



Psychiatry

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POSTGRADUATE EDUCATION NEWSLETTER

MARCH 2004

Upcoming Courses

Upcoming continuing education courses in the year 2004, offered by the Department of Psychiatry at the Massachusetts General Hospital, are as follows:

Psychiatric Care of the Medically Ill: A Review of Psychosomatic Medicine

Friday - Sunday, June 4-6, 2004
The Westin Hotel, Copley Place, Boston

Psychiatric Genetics

Saturday, September 18, 2004
Massachusetts General Hospital, Boston

Psychiatry: A Comprehensive Update and Board Preparation

Monday - Saturday, September 27-October 2, 2004
The Westin Hotel, Copley Place, Boston

Psychopharmacology

Thursday - Saturday, October 21-23, 2004
The Westin Hotel, Copley Place, Boston

Aggressive, Resistant & and Delinquent Youths

Friday - Sunday, November 12-14, 2004
The Fairmont Copley Plaza Hotel, Boston

Home Study Courses

Aggressive, Resistant and Delinquent Youths: Meeting the Treatment Challenge
Attention Deficit Hyperactivity Disorder Across the Life Span
Natural Remedies for Psychiatric Disorders: Considering the Alternatives
Psychiatric Neuroscience: A Primer for Clinicians
Psychiatry: A Comprehensive Update & Board Preparation
Psychopharmacology

FOR MORE INFORMATION:

For more information about this and other courses presented by the Department of Psychiatry at MGH, please visit our web site, call, write, or email our administrative staff, at:

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Child and Adolescent Psychopharmacology

March 5-7, 2004

COURSE DIRECTORS:

Jerrold F. Rosenbaum, M.D., Joseph Biederman, M.D., Thomas J. Spencer, M.D., Timothy E. Wilens, M.D., Stephen V. Faraone, Ph.D., John B. Herman, M.D., and Robert J. Birnbaum, M.D., Ph.D.

COURSE ADMINISTRATIVE STAFF:

Gail E. Dickson, M.P.A., Stephanie Lipka Hackett, Arlene Lietz, Katherine Pike, M.S.W.

Renowned for straightforward teaching of state-of-the-art psychiatry to practicing clinicians, the Massachusetts General Hospital Department of Psychiatry sends this e-newsletter to our friends and colleagues, nearby and around the world. It prints out nicely, or can be read "on-line."

For those who were unable to journey to this course in Boston, it is intended as an update and "taste." For those who were able to join us, we hope this newsletter will provide a useful summary. Please let us know what you think. If you are interested in being included in this mailing list, please respond to: PsychiatryPostgraduateEdu@partners.org

Here's to a long life of Learning!

The Massachusetts General Hospital Pediatric Psychopharmacology Unit, headed by Dr. Joseph Biederman, is a pioneer in the field. This state-of-the-art course has earned exceptional acclaim since its first offering in 1995. Rivaling progress in adult psychopharmacology, the field of pediatric psychopharmacology continues to rapidly advance. Treatment for childhood and adolescent psychiatric disorders has gained widespread acceptance as greater experience has accelerated advances in the science and art of child and adolescent psychiatry.

Each of the approximately 800 attendees of this three-day continuing education course received a comprehensive syllabus. Continuing Medical Education (CME) certificates were provided for physicians, psychologists, social workers, and nurses.



Here are some facts from the MGH's Child and Adolescent Psychopharmacology Course:

DIAGNOSIS AND ASSESSMENT IN PEDIATRIC PSYCHOPHARMACOLOGY

Joseph Biederman, M.D.

While roughly 10 million children (12%-22% of the pediatric population in the United States) meet criteria for a psychiatric disorder, the paucity of empirically-based studies has limited the use of psychotropics in the treatment of childhood mental disorders beyond attention deficit hyperactivity disorder. Nonetheless, use of psychotropic medications prescribed for preschoolers has increased dramatically in the last decade, with the preponderance of medications used for off-label indications. It should be noted that lack of FDA approval only denotes that the drug has not been studied and approved for use in a particular condition.

Dr. Biederman remarked that successful pharmacotherapeutic intervention requires realistic expectations; creation of an initial diagnostic hypothesis and careful definition of target symptoms are essential to effective practice. Moreover, the use of psychotropics should follow a careful evaluation of the child and the family. In addition, before beginning treatment, the family and the child need to be familiarized with the risks and benefits of such interventions. Some examples cited by Dr Biederman included:

- * In ADHD, use of monotherapy may be ineffective in 30%-40% of cases.
- * Juvenile mood disorders may be more refractory to pharmacological interventions than are adult mood disorders.
- * Juvenile-onset bipolar disorder is frequently co-morbid with ADHD.
- * Treatment should be started at the lowest possible dose and be followed by frequent reevaluations during the initial phase of treatment.
- * Factors associated with poor stabilization with ADHD are impulsivity, psychiatric co-morbidity, maternal psychopathology, and sibling number.
- * The treating clinician should specify appropriate target outcomes to guide management.

- * Following 6-12 months of clinical stabilization, it is prudent to re-evaluate the need for continued psychopharmacological intervention.
- * Current state of the art psychopharmacology requires combined psychopharmacological agents to treat complex co-morbid disorders.
- * 20 to 25% of youth have suicidal attempts or not necessarily related to a diagnosis of depression according to the CDC.
- * A successful pharmacotherapeutic intervention requires realistic expectations and an initial diagnostic hypothesis with careful delineation of target symptoms.
- * Children with ADHD are more likely to have parents with active psychopathology.
- * The Child Behavior Checklist is an excellent screening tool for childhood psychopathology; it correlates well with some diagnostic categories, such as ADHD, anxiety, bipolar disorder, and conduct disorder.
- * Impulsivity, psychiatric co-morbidity, exposure to maternal psychopathology, and number of siblings significantly correlates with failure to achieve normal functioning in youth with ADHD.

JUVENILE DEPRESSION

Thomas J. Spencer, M.D.

Dr. Spencer focused on the nature, genetics, epidemiology, and course of juvenile-onset depressive disorders. He noted that juvenile-onset depression is generally considered to be a condition with an insidious onset, and to be characterized by frequent exacerbations; more than 50% of juveniles with major depression have an episode that lasts more than two years. Prominent features in children with unipolar mood disorder include irritability and sadness, as well as anhedonia, worthlessness, somatic complaints, and impairment in academic, social, interpersonal, and family domains. Useful pointers highlighted in the presentation include:

- * Age-associated expression of juvenile depression are somatic complaints, negativism, restlessness, withdrawal, school dysfunction, conduct disorder and substance abuse.
- * Depression may represent a final common pathway of multiple biological or psychosocial processes; regardless of etiology, once it develops it assumes a life of its own with its own course and morbid outcome.



- * Irritability and anger are prominent features of depression in juveniles.
- * One-third of those with pre-pubertal depression switch to bipolar disorder.
- * Conduct disorder, ODD, and ADHD commonly co-exist.
- * Atypical depressed children respond better to serotonergic drugs rather than noradrenergic.
- * Oppositional behavior increases with the severity of depression.
- * Psychosocial impairment may persist despite recovery of depressive symptoms.
- * There is a poor response with tricyclic antidepressants in depressed children, as noradrenergic system is not fully developed in children.
- * Response for SSRIs often takes 6-10 weeks.
- * Predictors of a bipolar switch in juveniles include family history of bipolar disorder, acute onset, psychomotor retardation, mood congruent psychosis, and either a poor response to antidepressants or a hypomanic response.
- * Atypical depression is strongly associated with anxiety disorders.
- * According to the CDC 8% of high school students make serious suicidal attempts each year.
- * ADHD is a risk factor for childhood depression.
- * ADHD is the most common co-morbid disorder seen in juvenile depression.
- * Treatment of depression includes treating co-morbidities, managing psychosocial stressors, remediating school difficulties, and performing psychoeducation.
- * Juvenile depression tends to respond to serotonergic agents.

ANXIETY DISORDERS IN CHILDHOOD AND ADOLESCENCE

Dina Hirshfeld-Becker, Ph.D. and Daniel A. Geller, M.D.

Drs. Hirshfeld-Becker and Geller paid special attention to childhood-onset anxiety disorders. They reviewed pharmacotherapeutic options, involving SSRIs, and the use of other antidepressants, buspirone, benzodiazepines, and beta-adrenergic antagonists. Notable facts included:

- * The prevalence of anxiety disorders in children ranges from 5%-9%.
- * Nearly half of children who present with an anxiety disorder also meet criteria for at least one additional anxiety disorder.
- * The mean duration of childhood anxiety disorders at the time of assessment is 4 years.
- * A family history of an anxiety disorder confers risk for a spectrum of anxiety disorders in children.
- * Behavioral inhibition is a consistent tendency to show marked restraint or fearfulness with unfamiliar people, situations, or events; it is found in 10%-15% of children.
- * Behavioral inhibition is prevalent in offspring of parents with panic disorder with agoraphobia.
- * Parents of children with an anxiety disorder are often anxious themselves and may be unskilled at helping children manage anxiety.
- * Children with separation anxiety may refuse to go to school or to sleep over at a friend's house or to go away to sleep-away camp.
- * Half of the children who present with an anxiety disorder also meet criteria for at least one additional anxiety disorder.
- * Adolescents with anxiety disorders have a strong risk for a recurrence as young adults.
- * Family history of anxiety disorders increases the risk for an anxiety disorder in childhood.
- * Behavioral inhibition increases the risk for anxiety disorders in children.
- * Parental behaviors associated with childhood anxiety disorders include overprotection, criticism or negative



affect, intrusion, avoidant responses, and insecure attachments.

- * Graded exposure is a way of teaching a child to face a feared situation.
- * Early panic attacks are likely to be situationally bound rather than spontaneous.
- * The best treatment for childhood anxiety seems to be a combination of psychopharmacological treatment and cognitive behavioral therapy.

- * Presence of co-morbid disruptive behavior can limit the efficacy of behavioral and medication treatment for OCD.
- * Stimulants may increase primary obsessions, rituals, or anxiety when treating co-morbid ADHD. It is important to treat the OCD first.
- * OCD relapses are frequent when the medication is discontinued. CBT helps to prevent relapse.
- * There is an increase of thalamic volume in OCD patients.
- * Combined treatment using CBT and medication is more effective than using both treatments alone.

JUVENILE OBSESSIVE-COMPULSIVE DISORDERS

Daniel A. Geller, M.D.

Dr. Geller presented a comprehensive discourse on the prevalence, age of onset, associated neurological findings, co-morbidity, and treatment options of pediatric OCD. Results of trials with TCAs and SSRIs were provided in detail, as were the results of adjuvant treatments and use of atypical neuroleptics. He also noted that:

- * Children's obsessions frequently center upon fear of a catastrophic family events, such as the death of a parent.
- * OCD is frequently under-recognized and under-reported.
- * According to the WHO, OCD is among the 10 leading causes of disability world-wide.
- * The mean age of onset of OCD is about age 10 in children and age 20 in adults.
- * Precipitants for OCD include serious illness, death of a relative, a geographic move, and parental divorce.
- * PANDAS (Pediatric Autoimmune Neuropsychiatric Disorders Associated with Streptococcus) is associated with the development of OCD.
- * Sexual obsessions are common in adolescence.
- * 50% to 75% of those who suffer from pediatric OCD respond to SSRIs.
- * Failure to respond to one compound does not predict failure to respond to another.
- * Behavioral treatment is often useful for treatment-resistant OCD.

IMPLICATIONS OF PSYCHIATRIC GENETICS FOR PSYCHOPHARMACOLOGY

Stephen Faraone, Ph.D.

The question, *Why is psychiatric genetics relevant to psychopharmacology?* was addressed by Dr. Faraone. He described how one determines whether a disorder is familial and clarified what the relative contribution of genes and environment is to a disease, and how genes influence susceptibility to illness. Dr. Faraone also discussed what genes influence drug response, and suggested how we can use genetic data to test primary prevention strategies. Specifically he noted that:

- * Genes make youth susceptible to psychiatric disorders.
- * Genes control brain systems that mediate therapeutic response and side effects.
- * The 480 allele of the dopamine transporter gene (DAT) is associated with ADHD.
- * The distribution of DRD4 mRNA in brain suggests its role in cognitive and emotional functioning.
- * Reduced serotonin function and expression, as well as increased fear and anxiety, have been correlated with markers on chromosome 17q.



ADHD ACROSS THE LIFE CYCLE

Joseph Biederman, M.D.

According to Dr. Biederman, who presented a systematic review of the symptoms (including inattention and impulsivity/hyperactivity), the genetics, and the neuroanatomical correlates of Attention Deficit Hyperactivity Disorder (ADHD), ADHD is both prevalent and problematic. Dr. Biederman also noted that:

- * ADHD comprises a deficit in behavioral inhibition.
- * Interestingly, an abnormality in frontal-striatal connections has been observed in ADHD.
- * Brain imaging has revealed a smaller right basal ganglia and frontal area in those with ADHD.
- * Abnormalities in the dopamine transporter gene DAT1 on chromosome 5 and the D4 receptor on the 7 repeat allele on chromosome 11 have been associated with ADHD.
- * Un-medicated adolescents with ADHD have an increased risk of substance abuse throughout adulthood.
- * Having a diagnosis of ADHD significantly increases the likelihood that one will be involved in a motor vehicle accident.
- * Despite similar educational levels and IQ scores, individuals with ADHD display significantly more academic problems in school and lower occupational rates.
- * ADHD is prevalent all over the world.
- * Impulsivity carries a worse prognosis than does inattention in those with ADHD.
- * Both genetic and early environmental influences on brain development (regarding volume abnormalities in ADHD) are fixed, non-progressive, and unrelated to stimulant treatment.
- * Stimulant medications continue to be the first-line agents for the treatment of ADHD.

PHARMACOLOGIC TREATMENT OF ADHD ACROSS THE LIFE CYCLE: STIMULANTS

Thomas J. Spencer, M.D.

In this talk, Dr. Thomas Spencer comprehensively reviewed state-of-the-art psychopharmacological treatments of ADHD. The use of psychostimulants (e.g., methylphenidate, Adderall, dextroamphetamine, pemoline) was discussed. Several highlights of his discussion included the following:

- * Higher doses of Adderall tend to extend the duration of its effect.
- * Sustained release preparations tend to induce tachyphylaxis.
- * Concerns about the development of hepatotoxicity after use of pemoline have been raised; liver function tests should be checked initially and every two weeks.

PHARMACOLOGIC TREATMENT OF ADHD ACROSS THE LIFE CYCLE: NON-STIMULANTS

Timothy E. Wilens, M.D.

The use of non-stimulants (clonidine, guanfacine), tricyclic antidepressants (TCAs) and non-TCAs (e.g., bupropion and selective serotonin reuptake inhibitors [SSRIs]) were discussed. Several highlights of his discussion included the following:

- * Bupropion has a stimulatory action, increases the risk of seizures, and may exacerbate tics.
- * Use of atomoxetine has led to significant reductions in measures of inattention and hyperactivity.
- * There is a linear dose response with nortriptyline (NTP) for pediatric ADHD and for ODD as well as for children with ADHD and anxiety.
- * Desipramine clearance is unaffected by the addition of stimulants.
- * Sudden death has been reported in three cases of youths receiving clonidine (an alpha-adrenergic agent) and methylphenidate.
- * Atomoxetine should be used in patients with ADHD who do not respond to stimulants; treatment of co-morbid anxiety, tics and mood disorders should also occur.
- * Nortriptyline is effective in the treatment of ADHD that is co-morbid with an anxiety disorder.



PANEL: ASK THE EXPERTS

Joseph Biederman, M.D., Thomas J. Spencer, M.D.,
Timothy E. Wilens, M.D.

Moderator: Jefferson B. Prince, M.D.

A stimulating and interactive question and answer session with some of the nation's leading authorities on pediatric psychopharmacology concluded the day's events.

BASIC NEUROPHARMACOLOGY: TRANSMITTERS AND RECEPTORS

Stephan Heckers, M.D.

In an elegantly rendered presentation, Dr. Heckers reviewed the fundamental building blocks of neuropharmacology. Outlining the central nervous system (CNS), with 1011 neurons, he reviewed the complex circuitry of the CNS, with many neurons having connections to 104 other neurons.

- * Neurons communicate via the release and specific binding of small neurochemicals (neurotransmitters). These neurotransmitters bind to specific sites in membrane bound proteins that are translated into an intracellular response.
- * A balance between intracellular and extracellular ions characterizes neuronal activity. At rest, this balance is called the resting membrane potential. Decreasing the resting potential leads to excitation, while increasing it leads to inhibition.
- * "Fast talking" neuronal communication is achieved by direct modulation of ion channels that control the resting potential. The two most prominent neurotransmitters in the brain that use this route are glutamate and GABA.
- * "Slow talking" is achieved by activation of an intermediate, membrane-bound protein that relays information to one or several second messenger systems within the cell. This route is used exclusively by the dopaminergic and noradrenergic system, predominantly by the serotonergic and cholinergic system, and partially by the glutamatergic and GABAergic system.

A number of specific facts were explained:

- * Decreased glutamatergic function is thought to be involved in the creation of psychotic symptoms.

- * Modulation of GABA_A receptors is beneficial in the treatment of anxiety disorders, insomnia, and agitation most likely due to a general inhibition of neuronal activity.
- * Acetylcholine modulates attention, novelty seeking, and memory via the basal forebrain projections to the cortex and limbic structures.
- * Acetylcholine acts at two different types of cholinergic receptors (muscarinic receptors and nicotinic receptors).
- * Glutamate is the most abundant amino acid in the CNS; it acts as the major excitatory neurotransmitter in the CNS.
- * Modulation of serotonergic receptors is beneficial in the treatment of anxiety, depression, OCD, and schizophrenia.
- * About half of all noradrenergic neurons, i.e., about 12,000 on each side of the brainstem, is located in the locus ceruleus (LC).
- * Noradrenergic projections modulate sleep cycles, appetite, mood, and cognition by targeting the thalamus, limbic structures, and the cortex. These functions are targeted by antidepressants.
- * Dopamine projections of the ventral tegmental area (VTA) to limbic structures, such as the nucleus accumbens are known to be involved in reward behavior and the development of addiction to drugs, such as ethanol, cocaine, nicotine, and opiates.
- * Hallucinogens like LSD, modulate serotonergic neurons via serotonergic autoreceptors.

JUVENILE MANIA

Janet Wozniak, M.D.

Dr. Wozniak described the clinical presentation of juvenile mania and reviewed the treatment approach to afflicted individuals in detail. Irritability, prolonged outbursts, affective storms, and an overlap with ADHD are the rule. She also comprehensively described recent research in the field of childhood and adolescent mania and noted that juvenile mania is not as rare as previously thought. Diagnostic confusion with severe ADHD, because of overlapping symptoms, may occur. Treatment, with lithium, valproate, carbamazepine, lamotrigine, and atypical neuroleptics, are often effective. Other facts presented regarding with juvenile bipolar disorder included:



- * The age of onset is often different from the age of recognition.
- * Juvenile bipolar disorder is estimated to affect 5% of children.
- * A rapid onset, psychomotor retardation, a family history of bipolar disorder, and a switch to mania induced by antidepressants facilitate the diagnosis of bipolar disorder.
- * Irritability, persistent outbursts, and violent behaviors, such as attacking family members, are also keys in the detection of bipolar disorder.
- * Atypical antipsychotics should be considered as a first-line treatment of pediatric bipolar disorder, although the risk of tardive dyskinesia and weight gain limit their utility
- * Children with mania frequently demonstrate an atypical picture (by adult standards) with a chronic course, severely irritable mood, and a mixed picture with co-occurring mania and depression.
- * Manic children are more likely to be irritable; they have prolonged and aggressive temper outbursts or affective storms.
- * Grandiosity in manic children may present as extreme defiance and oppositionality.
- * Stimulants do not tend to destabilize mood as much as one would expect in bipolar disorder children with comorbid ADHD.
- * Atypical antipsychotics are currently considered as "mood stabilizers" in the treatment of bipolar disorder.

DYSPHORIC CONDUCT DISORDER

Joseph Biederman, M.D.

According to Dr. Biederman, not everyone who engages in disruptive behavior has a psychiatric disorder. Children with a conduct disorder are not just those that misbehave; they have persistent and severe disruptions in behavior. Dr. Biederman also noted that Conduct Disorder is more prevalent in those with mania. In one study of children and adolescents with mania by Dr. Biederman's group, 40% also met criteria for conduct disorder. These disorders co-occur; one is not the consequence of the other.

Findings associated with the diagnosis of conduct disorder include:

- * Acting out behaviors, burglary, stealing, school suspensions are frequent.
- * Affective storms and attacking behaviors often present.
- * 30% of children with conduct disorder have bipolar disorder.
- * Antisocial disorder is most likely seen in children with bipolar disorder and conduct disorder.
- * The presence of bipolar disorder and conduct disorder increase risk for substance abuse; but conduct disorder alone does not increase the risk for substance abuse.
- * Making the diagnosis of mania in some children with conduct disorder offers important therapeutic possibilities since delinquency and mania require very different treatment approaches.
- * Children with conduct and bipolar disorder are similar to both non-manic children with conduct disorder and non-conduct disordered children with bipolar disorder, with regards to symptoms, co-morbidity, and measures of functioning.
- * Risperidone reduces the severity of affective symptoms, as well as behavioral symptoms in children with disruptive behavioral disorders.

BEHAVIORAL MANAGEMENT OF THE OPPOSITIONAL AND EXPLOSIVE CHILD

Ross Greene, Ph.D.

Ross Greene, Ph.D. eloquently discussed concepts elaborated upon in his best selling book, *The Explosive Child: Understanding and Parenting Easily Frustrated, Chronically Inflexible Children* (1998), and suggested methods of teaching and motivating compliant behavior. He noted that oppositional and explosive behavior may result from difficult temperament, ADHD, deficits in social skills, deficits in language processing, mood disorders, anxiety disorders, and juvenile learning disabilities. Other features of oppositional disorder that were discussed included:

- * Outbursts often occur outside the presence of others.
- * Afflicted individuals seem not to learn from the consequences of their actions; therefore, telling individuals



“don’t do it” may not be as effective as teaching individuals to recognize problematic situations and teaching them how to create flexible solutions to problems in evolution.

- ODD is characterized by the inability to interrupt a tantrum.
- Types of inadequate parental discipline include inconsistent discipline, irritable explosive discipline, low supervision, and an inflexible discipline.
- Rewards and punishments should be used to teach simple things, to facilitate learning, and to enhance and motivation.
- ODD is frequently co-morbid with ADHD, major depressive disorder, and bipolar disorder.
- Treatment should emphasize antecedents, be situationally specific, involve a graduated training of cognitive skills, and respect neurobiochemical underpinnings of behavior.
- Treatment should involve collaborative problem solving.
- Stability is achieved by building relationships and by enhancing communication.
- Cognitive pathways that lead to explosive-noncompliant behavior include executive skills, language processing skills, emotion regulation skills, cognitive flexibility, social skills, and sensory motor regulation.

ADOLESCENT SUBSTANCE ABUSE AND SMOKING

Timothy E. Wilens, M.D.

Dr. Wilens defined terms (e.g., misuse, abuse, dependence, addiction) and presented epidemiological facts (e.g., regarding prevalence and risk factors) regarding substance abuse. He also discussed the co-morbidity of substance abuse disorders and conduct disorder, ODD, depression, bipolar disorder, ADHD, and anxiety disorders. Specific treatment strategies, involving non-pharmacological (e.g., education, psychotherapy, family therapy) and pharmacological (e.g., disulfiram, SSRIs, TCAs, opiate antagonists) and medications for co-morbid disorders were presented. Several clinical pearls included:

- Early cigarette use is correlated with later substance abuse.

- Higher rates of substance abuse are noted in children raised in families that abuse substances.
- Delinquent peer groups are influential on the development of substance abuse.
- Juvenile substance abuse is associated with conduct disorders, mood disorders, and ADHD.
- Substance abuse may accelerate the emergence of conduct disorder.
- Up to 80% of substance-abusing adolescents meet diagnostic criteria for oppositional defiant disorder; 20%-30% have overanxious or social phobic disorder.
- The presence of depression doubles the adolescent’s risk of substance abuse.
- Highly anxious adolescents have an increase risk of substance abuse.
- Youths with substance abuse should be assessed for bipolar disorder.
- Exposure to parental substance abuse influences child substance abuse.
- Sons of male alcoholics have up to 9-fold risk of developing substance abuse.
- Poor academic achievement is an important risk factor for substance abuse.
- Maternal smoking is a risk factor for ADHD in their offspring.
- Conduct disorder precedes substance abuse 60-90% of time.
- Adolescent-onset bipolar disorder increases the risk for substance abuse. It is important to assess all adolescents with bipolar disorder for substance abuse.
- Extended release stimulant medications are unlikely to be abused.



TOURETTE'S DISORDER AND TICS

Barbara J. Coffey, M.D., M.S.

Dr. Coffey presented an historical overview of Tics and Tourette's disorders and then reviewed the diagnostic criteria, the clinical course, epidemiological findings, reports of genetic linkages, and recent neuroanatomical and neuroimaging findings. Pharmacotherapy, (e.g., with guanfacine, TCAs, stimulants, neuroleptics, SSRIs, and baclofen) was discussed at length, and special consideration was given to algorithmic approaches to those with co-morbid diagnoses. Specific facts related to Tics and Tourette's disorder include:

- * Transient tic disorder is the most common disorder among youths.
- * Tourette's disorder likely involves a diffuse process in the cortico-thalamic striatum.
- * The mean age of onset is 6-7 years; its peak is from 10-11 years.
- * Tourette's disorder is frequently co-morbid with OCD, ADHD, anxiety, and depression.
- * Males are at least 3 to 4 times more likely than are females to manifest Tourette's disorder.
- * The tic remission rate is independent of ADHD in patients with co-morbid Tourette's and ADHD.
- * Atomoxetine has been proven efficacious in the treatment of Tourette's disorder.
- * The novel atypical antipsychotic, Aripiprazole, when given in lower dosages (2.5-10 mgs) seems to be beneficial in Tourette's disorder; however, it is still under investigation.

FORENSIC ISSUES IN PEDIATRIC AND ADOLESCENT PSYCHOPHARMACOLOGY

Judith Edersheim, M.D., J.D.

Dr. Edersheim noted that many physicians at one time or another are concerned about the possibility that they will be accused of wrongdoing. She identified the necessary elements of malpractice claims (i.e., duty, dereliction, direct causation, and damages) and reviewed the principles and elements of informed consent (e.g., the nature of diagnosis, treatment options, expected benefits, risks involved, alternative treatments, and prognoses with or without treatment).

Dr. Edersheim also highlighted several facts:

- * Most errors do not result in a suit.
- * A high patient volume and attenuated relationships increase the risk of a suit.
- * The physician's duty to the patient involves knowledge, skill, and care.
- * Under certain conditions a child can make medical decisions on their own behalf; these include situations under the emancipated minor rule (e.g., when married, when the minor is a parent, when the minor is pregnant or believes she is pregnant, when enlisted in the armed forces, or when living independently and apart from parents and managing their own finances), the mature minor rule (e.g., nearing the age of majority, or able to comprehend the nature and potential impact of treatment decisions), or when there are familial conflicts of interest (e.g., regarding treatment of sexually transmitted diseases, substance abuse treatment, or abortion).
- * A physician may prescribe any FDA approved medication for any purpose that the physician believes is appropriate. However, the more unconventional the treatment, the more thoughtful and thorough the documentation and discussion should be.
- * Exceptions to the duty to maintain confidentiality include the Tarasoff rule, involuntary commitment, court orders regarding custody or adoption, being on the sexual offender registry for DMH clients, and providing the diagnosis, prognosis, or course of treatment to insurers or government agencies.

EATING DISORDERS

David B. Herzog, M.D.

The nature and course of eating disorders were reviewed and the conflicts and challenges associated with these disorders were vividly demonstrated by a video; it helped explain why diagnosis and treatment are often delayed for several years. A multidisciplinary treatment approach, often necessary for care was presented and pharmacological treatment options were discussed. Facts associated with eating disorders included:

- * Disorders frequently co-morbid with eating disorders include depression, anxiety disorders, OCD, substance abuse, dissociative disorders, kleptomania, and personality disorders.



- * Medical complications of anorexia nervosa include bradycardia, hypotension, hypothermia, and constipation.
- * Medical complications of bulimia nervosa include parotidomegaly, hypokalemia, perimolysis, and bowel abnormalities.
- * Obstetrical risks associated with eating disorders include premature births, low birth weight infants, increased perinatal mortality, and small babies for gestational age.
- * No single medication has been shown to be curative for anorexia nervosa.
- * Fluoxetine may be effective in weight-recovered anorexics.
- * Fluoxetine (60 mg/day), the best-studied SSRI, appears safe and effective in controlled trials of patients with bulimia nervosa.
- * Bone density tests should be considered in patients with anorexia nervosa; two-thirds of women with anorexia nervosa between the ages of 12 and 20 have severe osteoporosis.
- * Risk factors for bulimia nervosa include a societal emphasis on thinness, a pressure to be thin, body dissatisfaction, negative affect, obesity, dieting, and genetic factors.
- * 50-70% of patients with anorexia nervosa achieve a good outcome as seen in 10-year follow-up studies.
- * CBT is the best studied and most effective treatment for bulimia nervosa.
- * SSRIs seem to reduce binge-eating behavior.
- * Outcomes of adolescent anorexia nervosa patients improve with early intervention.

PSYCHOTIC DISORDERS, PERVASIVE DEVELOPMENTAL DISORDERS, AND MENTAL RETARDATION

Jean A. Frazier, M.D.

Dr. Frazier noted that psychosis (manifest by hallucinations and delusions) in childhood is rare, and that traditional antipsychotics have proved more effective than placebo in clinical trials of childhood psychosis. Unfortunately, no pharmacotherapeutic treatment exists for the core developmental disability seen in children with autistic spectrum disorders and mental retardation. Instead, problematic behaviors and co-morbid conditions form the targets of pharmacotherapy; the watchwords for treatment of these conditions is “start low and go slow.” Dr. Frazier also noted that:

- * A rich and fixed fantasy life before the age of 9 should alert one to the possibility of a psychotic process.
- * Childhood-onset schizophrenia is rare; it can present with speech and language delays, ADHD, disruptive behaviors, or autistic features.
- * Auditory hallucinations are more frequent than are visual ones in psychotic children.
- * Early intervention may halt progression of the illness.
- * Atypical agents are first-line therapies for psychosis. Psychopharmacology is not curative in the treatment of pervasive developmental disorders but it can be very useful in targeting disruptive symptoms, hyperactivity, aggression, self abusive behavior, labile mood, social withdrawal, and stereotypies.
- * Impulsivity driven by anxiety and affective states should be treated with SSRIs in PDD patients.
- * Autism is associated with serotonin dysregulation.
- * Citalopram is effective in targeting aggression, anxiety, stereotypies, and preoccupations in PDD individuals, but its use has not led to a change in the core symptoms of PDD.
- * Risperidone significantly decreases self-injury, aggression, agitation, stereotypy, and hyperactivity in autistic children.
- * A low risk of EPS is seen with clozapine, olanzepine, quetiapine, and aripiprazole.



NEUROPSYCHOLOGICAL TESTING

Alysa Doyle, Ph.D.

Dr. Doyle's outline reviewed the history, the basic principles, and the key concepts (e.g., normal curves, standard scores, scaled scores) of neuropsychological testing, thereby setting the stage for an understanding of the interpretation of test scores. She also underscored the importance of the neuropsychological test battery (e.g. involving testing of intelligence, executive function, memory, language, visual motor integration). She also noted that:

- * Neuropsychological deficits may be part of the disorder, part of a co-morbid disorder, or sequelae of the disorder.
- * Goals of neuropsychological testing include: confirming or describing the extent of an underlying deficit, documenting strengths that can be mobilized, and determining the presence or absence of additional deficits that may exacerbate the primary deficit.
- * Individuals with ADHD plus neuropsychological deficits may be at higher risk for impaired outcomes.
- * Individuals with impairment in executive function often do best with shorter and more frequent assignments than with a few large projects.

PEDIATRIC CONSULTATION-LIAISON: PSYCHOPHARMACOLOGY IN CLINICAL PRACTICE

Paula K. Rauch, M.D.

Dr. Rauch initially described the history of adult and pediatric consultation in the general hospital and then focused on common reasons for psychiatric consultation (e.g., depression, anxiety, anorexia nervosa, ADHD, non-compliance, coping with chronic illness, and the management of suicidal children) and on strategies to resolve clinical dilemmas. She noted:

- * Agitation or disruptive behavior can prevent essential medical care.
- * Psychiatric conditions are under-diagnosed in children and adolescents with co-morbid medical illness.
- * TCAs are contraindicated in individuals with cystic fibrosis because their anticholinergic side effects will dry the mucosa.

- * Anxiety in children may be a major cause of non-compliance.
- * Mediations, such as steroids, are often associated with psychiatric symptomatology.
- * Generalized anxiety in the hospital setting may respond to low doses of a long-acting benzodiazepine.
- * Stimulants may be helpful for children with ADHD following traumatic brain injury or neurosurgery.
- * Mood stabilizers may be helpful in steroid-induced mood symptoms.

MULTIMODAL MANAGEMENT OF PEDIATRIC PSYCHOPHARMACOLOGY

Michael S. Jellinek, M.D.

Laced with clinical vignettes, Dr. Jellinek emphasized the importance of setting reasonable expectations (placed in the context of development, disorders, character, family dynamics, and resources). Examples of participation in sports, school, family, and peer groups, highlighted the principles. He advocated maintenance of a developmental focus, e.g., with control/autonomy in early adolescence, to guide the clinicians and to improve function for all in the system. He stressed that it is important to:

- * Organize a contingency plan.
- * Set reasonable expectations.
- * Specify a goal.