Psychosis in Children and Adolescents

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Psychosis – Defined (Maybe)

Defined??

- Narrow Definition: delusions or prominent hallucinations with absence of insight
- Broad Definition: delusions, hallucinations, disorganized speech, thoughts and behavior

Prognostic Value?

- Adults – equate psychosis with severe psychopathology
- Children – seen in serious psychopathology, non-psychotic psychopathology, psychosocial adversity & physical illness & normal development

Psychosis in Childhood and Adolescence

Psychosis in Children

- 1% in community samples and increases with age
- In clinical samples – 4% children increases to 8% in adolescents
- Fenning et al -18/341 (5.3%) 1st-admission psychotic adults endorsed hallucinations <age 21 (most had not revealed hallucinations to parents/caregivers)

Regier DA, Arch Gen Psych (1984); Fennig S, J Nerv Ment Dis (1997)

Psychosis in Childhood and Adolescence

Hallucinations can be seen in healthy children

- Preschool children – hallucinations vs. sleep related phenomena and/or developmental phenomena (imaginary friends/fantasy figures)

- School age children – hallucination more ominous

Prognosis for Youth with Hallucinations

Findings from a psychiatric emergency service:

- 2-month time period reviewed for youth with hallucinations without psychosis – 62 subjects
- 35 under age 13, mean age 11.4
- 6 subjects VH only, 32 subjects AH only, 24 subjects both VH & AH
- Diagnoses – Depression 34%, ADHD 22%, Disruptive Behavior Disorder 21%, Other 23%

Edelsohn GA, Ann NY Acad Sci, (2003)

Prognosis for Youth with Hallucinations

Findings from a psychiatric emergency service:

- AH's "telling child to do bad things" associated with DBD 69% of the time
- AH's "invoking suicide" associated with depression 82% of the time
- Dispositions: 44% admitted, 39% referred to outpatient services, 3% AMA, 14% "missing"

Edelsohn GA, Ann NY Acad Sci, (2003)

Psychosis in Childhood and Adolescence

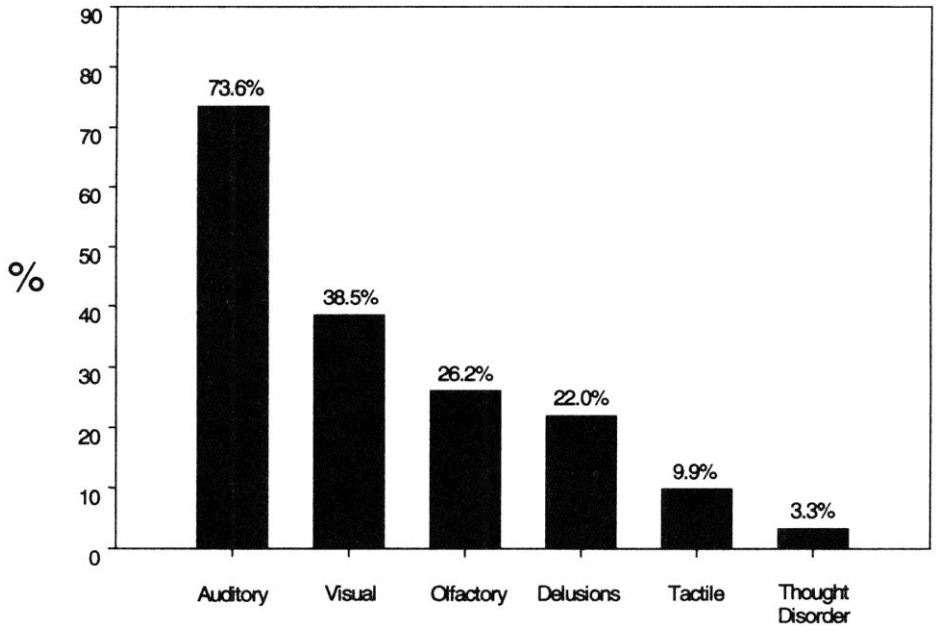
Psychosis in a Pediatric Mood/Anxiety Disorder Clinic:

N = 2031 screened for psychosis:

- 5% - definite psychotic symptoms – at least 1 hallucination with score of 3 (definite) and/or at least 1 delusion with score of 4 (definite) (on a 4 point scale) – 18 < age 13; 73 ≥ age 13
- 5% - probable psychotic symptoms – at least 1 hallucination with score of 2 (suspected or likely) and/or at least 1 delusion with score of 3 (suspected or likely)
- 90% - with no psychotic symptoms

Ulloa RE, JAACAP (2000)

Ulloa 2000-Distribution of Psychotic Symptoms in “Definite” group



Psychosis in Childhood and Adolescence

Psychosis in a Pediatric Mood/Anxiety Disorder Clinic:

For patients with definite psychotic symptoms:

- 24% Bipolar disorder
- 41% MDD
- 21% Depressive Disorders but not MDD
- 14% Schizophrenia Spectrum Disorders – 4 patients with schizophrenia; 9 with SAD

Ulloa RE, JAACAP (2000)

Psychosis in Childhood and Adolescence

Psychosis in a Pediatric Mood/Anxiety Disorder Clinic:

Interesting findings:

- Distribution of psychotic symptoms were similar for definite vs. probable psychosis
- No difference between children & adolescents in frequency of hallucinations & delusions
- Adolescents had higher frequency of AH's coming from "outside the head"
- Thought disorder present only in adolescents

Ulloa RE, JAACAP (2000)

Psychosis in Childhood and Adolescence

Psychosis in a Pediatric Mood/Anxiety Disorder Clinic:

Patients with definite vs non-psychotic
youths more likely to have:

- Major Depression
- Bipolar Affective Disorder
- Anxiety Disorder – generalized anxiety or Panic disorder

Also – definite patients more likely to have suicidal
ideation – mediated by presence of mood disorder

Ulloa RE, JAACAP (2000)

Psychosis in Trauma Spectrum Disorders

Trauma-related hallucinations reported in:

- 9% abused children seen in pediatric clinics
- 20% child sexual abuse victims - inpatient samples
- 75% abused children meeting dissociative disorder criteria

Kaufman J, JAACAP (1997)

Psychosis in Trauma Spectrum Disorders

Hallucinations characterized by:

- Hearing perpetrator's voice/seeing face
- Often nocturnal
- Associated with impulsive, aggressive and self-injurious behavior, nightmares and trance-like states
- Less likely to be associated with negative symptoms (withdrawn behavior, blunted affect), formal thought disorder or early abnormal development
- Typically resolve with intervention/safety

Kaufman J, JAACAP (1997)

Psychosis in Major Depressive Disorder

- 50% of prepubertal children with major depression may have hallucinations of any type
- Up to 36% may have complex auditory hallucinations
- Delusions are more rare

Chambers WJ, Arch Gen Psychiatry (1982)

Psychosis in Bipolar Affective Disorder

- Prevalence of psychotic features in pediatric bipolar disorder range between 16% to 87.5% depending on age and methods of sampling
- Most common psychotic symptoms are mood-congruent delusions – mainly grandiose in nature
- Psychotic features appear in context of affective symptoms
- Family history of affective psychosis aggregate in probands with bipolar disorder

Pavuluri MN, Journal of Affective Disorders (2003)

Psychosis in Childhood and Adolescence

Cannabis

- Increases risk of developing a psychotic illness in later life
- Associated with younger age of onset in 1st-episode schizophrenia but better cognitive function

Psychosis in Childhood and Adolescence

Organic Syndromes

- Seizure disorders
- Delirium
- CNS lesions
- Metabolic/Endocrine
- Neurodegenerative disorders
- Developmental disorders
- Toxic encephalopathies
- Infectious agents
- Autoimmune disorders

Childhood Onset Schizophrenia

Historical Perspective

DSM-II *Schizophrenic syndrome of childhood*
Lumped Autism, Schizophrenia, Disintegrative Psychosis (1968)

DSM-III *Schizophrenia in Childhood and Adolescence* mirrored diagnostic criteria (for the most part) for adult onset (1980)

Childhood Onset Schizophrenia

Criteria:

- Delusions
- Hallucinations
- Disorganized speech
- Grossly disorganized behavior/catatonia
- Negative symptoms

- 6-month minimum duration – includes prodrome, active and residual phases

Childhood Onset Schizophrenia Epidemiology

Prevalence

- Childhood estimated 1/10,000
- Adolescence – increases with age
- Likely to be diagnosed clinically but not supported when given a structured diagnostic interview

Sex Ratio

- Approximately 4:1 (male : female)
- Ratio trends to even out as age increases
- Adult studies suggest age of onset is 5-years earlier on average for males compared to females

Childhood & Adolescent Onset Schizophrenia

Criteria:

- 1-month active phase (less if treated)
- 6-month minimum duration – includes prodrome, active and residual phases

Unlike adults:

- Marked deterioration in social/occupational functioning modified to include “failure to achieve expected level of interpersonal, academic, or occupational achievement”

Childhood & Adolescent Onset Schizophrenia Epidemiology

Age at Onset:

- Rarely apparent before age 9
- Thomsen (1996) followed 312 youths hospitalized for schizophrenia over a 13 year period: only 28 subjects <15 & only 4 < 13

Onset Type:

- Insidious onset much more common than acute onset
- Females more likely to have acute onset

Childhood & Adolescent Onset Schizophrenia Epidemiology

Deterioration in Functioning:

Adults – marked deterioration in social,

Occupational relationships & self care

C&A – failure to reach expected level of

Interpersonal, academic, or social achievement

Russell (1989) – 35 subject with COS (ages 4-13) all had deterioration in level of functioning

Childhood & Adolescent Onset Schizophrenia Clinical Phenomenology

Hallucinations:

- AH's - Most common positive symptom – 80%
- VH's – 30% to 50% of patients and usually accompanied by AH's
- Tactile Hallucinations – rare

Delusions:

- less common than adult onset – 45%
- Persecutory & somatic more common
- Though control & religious themes rare (3%)
- Delusions more complex in older subjects

Childhood & Adolescent Onset Schizophrenia Clinical Phenomenology

Affective Disturbances

- Common – over 75% of cases
- Flattened affect most common finding

Thought Disorder

- Illogical thinking and loose association more specific than incoherence & poverty of speech content
- Not specific to COS – reflects impaired communication skill development

Childhood & Adolescent Onset Schizophrenia Clinical Phenomenology

Cognitive Impairment

- Significant impact on mean IQ
- Most patients function in low average to average range (82 -94)
- Decline from COS to adolescence due to failure to acquire new information/skills, not a dementing process (Bedwell 1999)

Childhood & Adolescent Onset Schizophrenia Clinical Phenomenology

Neurobiological Deficits

- Progressive ↓ in ventricular size
- ↓ cortical grey matter during adolescence (frontal & temporal regions)
- Correlation of total cerebral volumes with negative symptoms
- Frontal lobe dysfunction similar to adults

Childhood & Adolescent Onset Schizophrenia Course of illness

Prodrome

- Weeks to months – functional impairment
- Wide range of non-specific symptoms including unusual behaviors &preoccupation, social withdrawal & isolation, academic problems, dysphoria, vegetative symptoms

Acute Phase – 1 to 6 months, positive symptoms

Recovery Phase – months, negative symptoms common, depression

Childhood & Adolescent Onset Schizophrenia Course of illness

Residual Phase - time between active phases, less positive more negative symptoms

Chronic Illness - Estimate that 25% of COS complete remission, 50% chronic course & significantly impaired

- Insidious onset & younger than 12 predicted poorer outcomes

Childhood & Adolescent Onset Schizophrenia Differential Diagnosis

Autistic Disorder

Similar – impairment in functioning, thought

disorder-like symptoms, blunt affect

Differ – Age of onset, developmental

history, clinical & family history

Schizophreniform Disorder – time, function

Brief Psychotic Disorder – time limited, usually stressed induced

Personality Disorders

Childhood & Adolescent Onset Schizophrenia Differential Diagnosis

Personality Disorders

- Schizotypal, schizoid, borderline & paranoid may have transient psychotic symptoms

Affective Disorders

- Major Depression – Prepubertal children: 48% had any hallucination, 36% AH's, delusions more rare

Childhood & Adolescent Onset Schizophrenia Differential Diagnosis

Affective Disorders

- Bipolar Disorder – Mania resembles agitation and disorganization of schizophrenia, depressive symptoms resemble negative symptoms of schizophrenia

Childhood & Adolescent Onset Schizophrenia Differential Diagnosis

Substance Use Disorders

- Schizophrenia & SUD – highly comorbid
- Amphetamines
- PCP
- MDMA
- Cannabis

Childhood & Adolescent Onset Schizophrenia Differential Diagnosis

Anxiety Disorders

- PTSD – psychotic like symptoms and hallucinations
- OCD – difficult to distinguish delusions from obsessions; rituals from bizarre behavior – insight helpful??

Childhood & Adolescent Onset Schizophrenia Differential Diagnosis

Other Nonpsychotic Disorders

- Conduct disorder – may have hallucinations
- Lower rates of negative symptoms, thought disorder & bizarre behavior

Treatment of Psychosis in Children & Adolescents

FDA Approved AP:

1. Aripirazole: Schizophrenia 13 and older; BPAD (acute manic and mixed episodes) 10 and older; Autism with irritability/agitation 6-17 years old.
2. Olanzapine: Schizophrenia 13 and older; BPAD (acute manic and mixed episodes) 13 and older.
3. Quetiapine: Schizophrenia 13 and older; BPAD (acute manic and mixed episodes) 10 and older.
4. Risperidone: Schizophrenia 13 and older; BPAD (acute manic and mixed episodes) 10 and older; Autism with irritability/agitation 5-16 years old.
5. Haloperidol: Psychotic Disorders 3 and older; Tourette's 3 and older: severe behavioral disorders 3-12.
6. Perphenazine: Schizophrenia 12 and older
7. Not approved – Clozapine, Paliperidone, Ziprasidone, Molindone

Antipsychotic Medication Adverse Effects: EPS

Characteristics

- C/A more susceptible than adults
- FGA versus SGA: Risperidone (4 mg) – 53%; Haldol (5 mg) 67%; Olanzapine (12 mg) 56%; Aripirazole 18%
- SSRI's may trigger or exacerbate EPS

Interventions

- Slow titration
- Lower dose
- Anticholinergics
- B-blockers
- Benzodiazepines
- Switch drugs

Antipsychotic Medication Adverse Effects: Akithesia

Characteristics

- Hard to diagnose
- Initial insomnia might be a key

Interventions

- Slow titration (Abilify initiated at 9 mg – 23%; at 2 mg < 10%)
- Lower dose
- Anticholinergics
- B-blockers
- Benzodiazepines
- Switch drugs

Antipsychotic Medication Adverse Effects: Withdrawal dyskinesia

Characteristics

- Appears reversible in youth
- Up to 15% of patients

Interventions

- Slow taper
- Overlap cross titration

Antipsychotic Medication Adverse Effects: Tardive Dyskinesia

Characteristics

- One study on SGA: 3 cases of TD in 783 patients over 12 months
- 0.4% annualized rate on SGA
- Rate is an underestimate (spontaneous reports)
- Non-elderly adults - twice the rate

Interventions

- Lowest effective dose
- Clozapine
- Vitamin E

Antipsychotic Medication Adverse Effects: NMS

Characteristics

- Rigidity
- Autonomic Instability (hypertension/tachycardia)
- Fever
- Leukocytosis
- Elevated CPK
- Probably less prevalent with SGA

Antipsychotic Medication Adverse Effects: Weight gain/metabolic syndrome

Characteristics

12-week study of C/A – AP naïve subjects

- Abilify 4.4 kg
- Risperidone 5.3 kg
- Quetiapine 6.1 kg
- Olanzapine 8.5 kg
- Placebo .20 kg

- Stimulant use does not prevent weight gain
- AP combination worsens weight gain
- Mood Stabilizers worsen weight gain

Antipsychotic Medication Adverse Effects: Prolactin Related AE

Characteristics

- Levels not closely correlated with symptoms
- AP dose dependent; may normalize over time; resolves once AP is discontinued
- Aripirazole may decrease prolactin levels especially in boys and prepubertal status
- Don't routinely screen
- Adverse effects drives blood levels

Intervention

- DA agonist – bromocriptine, amantadine, caberoline
- Partial agonist – Aripirazole
- Switch drugs

Antipsychotic Medication Adverse Effects: Cardiac and miscellaneous AE's

1. Dizziness/Orthostatic Hypotension:
   - Alpha 1 blockade
   - Additive effects if co-administering alpha-2 agonist or B-Blocker
   - Quetiapine – higher risk at doses > 300mg due to alpha-2 occupancy

2. QTc Prolongation:
   - Case reports of QTC . 430 msec with ziprasidone
   - Dose independent
   - Clinical significance unclear

3. Myocarditis:
   - Case reports with Clozapine

4. Dizziness/Orthostatic Hypotension:
   - Usually dose dependent except Quetiapine > 300 mg
   - Children > Adolescents > Adults