive statistics were computed for the entire study population or for subgroups. Student's t test was used to compare continuous variables, while χ^2 tests were used to compare categorical variables. Comparisons of the drug treatment at each center were tested by χ_{trend}^2 analysis. Kaplan–Meier analysis was used to estimate the proportion of patients in the cohort continuously treated over a 1-year period (to assess time to discontinuation).

The results are presented as the number, frequencies (%), mean or median and interquartile range; $P<0.05$ was considered to be significant. Any events occurring for the first time as well as a worsening of the disorder while on the study drug were defined as adverse events. Parents were requested in advance to report any adverse events during follow-up visits.

Results

A total of 229 children (median age 11 years, range 6–17) were enrolled at 15 regional centers (median number of patients at each center 15, range 5–45). Of these, 62 were already receiving drugs for ADHD, whereas 167 started drug therapy for the first time. The prevalence of ADHD drug-treated patients in the Lombardy Region was 0.23% in among 6- to 17-year-old children and adolescents. Of the 229 children, 50 (22%) also received an additional psychotropic drug, in particular, neuroleptics (6%), mood stabilizers (5%) or antidepressants (3%).

At the time of the analysis, a subset of 130 drug-naïve patients (56.8%) had completed the 12-month follow-up monitoring period (Table 1). During the monitoring period the majority (73.8%) received atomoxetine at an average total daily dose of 10–90 mg, compared to 10–75 mg for methylphenidate. Patients were mostly male (86.2%), the mean age at baseline was 10.9 years, and most subjects were 12 years old or younger (78%). In terms of ADHD subtype, 79% of the patients met the DSM-IV criteria for combined subtype ADHD, 13.8% had the inattentive subtype and 6.9% had the hyperactive/impulsive subtype. Eighty-four percent of the patients had at least one psychiatric comorbidity, including learning disorders (48.5% of patients), oppositional defiant disorder (44.6%), conduct disorders (18.5%), anxiety (18.0%) and major depression (14.6%).

Thirty-five (26.9%) of the enrolled patients discontinued the drug prior to 1 year of treatment. The main reasons for discontinuation are summarized in Table 2 and included discontinuation/avoidance of adverse events (28.6%);patient's decision (20%); satisfactory response (17.1%); perceived lack of efficacy (14.3%); other reasons (20%). The distributions of time to drug discontinuation using Kaplan–Meier analysis are shown in Fig. 1. Although no statistically significant difference was found between the two drugs, patients receiving atomoxetine tended to discontinue sooner than methylphenidate users (75 vs. 215 median days, respectively), with the main reason for early discontinuation being the presence of adverse events.

Table 1 Baseline demographic and clinical characteristics of the population by drug treatment

Characteristics	Methylphenidate	Atomoxetine	Total
Number of subjects	34	96	130
Age (years)			
Mean (SD)	10.7 (2.7)	11(2.7)	10.9 (2.7)
6–12/13–17	28/6	73/23	101/29
Male/female	28/6	84/12	112/18
Weight, kg, mean (SD)	39.2 (11.8)	44.1 (15.4)	42.8 (14.7)
Height, cm, mean (SD)	143.7 (16.8)	145.1 (17.6)	144.7 (17.3)
Only child	11	30	41
Adopted	2	9	11
Support teacher	13	35	48
Family history of ADHD (yes/no)	12/22	19/77	31
ADHD subtype			
Combined	27	74	101
Inattentive	4	14	18
Hyperactive-impulsive	3	6	9
Psychiatric comorbidity			
One or more	28	81	109
Learning disorders	14	49	63
Oppositional defiant disorder	14	44	58
Major depressive disorder	-	19	19
Language disorder	5	12	17
Mental retardation	2	10	12
Conduct disorder	-	10	10
Pharmacological treatment			
On therapy after 1 year	24	71	95
Suspended for remission	3	3	6
Suspended for other reasons	7	22	29

SD, Standard deviation; ADHD, attention-deficit/hyperactivity disorder

Table 2 Reasons for discontinuation among patients treated for <1 year

Reason for discontinuation	Methylphenidate (n=10; 29.4%)	Atomoxetine (n=25; 26.0%)	Total (n=35; 26.9%)
Adverse event	3	7	10
Patient decision	1	6	7
Remission	3	3	6
Perceived lack of efficacy	1	4	5
Physician decision	-	2	2
Other	2	3	5
Time to event (days)			
Mean (SD)	176 (92.1)	128.8 (123.9)	142.3 (116.4)
Median (95% CI)	215 (77–248)	75 (31–212)	103 (52–226)

CI, Confidence interval

Adverse effects

There was a 39.2% (51/130) rate of adverse events in the patient population; the most frequent events were decreased appetite (15.4%, 20/130) and thinning (10.8%, 14/130). Estimated rates were not statistically different between the two drugs (Table 3). Patients treated with methylphenidate for at least 1 year experienced a mean weight increase of 6.2 kg [standard deviation (SD) 5.8 kg] and a mean height increase of 4.8 cm (3.0 cm) compared to 2.2. kg (5.1 kg) and 5.9 cm (3.9 cm) for patients receiving atomoxetine.

Cardiovascular effects were reported only in patients receiving atomoxetine (8 cases of tachycardia, 8.3%) even though no alteration in the electrocardiograph record was observed in the whole population exposed to either drug. In the eight patients with tachycardia, the average heart rate increase from the time drug therapy was initiated was 29.1 beats/min (range 18–39 beats/min; P<0.001). An increase in diastolic and systolic blood pressure was also noted: average 22.5 mmHg (10–35 mmHg; P=0.002) and 29.2 mmHg (10–40 mmHg; P=0.006), respectively. The rate–pressure product (the product of systolic blood pressure × heart rate) also increased in these subjects, with an average increase of 4847 mmHg × beats/min (1980–7240 mmHg × beats/min) compared to the basal value (P= 0.002).

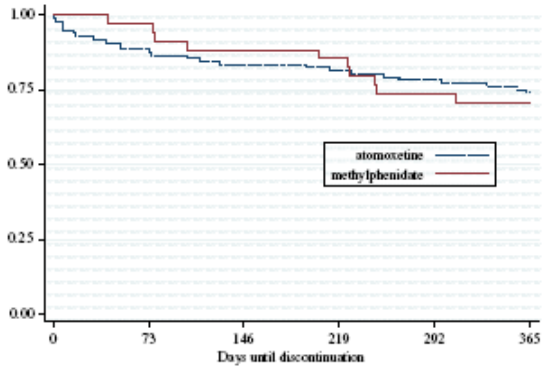

Fig. 1 Time to drug discontinuation during the first year by drug treatment

Psychotic symptoms occurred during atomoxetine therapy in four patients. One was a 9-year-old boy who, after 127 days of therapy consisting of 25 mg/day, was hallucinating. A reported decrease in appetite, headaches and unstable mood had also been previously reported. Atomoxetine was discontinued. The second was a 10-year-old boy in therapy for 138 days who experienced acute psychosis while receiving a dose of 18 mg/day. The symptoms disappeared without the drug treatment being stopped. The third and fourth patients were two boys, 8 and 12 years old, respectively, receiving 60 mg/day of atomoxetine; both experienced transient and mild psychosis after 284 and 204 days of therapy, respectively. The first boy switched to methylphenidate, and the second maintained atomoxetine therapy; both had a resolution of symptoms.

Ten male patients (7.7%) discontinued the drug therapy because of adverse events (Table 4). Decreased appetite, headache and unstable mood were the leading adverse events that were often co-present symptoms in children treated with methylphenidate or atomoxetine. The most severe events occurred in two boys: one experienced absence seizures for the first time with methylphenidate, the other experienced hallucinations with atomoxetine. No relation was found between the receiving dose and the time of the adverse event. All patients recovered well after drug discontinuation.

Discussion

To the best of our knowledge, this is the first study that uses a unique, national, shared tool (the registry) for monitoring the diagnosis and therapy of ADHD children. The findings

Table 3 Treatment-emergent adverse events by drug treatment

Adverse event	Methylphenidate (n=9; 26.5%)	Atomoxetine (n=42; 43.8%)	Total (n=51; 39.2%)
Decreased appetite	5	15	20
Thinning	1	13	14
Irritability	-	9	9
Drowsiness	1	8	9
Epigastralgia	-	8	8
Tachycardia	-	8	8
Unstable mood	-	7	7
Insomnia	1	3	4
Psychotic symptoms	-	4	4
Dyspepsia	-	3	3
Abdominal pain	-	3	3
Tic	1	2	3
Others	1	5	6
Total	10	80	90

of this cohort study have shown, in a nationally representative population sample, a low rate of drug-treated Italian children. This finding can be explained by the distinctive Italian approach of preferring other therapies (i.e., behavioral therapy) over the use of psychotropic drug treatments. The (positive) effect of the restricted (controlled) availability of drugs prescribed to ADHD children should also be taken into consideration. In fact, unlike other contexts, initial evaluations and the consequent therapeutic decisions for ADHD are performed only in specialist pediatric psychiatric services officially recognized by the National Health Service for the management of ADHD, with the aim of guaranteeing a common approach and appropriate care. However, the ADHD prevalence rate is also lower than that reported in other countries [5]. In fact, children taking ADHD drugs represent 24.3% of the total number of children with diagnosed ADHD at the participating centers. Thus, a prevalence rate of 0.95% in 6- to 17-old children has been estimated here, even though a less selective categorical manual, namely, DSM-IV, was used (vs. the International Classification of Disease, 10th revision) in the diagnosis of ADHD.

The preference for prescribing atomoxetine (73.8% of the monitored population) may be due to the fact that it is not a stimulant, unlike methylphenidate, as well as to marketing pressure by manufacturers, who emphasize this characteristic of the drug. The profile of the ADHD population followed during the study period is similar to that described in a large number of other studies. No new or unexpected adverse events were encountered compared to those previously reported [13]. The most frequently observed adverse effects, such as decreased appetite, thinning, irritability, drowsiness, epigastralgia and unstable mood, are commonly reported treatment-emergent adverse effects of both drugs [14, 15]. Our results confirm that no clinical meaningful effects on weight or height occurred in patients treated for at least 1 year with methylphenidate or atomoxetine.

Although both stimulants and atomoxetine are reported to raise heart rate and systolic and diastolic pressure [16–18], in our cohort these side effects were observed only in eight children who were taking atomoxetine and there were no clinical implications. The procedures of the Italian ADHD Registry require ECG monitoring before a patient is started on ADHD drugs and during therapy, as well as monitoring of the heart rate and blood pressure, based on scientific recommendations [19].

A few previously reported psychiatric adverse events were observed during the survey period [20]. Patients,

Table 4 Adverse events in ten male children who discontinued therapy by drug treatment

Drug	Age (years)	Starting dose (mg/day)	Time to adverse effect (days)	Dose at appearance of adverse effect (mg/day)	Adverse event
Methylphenidate	11	30	309	15	Decreased appetite, tachycardia, unstable mood
	12	10	78	15	Absence seizures
	14	40	42	10	Tic
Atomoxetine	9	18	16	18	Upper abdominal pain, irritability, unstable mood, tachycardia
	9	18	127	40	Decreased appetite, headache, unstable mood, hallucinations
	12	25	228	60	Decreased appetite, thinning, epigastralgia, irritability, unstable mood, somnolence
	12	20	7	20	Headache, insomnia
	12	18	73	40 (methylphenidate)	Decreased appetite
	13	20	2	20	Headache, insomnia
	14	40	113	40	Nausea, vomiting

parents and physicians should be aware that these symptoms (psychosis and mania), although rare, may arise during ADHD drug treatment.

Because of the described high co-morbidity of epilepsy and ADHD (at least 20% of patients with epilepsy may present features of ADHD) [21], the observed case of absence seizures during methylphenidate therapy may be entirely coincidental, reflecting the natural history of epilepsy rather than a pro-convulsant effect of the drug, which acts on different neurotransmitter pathways associated with seizures. However, even if there is no solid evidence to suggest an increase in seizure frequency in a child with well-controlled epilepsy and ADHD who is prescribed methylphenidate, it would clearly be important to monitor such a patient closely for seizure frequency. This is true particularly in children with epilepsy, who should be closely monitored during the first few months of treatment with methylphenidate [22].

Although the use of a national registry may affect the generalizability of the reported findings, they also confirm that the treatment of ADHD children and adolescents with methylphenidate and atomoxetine is generally safe and well tolerated if adequately monitored. Despite the complexity of ADHD diagnosis, psychostimulants (e.g. methylphenidate) are the first-line treatments, but atomoxetine is also used for the disorder. However, psychological therapy, predominantly group-based parent training, should be offered and guaranteed as an essential therapy. In a number of studies, stimulants were shown to be more effective in treating ADHD symptoms than behavioral therapy alone or in combination [23, 24], even though no differences between treatments were found after 6 and 8 years [25]. The medications therefore enhance performance rather than treat the specific psychopathology [26]. In such a context, although the medications for ADHD are generally well tolerated, with only mild or minor adverse effects in most cases, their rational use can be guaranteed by implementing and monitoring evidence-based practices, i.e by monitoring the safety and efficacy of treatments in both the short and long terms with adequate and appropriate tools and approaches. The findings reported here support the efficacy and reliability of a national registry in pursuing these aims.

What this paper adds

What is already known on this subject:

- Attention deficit hyperactivity disorder (ADHD) is considered to be the most common mental disorder of childhood. Effective treatments exist, but public concern about the safety and overuse of ADHD drugs has grown.
- Although ADHD medications are generally well tolerated, with only mild or minor adverse effects in most cases, both short- and long-term monitoring of treatments is mandatory.

What this study adds:

- The use of a common, shared tool such as a national registry for the management of ADHD in children is useful for monitoring the safety and efficacy of drug therapies and for restricting drug use (only 0.23% of the whole population; 24.2% of children with ADHD).
- About one-third of patients discontinued the drugs after less than 1 year of treatment, mainly because of adverse events, a few of which were severe or worrying.

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Contributors MB and PP participated in designing of the national ADHD registry and in its set-up and running. AD and MS participated in data collection and analysis of patients from the Lombardy Region. MB verified the collection of data, their analysis and interpretation and wrote the report. All authors participated in editing the report and have seen and approved the final version.

Funding The study has been funded in part by the Italian Medicines Regulatory Agency, AIFA (Study FARM5AJL82)

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Los Angeles Times

Revisiting ADHD and Ritalin

The doctor who in his 1996 book suggested that the hyperactivity disorder was being over-diagnosed has released a new book on the progress of some of his patients over the years.

By Melissa Healy, Los Angeles Times

May 15, 2011

Fifteen years ago, Dr. Lawrence H. Diller, a pediatrician from Walnut Creek, ignited a national debate over the steep rise in children being diagnosed with attention-deficit hyperactivity disorder and treated with stimulant medication.

Diller's 1996 book, "Running on Ritalin," suggested that ADHD was being over-diagnosed, and that Ritalin, and the many formulations of amphetamine-like drugs that would follow, was being prescribed in many cases to children who would respond well to family therapy and tailored programs and routines at home and at school.

Diller warned that as harried parents, teachers and physicians attached the ADHD label to more and more children who were dreamy, unmotivated, forgetful, restless, impulsive or distractible, the nation's tolerance for children's natural temperamental variance would narrow. Instead of helping children work around weaknesses and choose strategies and paths that played to their strengths, society's growing inclination to medicate them, Diller cautioned, could turn many into lifelong patients.

Today, nearly 5% of American children between ages 6 and 17 — about 4.5 million children — have been diagnosed with ADHD, and two-thirds of those take medicine to control their symptoms. The drugs have helped define a generation of young adults widely known as "Generation Rx."

In a new book, "Remembering Ritalin," released this month by Perigee Books, Diller revisited 10 of his patients, now in their 20s and 30s, to ask how the ADHD diagnosis, and the medication that often came with it, had affected their lives.

Those you treated as youngsters are now young adults, and studies suggest that as many as two-thirds of them will continue to have ADHD into adulthood. Is this what you saw?

The outcomes from the kids I've been seeing were not as bad as that suggested by the limited formal research. Of the 10 former patients who talked to me, maybe only two still seemed to be significantly bothered by problems of ADHD.

Only about 400 children (out of millions who have been diagnosed with ADHD and treated with Ritalin-type drugs) have been followed from childhood into young adulthood by formal research studies, and some of the most respected of those studies have been done by Russell Barkley of the State University of New York's Upstate Medical University. For reasons that I think have a lot to do with economics, the kids that I treated, now in their mid-20s to mid-30s, are doing much better than Barkley and other researchers would have suggested.

For instance, only 5% of Barkley's group graduated from college, while half of my patients did — although it took one kid until age 27 to do it. Half of Barkley's patients had been fired from jobs. My group had only two. Up to half of Barkley's patients had substance-abuse problems. Again in my group of 10, only two, perhaps three, were problem users.

What did your patients remember about being on medication? How do they feel about it now?

Nine of the 10 kids I revisited had taken Ritalin. Of the eight who took it for years, seven said they were glad they had taken it, though there were side effects (mostly loss of appetite and trouble

falling asleep). They said they would have gotten in far worse trouble or failed even more school if they hadn't taken the drug.
Some hated taking it when they were kids because they felt different. But most felt it wasn't that big a deal. This was all before the full-day formulations of ADHD drugs became available, so all these kids had to go to the office at lunchtime for their pill. That's no longer necessary.
When I do prescribe Ritalin, I've always described it as an aid to making better decisions, which these kids nevertheless have to make on their own. I can't tell you how pleased it made me to hear from those I revisited how important that was to them — that I told them *they* were making decisions.

What do they say about the nondrug treatments you emphasize?
Many told me they thought the family therapy was useful in tuning down family tensions. But a few said, even though it helped, they hated hearing their parents tell me about the bad things they had done since the last visit. I've really taken their remarks to heart. I always tried to have parents talk to their kids instead of me when telling me about the good and the bad. But now, I really insist that the parents talk to their kids, not me. The alternative is to have the kids feel like pieces of furniture while the parents describe their defects to the doctor.

You write about "middle-class ADHD" as a less impairing form of the disorder. Can you explain?
I work in a private practice in a pretty affluent community. A child who comes to see me is coming from a family where someone has a job with health insurance, or can pay out-of-pocket. The four or five big studies that have tracked those with ADHD over time drew from lower-middle class and Medicaid populations. I think that accounts for the better outcomes I see in my small sample.
Kids from middle- and upper-middle-class families have some key advantages: The parents have the means and the wherewithal to cocoon them from the worst aspects of their personality, especially in school and with peers. They do this by securing special education services, counseling and tutoring for their child.
If they can get their kid to 18 or 20 without a lot of time in the juvenile system, and managed to keep him or her from major substance abuse, the future looks much brighter. By that point, the impulsivity and the hyperactivity begin to abate, and these kids are beginning to choose, after getting through high school, what they want to pursue. The choices open up and they do better.

On pressing for nondrug treatments before Ritalin, are you still swimming against the tide?
I've never been against medicine; have prescribed it for 32 years.
Pills represent efficiency, and effective nondrug interventions like special education or behavior-modification value engagement with the child. The medical and educational systems value efficiency. Parents, when offered a choice initially between efficiency and engagement, almost always choose engagement. However, when offered the choice of only a pill or nothing, they'll take the pill. And that's often the only choice they're given.
So I remain a relatively lonely professional voice pointing out this moral dilemma. But it is greatly edifying that when people hear the full message, they invariably say, "You know, he's right."
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This interview was edited for clarity and space from a longer discussion.

LA STAMPA

13/05/2011 - il caso

"Non sono malati, sono bambini"

5% la stima dei bambini affetti nel mondo da deficit d'attenzione

Campagna al Salone del libro: "La sindrome da deficit d'attenzione non si cura con i farmaci"

ELENA LISA
torino

Alla fine basterebbe sfogliare il dizionario, ma così, giusto per avere un abbozzo d'idea sulla strada intrapresa. Perché si può procedere con le migliori intenzioni, ma se poi si sbaglia in partenza allora meglio saperlo subito. Prendiamo i sostenitori - neurologi, psicologi, insegnanti - della cura con psicofarmaci di una patologia infantile che non è chiara a tutti: l'«Adhd», il disturbo da deficit d'attenzione ed iperattività che si vedrebbe in bambini particolarmente attivi, disattenti a scuola, troppo esuberanti quando giocano a pallone o si rincorrono, quelli della serie – si diceva una volta senza troppa ansia – «bimbi con l'argento vivo addosso, che due minuti su un libro non ci sanno stare».

E prendiamo chi si oppone a questo metodo di cura, come il movimento culturale «Pensare oltre» che, a dire il vero, contesta non solo l'uso di farmaci, ma tutto l'approccio alla questione: il «deficit di attenzione ed iperattività» è davvero un limite, un problema di cui occuparsi e preoccuparsi? I questionari attraverso cui sarebbe diagnosticabile la patologia, e che si basano sull'osservazione di genitori e insegnanti, sono oggettivi, in grado di tracciare confini netti tra ciò che è indole e ciò che è malattia? E a questo punto, prima di rispondere, prendiamo il vocabolario e cerchiamo la definizione. «Individuo – dice - è un essere distinto da ogni altro della medesima specie e formante un tutto che non può venire decomposto senza perdere le sue qualità distintive». Quello etimologico va oltre: «E' ciò che ha una personalità, un'esistenza sua speciale. Si dice di uomo, persona». E quindi, e a maggior ragione, si dice di bambino.

Bambini timidi, solitari, taciturni. Bambini irrequieti, disordinati, chiassosi. Bambini assorti, meditabondi, cervellotici. Bambini malati?

La contrapposizione tra chi intravede nei bimbi di oggi una certa problematicità e chi, invece, ritiene che siano tali e quali a quelli di ieri, compresa la loro vivacità, la disattenzione nel fare i compiti o l'incapacità a restare concentrati anche davanti al cartoon preferito, è sempre più profonda. Si allarga però la schiera di chi si oppone all'idea che la diversità tra i bambini possa diventare una malattia da curare. Il Piemonte è stata la prima Regione, in Italia, a vietare la somministrazione di test e questionari nelle scuole. Ed è stata la prima a pretendere il consenso informato dei genitori prima di somministrare a bambini e adolescenti farmaci e sostanze psicotrope. E' il suo capoluogo, oggi, a promuovere una campagna di «Pensare oltre», che spiega più di molti esperti. Una bimba che urla? «Sarà un soprano». Uno che non sa fare i calcoli, convinto che due più due faccia cinque? «E' un ottimista». A sostenere il movimento culturale – presente al Salone del Libro di Torino – sono oltre 70 associazioni, federazioni, accademie e aziende, e più di 60 personaggi dell'arte, dello sport e della cultura: da Mariangela Melato ad Alex Zanardi, da Ennio Morricone a Mogol passando per Silver, il papà di Lupo Alberto, Elisabetta Armiato, étoile della Scala di Milano, Iginio Straffi, inventore delle fatine Winx, che per il movimento culturale ha disegnato un fumetto distribuito al Lingotto, e per Bruno Bozzetto, il mito del cartoon italiano, autore dello spot della campagna in cui spaventosi indici neri tentano di schiacciare una pallina ribelle.

Hanno un passato comune: da bambini sono stati «diversi». Silver racconta di essere stato balbuziente, «di aver creato i miei personaggi quasi fossero alter ego». E la danzatrice ricorda: «Ero un fuoco inestinguibile, in casa mia saltavo da una parte all'altra come una saetta». Mogol dice di essere stato un disastro alle elementari: «Mi bocciarono, dicevano che andavo fuori tema». E Bozzetto parla al presente: «Sono strano fin da bambino. Ancora oggi è come se i miei pensieri mi estraniassero dal resto del mondo». Adulti. Adulti malati?

Lettera a:

LA STAMPA

Sono comparsi nei giorni scorsi sulla stampa alcuni commenti relativi alla iniziativa della associazione "Pensare oltre" circa la diagnosi, il trattamento e più in generale il significato del disturbo da deficit di attenzione e iperattività (o ADHD) in bambini e adolescenti (vedi anche La Stampa del 13 u.s. a firma Elena Liso) . L'elemento più significativo di tali interventi riguarda la esistenza stessa del disturbo, e, più in generale il dubbio (o la convinzione) che si stiano etichettando con una diagnosi psichiatrica bambini vivaci, ma privi di qualsiasi problema. Per di più ad una parte di tali bambini normali verrebbe somministrata una terapia farmacologica. Essendo tale argomento di grande importanza, anche al di là dello specifico disturbo, è forse opportuno qualche ulteriore chiarimento.

I bambini vivaci sono circa il 15-20% di tutta la popolazione infantile e adolescenziale (3 o 4 per classe), sono simpatici, spesso leader, molto coinvolti nelle relazioni con altri bambini anche se spesso rompiscatole. Ovviamente non hanno nessun disturbo e non richiedono nessun intervento medico o psicologico, ma al massimo un po' di attenzione da parte del personale insegnante. I bambini iperattivi-impulsivi, con un disturbo da deficit di attenzione e iperattività (o ADHD) clinicamente significativo sono l'1% della popolazione infantile e adolescenziale (uno ogni 5 classi), e la loro difficoltà di controllo del comportamento e dell'attenzione li mette ad alto rischio di fallimento scolastico stabile, difficoltà di relazione sociale nei vari contesti di vita, con costante rischio di emarginazione legato alla loro difficoltà di controllo degli impulsi, e gravi alterazioni delle dinamiche familiari, pur essendo in genere bambini con ottime potenzialità. Confondere i bambini vivaci con i bambini con disturbo iperattivo-impulsivo grave equivale a confondere un ragazzo timido con uno che non riesce ad uscire di casa da un anno, con paralisi completa della sua vita sociale; o un ragazzo attento alla pulizia con uno che non può evitare di fare ogni giorno docce di 5-6 ore, con effetti devastanti sulla sua pelle; o una ragazza giustamente attenta al suo peso con una che non mangia fino a morirne per il terrore di ingrassare; o un ragazzo triste e pessimista con uno che non riesce a levarsi dalla testa l'idea di togliersi la vita (ovviamente si tratta di casi tratti dalla pratica quotidiana di chi fa il nostro lavoro). E' nostro dovere preservare da etichette diagnostiche fantasiose e da cure inutili (e quindi dannose) bambini ed adolescenti normali. Ma è altrettanto nostro dovere individuare soggetti con bisogni speciali, che se non individuati possono vedere la loro vita condizionata per anni dal loro disturbo.

Scendendo dai principi generali ai numeri, se in Italia i bambini e adolescenti iperattivi tra i 6 ed i 18 anni fossero realmente l'1% (su questa stima c'è un consenso piuttosto generale, anche in associazioni certo non favorevoli a diagnosi e terapie farmacologiche), ne avremmo 75.000, essendo in Italia circa sette milioni e mezzo i soggetti di questa fascia di età. Di questi hanno ricevuto in Italia un trattamento farmacologico negli ultimi tre anni circa 2000 bambini e adolescenti, cioè 1 sui 37-38 potenzialmente affetti. Infatti, solo per una stretta minoranza di questi ragazzi deve essere valutato un trattamento farmacologico, essendo in genere efficace un intervento psicologico, pedagogico e una psico-educazione breve per i genitori, oltre ovviamente ad un monitoraggio della qualità delle loro relazioni sociali, sempre messe a rischio dalla presenza di un disturbo grave del comportamento. In Italia la normativa vigente prevede che i soggetti con ADHD candidati a ricevere una terapia farmacologica debbano essere valutati con un protocollo diagnostico analitico in centri di riferimento di Neuropsichiatria Infantile individuati dalle singole Regioni. Qualora risultino soddisfare i criteri per diagnosi e gravità (cioè compromissione della qualità della loro vita quotidiana), la somministrazione del farmaco deve essere monitorata attentamente con un protocollo specifico, nell'ambito di un Registro Nazionale gestito dall'Istituto Superiore di Sanità e dalla Agenzia Italiana del Farmaco, e attivo dal giugno 2007. Nell'ambito di questa normativa di stretto controllo, il numero di bambini e adolescenti che hanno avuto accesso alla terapia farmacologica indica non una eccessiva

etichettatura di bambini, né tantomeno una eccessiva tendenza alla terapia farmacologica, ma eventualmente una sottovalutazione del problema. Infatti il confronto con paesi simili al nostro indica che in Francia il consumo di farmaci per l'ADHD è 6 volte maggiore, mentre ad es. in Spagna (in particolare in Catalogna) è 11 volte maggiore. Ancora maggiore è la differenza rispetto ad altri paesi europei, quali Germania, Paesi Bassi, Gran Bretagna o Scandinavia, che hanno livelli di diagnosi ed uso dei farmaci ancora maggiori (ovviamente non può e non deve essere presa come riferimento l'esperienza USA, che va conosciuta solo per evitarne i rischi). Questo non significa che noi dovremmo necessariamente allinearci con le stime europee, ma solo che tale discrepanza dovrebbe farci riflettere, e non solo farci pensare che noi abbiamo ragione e tutti gli altri torto.
In sintesi, il Registro istituito in Italia ha rappresentato uno strumento unico a livello internazionale, in grado di garantire ai bambini e agli adolescenti con ADHD (e alle rispettive famiglie) un monitoraggio e una valutazione dell'assistenza prestata. L'esperienza del Registro dimostra che un equilibrio tra proibizionismo e deregulation nella terapia farmacologica dell'ADHD (non solo dell'ADHD) è possibile, anche e soprattutto in Italia, con la collaborazione di tutti coloro che hanno a cuore la salute dei bambini. Questo richiede l'implementazione di adeguati meccanismi di controllo, l'affinamento delle nostre capacità diagnostiche, ma anche una più "laica" possibilità di accesso alle cure, inclusa la terapia farmacologica quando la compromissione sia grave, le altre cure non siano risultate efficaci ed esista una disponibilità realmente spontanea da parte dei bambini/adolescenti ed i loro familiari al trattamento.

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Milano, 24 maggio, 2011

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Iniziativa nell'ambito del Progetto di Neuropsichiatria dell'Infanzia e dell'adolescenza
Il Progetto è realizzato con il contributo, parziale, della Regione Lombardia
(in attuazione della D.G.R. n. 10804 del 16/12/2009)
Capofila Progetto: UONPIA Azienda Ospedaliera "Spedali Civili di Brescia"
"*Condivisione dei percorsi diagnostico-terapeutici per l'ADHD in Lombardia*".

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