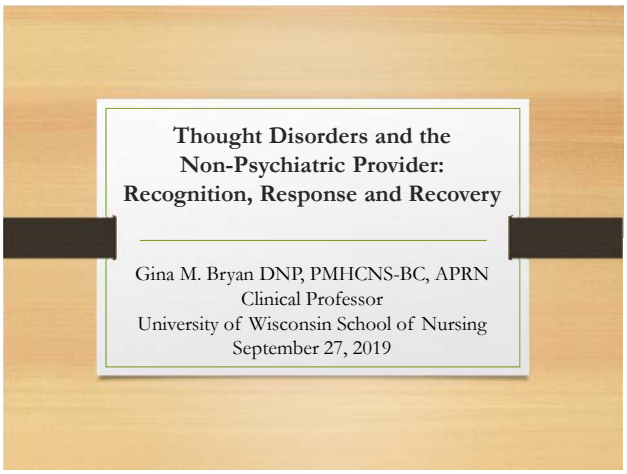


Objectives

- Discuss Prevalence and Epidemiology of thought disorders
- History of thought disorders in the United States
- Apply the DSM-IV diagnostic criteria to distinguish between thought disorders and differential diagnosis
- Management and Prognosis of thought disorders
- Describe medical and nonmedical treatment modalities for schizophrenia

Thought Disorders

- "We do not know with any of these neuropsychiatric disorders what the ultimate basis is. Let's say you could find that too much of protein X was involved in schizophrenia. Would you then know what schizophrenia is? You would not."

Paul Greengard PhD Neuroscientist

Thought Disorders

- Adults living with serious mental illness(SMI) die on average 25 yrs earlier than other Americans, largely due to treatable medical conditions
- Over 50% of students >14yo served by special education drop out−the highest dropout rate of any disability group
- Suicide is the tenth leading cause of death in the U.S.(more common than homicide) and the third leading cause of death for ages 15 to 24 years

http://www.nimh.nih.gov/statistics/1ANYDIS_ADULT.shtml

Prevalence of Thought Disorders

- General population approximate 3% lifetime prevalence of psychotic disorders
- 0.21% accounting for psychosis due to a general medical condition
- 0.5% to 4.3% for bipolar disorder in primary care populations, and 9% for bipolar spectrum illnesses
- Postpartum psychosis occurs after 1 in 500 to 1,000 births; risk factors include a history of premorbid depression or bipolar disorder, prior peripartum mood disorder, or a previous episode of postpartum psychosis.

Prevalence of Schizophrenia

- Lifetime prevalence globally is <1% (2.4 million American adults)
- Affects men and women fairly equally, slightly higher rates in men
- 1% higher in urban areas of industrialized nations
- Occurs at similar rates in all ethnic groups around the world
- Childhood-onset schizophrenia (12 years or younger) **uncommon** = 0.2 to 0.4 per 10,000
- 10-year cohort study, adolescent use of marijuana increased occurrence of incident psychosis and, with ongoing use, the risk of persistent psychotic episodes

Prevalence of Schizophrenia

- No precise figure for # of first episodes of psychosis in U.S. annually, but incidence data from other countries suggest that 100,000 PPY have a first onset of psychosis
- RAISE trial (2008 National Institute of Mental Health (NIMH) "*Recovery After an Initial Schizophrenia Episode (RAISE)* project") = 39% were not receiving medication consistent with guidelines in terms of agent or dose

Prevalence of Schizophrenia

- Age of first episode is typically younger among men (21yo) vs women (27yo)
- By age thirty, 9/10 men, but only 2/10 women will manifest the illness
- 3-10% of women with schizophrenia present with onset after 40)
- People who live with schizophrenia pose a high risk for suicide. 1/3 will attempt suicide and 1/1010 will take their own lives
- The economic burden particularly great during the first year following the index episode, relative to the third year onwards

https://www.cdc.gov/mentalhealth/basics/burden.htm

History

- Many cultures(Egyptian, Indian, Greek, and Roman) viewed mental illness as religious punishment or demonic possession
- 5th century B.C., Hippocrates was a pioneer, treating people with techniques not rooted changing a person's environment, occupation, or administering certain substances as medications.
- 1840s, activist Dorothea Dix, RN lobbied for better living conditions after witnessing the dangerous and unhealthy conditions in which many people lived
- Over a 40-year period, Dix persuaded. government to fund 32 state psychiatric hospitals
- This institutional inpatient care model was considered the most effective way to care for people
- Institutionalization was welcomed by families and communities struggling to care people living with symptoms of mental illness

History

Mid-1950s = What occurred at this time which has shaped mental health services and outcomes to this day?

Deinstitutionalization

- Largely international movement to reform the "asylum-based" mental health care system
- Move toward community-oriented care
- Based on the belief that people would have a higher quality of life if treated in their communities rather than in large, undifferentiated, and isolated mental hospitals

Schizophrenia

- Most common psychosis
- Usually involves abnormalities in all five symptom domains: hallucinations, delusions, disorganized thinking (speech), grossly disorganized or abnormal motor behavior (including catatonia)
- Like the DSM-5 neurodevelopmental disorders, viewed as neuropsychiatric disorder with complex genetics and clinical course that tends to begin during a predictable stage of development
- However, neurodevelopmental disorders tend to begin during childhood, symptoms tend to develop during late adolescence /early adulthood in schizophrenia

Schizophrenia

- Syndrome
  - Various symptoms and Do not need them all
- Symptoms
  - Positive, Negative (alogia, anhedonia, asociality, avolition), Cognitive

Phases of Schizophrenia

- **Prodromal** – withdrawal and perhaps some positive symptoms
- **Active** – positive symptoms
- **Residual** – heavily cognitive and some negative symptoms

Differential Diagnosis

- Acute psychosis is **primary** if it is symptomatic of a **psychiatric disorder** or **secondary** if caused by a specific **medical condition**

Psychiatric causes:

- Bipolar I disorder
- Depression with psychotic features
- Psychotic disorder (brief), with or without marked stressors
- Schizoaffective disorder
- Schizophrenia

Differential Diagnosis

Medical Causes

- Delirium- Hypo- or hyperkalemia, hypoxia, sepsis, serum electrolyte or metabolic abnormalities, sleep deprivation
- Autoimmune disorders (e.g. MS or systemic lupus erythematosus)
- Endocrine disorders (e.g. Cushing disease, diabetes, thyroid disease)
- Genetic, heritable conditions
- Neurologic conditions (e.g. dementia, encephalitis, epilepsy, Parkinson)
- Nutritional conditions (e.g. vit B deficiency)
- Oncologic conditions
- Pharmacologic causes (e.g. med adverse affect, substance abuse or withdrawal)

Differential Diagnosis

- Key diagnostic distinction made between psychotic symptoms caused by delirium, a psychiatric disorder, or a defined medical condition
- Delirium, an often reversible or temporary state of confusion with a rapid onset from altered brain function, is most often diagnosed in older or hospitalized populations, but it must be ruled out before reaching a definitive diagnosis of psychosis
- Existing cognitive deficits may present with mixed delirium and psychosis and may be helpful to ask about temporal course of their symptoms, signs of systemic illness, or recent environmental change, and to obtain collateral information from caregivers

Differential Diagnosis

- Primary psychiatric disorders more likely to have auditory hallucinations, prominent cognitive disorders, and complicated delusions
- Schizophrenia, bipolar disorder, major depression, schizoaffective disorder, and brief psychotic disorder are the most common psychiatric illnesses that present in primary care with psychotic features and LOC and awareness are usually intact
- DSM-5 diagnostic criteria for schizophrenia include symptoms persisting for **at least six months** and significant difficulty in one or more major functional capacities

Differential Diagnosis

- B**ipolar I disorder** may present with at least a seven-day history of elevated or expansive mood, hallucinations or delusions, extreme goal-directed activity, and decreased need for sleep
- **Schizophreniform Disorder** -equivalent to Schizophrenia except for its duration (Ie., the disturbance lasts from 1 to 6 months) and the absence of a requirement that there be a decline in functioning.

Differential Diagnosis (continued)

- **Schizoaffective disorder** may have both mania (bipolar type) and major mood disturbance (depressive type)
- **Psychotic depression** likely to have decreased energy and delusions or hallucinations consistent with major depression, such as voices reinforcing the patient's feeling of guilt or worthlessness (**Major depressive disorder** may present with prominent symptoms of anxiety or panic)
- **Postpartum psychosis** is classified in DSM-5 as a brief psychotic disorder if it occurs during pregnancy or within four weeks after delivery

Differential Diagnosis (continued)

- **Delusional Disorder**-characterized by at least 1 month of nonbizarre delusions without other active-phase symptoms of Schizophrenia.
- **Brief Psychotic Disorder -**Brief Psychotic Disorder is a disorder that lasts more than 1 day and remits by 1 month.
- **Psychotic Disorder Due to a General Medical Condition**
- **Substance-Induced Psychotic Disorder**
- **Psychotic Disorder Not Otherwise Specified (NOS)**

Assessment Pearls

HISTORY- sensitive inquiry about the patient's recent illness can help to focus diagnostic thinking

- Ask about recent head injury or trauma to rule out subdural hematoma and obtain other relevant neurologic history, such as seizures, cerebrovascular disease, or new or worsening headaches
- Individual cultures reflect a set of beliefs, values, and practices shared by members of a particular group
- Course of psychotic symptoms (EX: first major break in schizophrenia usually occurs late adolescence or early adulthood, although earlier signs may have been present for years. An onset of psychosis may occur acutely after recreational drug use or as a later presentation in multiple sclerosis)

Assessment Pearls

HISTORY- (continued)

- Social hx -job loss, death of a significant other, educational stress, or other traumatic event
- Family history, travel history (exposure to infection), sexual hx (HIV or syphilis), dietary , Occupational or environmental exposures

Assessment Pearls

PHYSICAL EXAMINATION- include a complete medical and mental status examination

- Tachycardia or severe HTN may indicate drug toxicity or thyrotoxicosis
- Fever may suggest encephalitis or porphyria
- Physical signs suggestive of underlying diagnoses (cushingoid appearance in certain endocrinopathies, arthritic deformities in autoimmune disorders, or movement and gait disturbances in conditions such as MS and Parkinson disease)

Assessment Pearls

PHYSICAL EXAMINATION- (Continued)

- Neuro exam assess for focal signs, sensory deficits, myoclonus, or tremors
- Mental status exam - combines elements of the history, direct observation, and assessment of the patient's general behavior, mood, affect, speech, and thought
- Direct inquiry about suicidal or homicidal thoughts and plans is essential

Assessment Pearls

LAB TESTING- diagnostic signs suggest medical condition

- Initial tests- CBC to assess for anemia, elevated WBC, or increased eosinophils
- Metabolic profile- renal and hepatic function and electrolyte and glucose levels
- Thyroid function
- Urine tox testing
- Parathyroid hormone, calcium, vitamin B_{12}, folate, and niacin.

Assessment Pearls

LAB TESTING- (continued)

- HIV and syphilis
- Autoimmune cause, antinuclear antibody testing and determination of the erythrocyte sedimentation rate can be useful.
- Emergency brain imaging usually **not** required unless presents with new, severe, unremitting headache; focal neurologic deficits; or a history of recent significant head trauma

Etiology

- Best hypothesis is a multifactorial illness model
  - Genetics
  - Dopamine and glutamate hypotheses
  - Environment contributes to development of the disorder

Etiology

- **Risk factors**
  - Family history of schizophrenia
  - Increased immune system activation such as from inflammation or autoimmune diseases
  - Older age of the father
  - Pregnancy and birth complications, such as malnutrition or exposure to toxins or viruses that may impact brain development
  - Psychoactive or psychotropic drugs during teen years and young adulthood

Etiology

- Schizophrenia is a heterogeneous disorder
  - general population -1%
  - non-twin sibling of schizophrenia patient- 8%
  - child with one parent with schizophrenia- 12%
  - dizygotic twin of schizophrenia patient- 12%
  - child of two parents with schizophrenia- 40%
  - monozygotic twins of schizophrenia patient- 47%

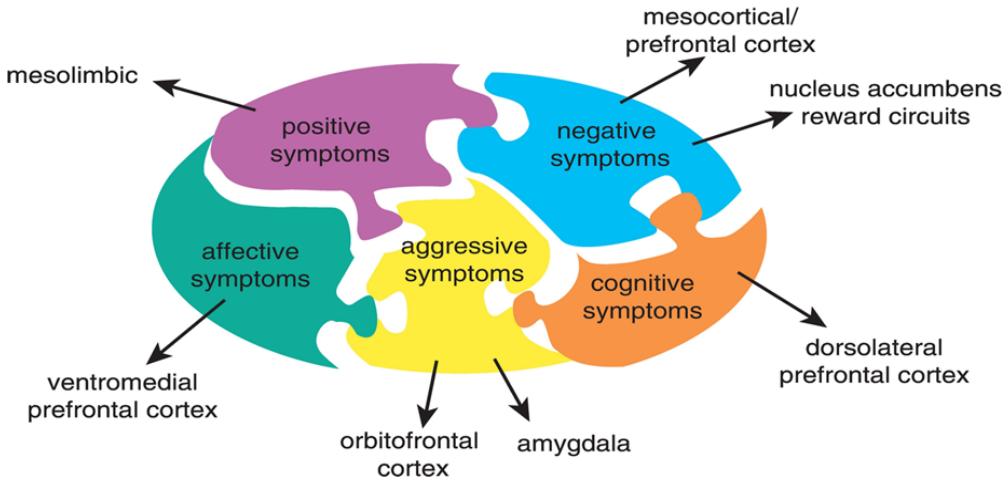
Neurobiological Hypotheses

- Two most influential hypotheses concerning underlying neurobiology involve dopamine and glutamate.
- Both hypotheses proposed several decades ago, but new evidence, from *in vivo* imaging studies and preclinical findings on the role of these neurotransmitters has refined understanding of the nature of dopamine and glutamate dysfunction in schizophrenia
- Best overview article – Howes, McCuthcheon and Stone. *Glutamate and dopamine in schizophrenia: an update for the 21st century.* Journal of Psychopharmacology. 2015 Feb; 29(2): 97-115

Dopamine Hypothesis of Schizophrenia

- Attributes symptoms of schizophrenia to hyperactive dopaminergic signal transductions
- Does NOT posit dopamine overabundance
- Rather, over activation of D2 receptors causing global synaptic deregulation
  - Mesolimbic = positive symptoms
  - Mesocortical = negative symptoms
- Excess D2 receptors in limbic system means Broca's area (illogical language) abnormal connection to Wernicke's are (comprehends language but no production)

Match Each Symptom to Hypothetically Malfunctioning Brain Circuits



Social Statistics

- 26% of homeless adults staying in shelters live with SMI and 46% live with SMI and/or substance use disorders
- Approximately 20% of state prisoners and 21% of local jail prisoners have "a recent history" of a mental health condition
- 70% of youth in juvenile justice systems have at least one mental health condition and at least 20% live with a SMI
- 41% of adults in the U.S. with a mental health condition received mental health services in the past year
- African Americans and Hispanic Americans used mental health services at about one-half the rate of Caucasian Americans in the past year and Asian Americans at about one-third

https://www.nami.org/Learn-More/Mental-Health-By-the-Numbers#sthash.shIczE48.dpuf

Development and Course

- Psychotic features typically emerge between late teens and early adulthood
- Peak age of onset for first psychotic episode is early to mid 20s (male) late 20s (female)
- May be abrupt or insidious (majority slow and gradual)
- Earlier age of onset means worse prognosis

Development and Course

Psychotic symptoms

- Diminish over life course
  - possibly due to normal age-related declines in DA activity

Negative symptoms

- More closely related to prognosis than positive symptoms
- Tend to be the most persistent

Late onset (>40)

- More often in females
- Often predominance of psychotic symptoms with preservation of affect and social functioning

Comorbid Substance Abuse

Substance Abuse common in schizophrenia >50%

- Increases risk of hospitalization
- May increase psychotic symptoms
- Cannabis
  - People with high levels of cannabis use (>50 occasions) were at 6-fold increased risk of developing
  - Some studies suggest may decrease positive symptoms and perception of outside stimuli

Nicotine Use

- Up to **90%** of people are dependent on nicotine
  - Decreases blood concentrations of some antipsychotics
  - Possible abnormalities in nicotinic receptors
  - Nicotine-dependent activation of dopaminergic neurons —> improved cognition
  - Studies suggest may decrease positive symptoms and perception of outside stimuli

Treatment

- 80% people who stop taking their medications after an acute episode will have a relapse within one year, whereas only 30%of those who continue their medications will experience a relapse in the same time period
- Studies show that after 10 yrs of treatment, 1/4 of those with schizophrenia have recovered completely, 1/4 have improved considerably, and 1/4 have improved modestly. 15% have not improved, and 10% are dead

CATIE Trial

- Clinical Antipsychotic Trials of Intervention Effectiveness (CATIE) study compared a proxy first-generation antipsychotic (perphenazine) to several newer drugs (olanzapine, quetiapine, risperidone, and ziprasidone)
- Approximately 1,500 people enrolled in Phase 1
- In phase 1 of the trial, consenting patients were randomly assigned to receive olanzapine, perphenazine, quetiapine, risperidone, or ziprasidone for up to 18 months on a double-blind basis
  - Olanzapine had the longest time to discontinuation in phase 1, but it was associated with significant weight and metabolic concerns
  - Perphenazine was not significantly different in overall effectiveness, compared with quetiapine, risperidone, and ziprasidone. Also, perphenazine was found to be the most cost-effective drug.
  - Clozapine was confirmed as the most effective drug for individuals with a poor symptom response to previous antipsychotic drug trials, although clozapine was also associated with troublesome adverse effects.
  - There were no differences in neurocognitive or psychosocial functioning in response to medications.
- 74% of patients had discontinued medication within 18 months due to insufficient efficacy, intolerable side effects or for other reasons

RAISE Project

- 2008-NIMH launched the *Recovery After an Initial Schizophrenia Episode (RAISE)* project
- Large-scale research initiative that began with two studies examining different aspects of coordinated specialty care (CSC) treatments for people who were experiencing first episode psychosis
  - One study focused on whether or not the treatment worked better than care typically available in community settings
  - Other project studied the best way for clinics to start using the treatment program

RAISE Project

- RAISE
  - Important to do the right thing at the right time
  - Demonstrated that coordinated specialty care (CSC) can be successfully delivered in community practice settings
  - Shows that CSC is cost effective, and that clients feel that the CSC treatment is helping them.
  - CSC more effective than usual treatment approaches
  - CSC is most effective when the client has a shorter duration of untreated psychosis(DUP)
  - In 2010-2012, the median DUP in the U.S. was 74 weeks.

Medication Adherence

- Key drivers of nonadherence
  - lack of insight
  - medication beliefs
  - substance abuse (50% meet criteria for co-morbidity)
- Key consequences of nonadherence
  - greater risk of relapse
  - hospitalization
  - Suicide (4-7x greater risk)
- Factors positively related to adherence
  - good therapeutic relationship with provider
  - Perception of benefits of medication

Medic et al. 2013

Antipsychotic Medication

- FDA Approved Antipsychotics
  - **SGA**s- aripiprazole, asenapine, brexpiprazole (Rexulti), cariprazine (Vraylar), clozapine, iloperidone, olanzapine, paliperidone, quetiapine, risperidone and ziprasidone
  - **FGA**s- chlorpromazine, fluphenazine, haloperidol, loxapine, perphenazine, prochlorperazine, thiothixene, thioridazine and trifluoperazine

Pharmacokinetics of FGA

Kinetics of common first generation antipsychotic medications

Drug	Time to peak serum level after oral dosing (hours)	Elimination half-life (hours)
Chlorpromazine	3	6 (range: 2 to 119)
Haloperidol	--	10 to 38
Hydroxyzine	--	3 to 20
Perphenazine	--	8 to 12
Prochlorperazine	2 to 4*	7 to 9
Promethazine	--	7 to 15
Thioridazine	--	21 to 24
Thiothixene	1 to 2	34
Trifluoperazine	2 to 4	24

* Longer if sustained-release formulation is ingested.

Pharmacokinetics of SGA

Pharmacokinetics of second generation antipsychotics

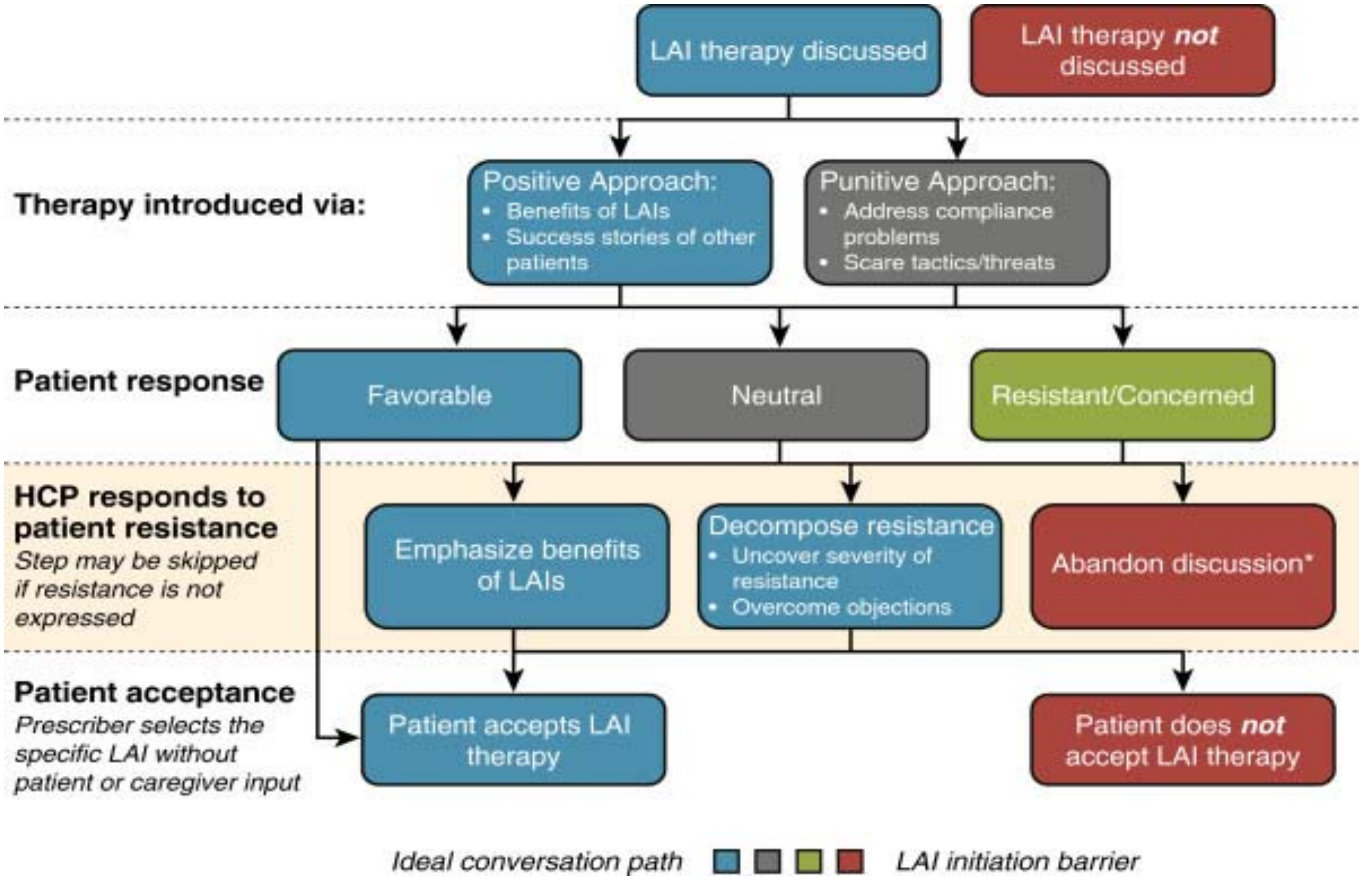
	Therapeutic peak plasma level, h	Half-Life, h, therapeutic	Protein binding, percent	Vol. of distribuion, L/kg	Route of metabloism	Active metabolite
Traditional agents	2-5	8-36	90-95	7-62	CYP2D6 CYP1A2 CYP3A4	Variable
Clozapine	1-4	7-13	92-95	2-5	CYP1A2 CYP3A4	Norclozapine
Olanzapine	5-6	20-30	93	10-20	CYP1A2 CYP2D6	NO
Quetiapine	1-2	4-10	83	10	CYP3A4	7-hydroxyquetiapine
Risperadone	1-2	3-24	90	1-1.5	CYP2D6	9-hydroxyrisperidone
Ziprasidone	4-5	4-10	>99	2	CYP3A4	NO
Aripiprazole	3-5	75-146	>99	4.9	CYP2D6 CYP3A4	Dehydroaripiprazole

Side Effects of Antipsychotics

	Weight gain/diabetes mellitus	Hyper-cholesterolemia	EPS/TD	Prolactin elevation	Sedation	Anticholinergic side effects	Orthostatic hypotension	QTc prolongation
First generation agents								
Chlorpromazine	+++	+++	+	++	+++	+++	+++	+
Fluphenazine	+	+	+++	+++	+	-/+	-	ND
Haloperidol	+	+	+++	+++	++	-/+	-	+
Loxapine	++	ND	++	++	++	+	+	+
Perphenazine	++	ND	++	++	++	+	-	ND
Pimozide	+	ND	+++	++	+	+	+	++
Thioridazine*	++	ND	+	+++	+++	++++	++++	+++
Thiothixene	++	ND	+++	++	+	+	+	+
Trifluoperazine	++	ND	+++	++	+	+	+	ND
Second generation agents								
Aripiprazole	+	-	+	-	+	-	-	-/+
Asenapine	++	-	++	++	++	-	+	+
Brexpiprazole ¶	+	+	+	-/+	+	-/+	-/+	-/+
Cariprazine ¶	+	-/+	++	-/+	+	-/+	-/+	-/+
Clozapine Δ	++++	++++	-/+	-/+	+++	+++	+++	+
Iloperidone	++	++	-/+	-/+	+	+	+++	++
Lurasidone	-/+	-	++	-/+	++	-	+	-/+
Olanzapine	++++	++++	+	+	++	++	+	+
Paliperidone	+++	+	+++	+++	+	-	++	+
Quetiapine	+++	+++	-/+	-/+	++	++	++	+
Risperidone	+++	+	+++	+++	+	+	+	+
Ziprasidone	-/+	-/+	+	+	+	-	+	++

Long Acting Injectables (LAI)

- Aripiprazole (Abilify Maintena)
- Aripiprazole lauroxil (Aristada)
- Fluphenazine (Prolixin)
- Haloperidol (Haldol)
- Olanzapine (Zyprexa Relprevv)
- Paliperidone (Invega Sustenna, Invega Trinza)
- Risperidone (Risperdal Consta)



Efficacy of Antipsychotics

- 6 week trials = moderate improvement but never complete remission
- Some SGAs show better improvements in social functioning than FGAs
- Rapid symptom decrease in first 6 weeks, modest between 6-13th, more by 26th week
- Once improved difficult to find minimal effective maintenance dose

Efficacy of Antipsychotics

- Dosing is important! 4 weeks, more likely to have good response if initial doses were not experienced as unpleasant (akathisia, over-sedation)
- Relapse rates
  - Higher in first 3 months after abrupt discontinuation
  - Slower taper decreases early relapse rate
  - Non-adherence is common- why?

Antipsychotic Med Comparison Chart

- https://www.healthalliance.org/media/Resources/generic-antipsychotics-chart.pdf

Treatment with Antipsychotics

- **Acute phase**
  - Initiate antipsychotic as soon as feasible
  - Measure weight, height, BMI and measure fasting blood glucose
  - Assess for extrapyramidal signs and abnormal involuntary movements
  - Screen for symptoms of hyperprolactinemia
  - Obtain lipid panel
  - Consider a pregnancy test for women with childbearing potential
  - Consider SGAs first-line meds due to decreased risk for EPS and TD

Treatment with Antipsychotics

- **Acute Phase** (continued)
  - If had prior treatment success or who prefer FGA may be the first choice
  - Consider long-acting injectable antipsychotic medication for patients with recurrent relapses
  - Titrate as quickly as tolerated to the target therapeutic dose (sedation and orthostatic hypotension are generally the SE that limit the rate of increase), and monitor clinical status for at least 2 to 4 weeks.
  - For second-generation antipsychotics, target dose usually falls within the therapeutic dose range specified by FDA

Practice Guideline for the Treatment of Patients With Schizophrenia, Second Edition, originally published in February 2004.

Treatment with Antipsychotics

- **Stabilization Phase**
  - If adequate therapeutic response with minimal SE, monitor response to the same medication and dose for the next 6 mos
  - AIMS Assessment q 6 months for FGA and q 12 months for SGAs. People at increased risk (e.g., elderly patients), assessments q 3 months and 6 months with treatment using FGA and SGA respectively
  - Weight and BMI at each visit for 6 months and quarterly thereafter
  - Fasting blood glucose or hemoglobin A1c at 4 months and annually and monitor other blood chemistries (e.g., electrolytes; renal, liver, and thyroid function) annually or as clinically indicated
  - Antipsychotics can reduce the risk of relapse to less than 30%/year

Practice Guideline for the Treatment of Patients With Schizophrenia, Second Edition, originally published in February 2004.

Medication Selection

- Select medication depending on the following factors:
  - Prior degree of symptom response
  - Past experience of side effects
  - Patient's preferences for a particular medication, including route of administration
  - Available formulations of medications (e.g., tablet, rapidly dissolving tablet, oral concentrate, short- and long-acting injection)
  - Cost
- Consider a trial of clozapine for a patient who has had what is considered a clinically inadequate response to two antipsychotics (at least one of which was a second-generation antipsychotic) and for a patient with persistent suicidal ideation or behavior that has not responded to other treatments.

Practice Guideline for the Treatment of Patients With Schizo hrenia, Second Edition, ori inall ublished in Februar 2004.

Case Study

- Tess is a 27yo women who works as a buyer for Nordstrom
- Xx of MDD treated in late high school and well managed on fluoxetine for 2 years. D/C and has been off for 6 years
- Brought in by her Father
- Psych inpt app. 1 yr ago after experiencing some paranoia and believed that there was a microchip embedded in her tooth that the government was using to monitor her actions. Refused all meds inpt so dc after 1 day
- Parents describe her as "less social and quiet" since that time but she did return to work and "has been ok". She has not mentioned the chip again until the last 2 weeks. Today she is in her Dad's car in the parking lot with the doors locked refusing to come out secondary to the fear that the government is "tricking her" into being seen for tx

Case Study

- Assess
- Test
- Treatment Planning

Treatment

- Psychosocial treatments with demonstrated efficacy include
  - Family interventions
  - Supported employment
  - Assertive community treatment
  - Social skills training
  - Cognitive behaviorally oriented psychotherapy.

Treatment

- Programs for Assertive Community Treatment (PACT)
  - Available around the clock
  - Meet people where they live, providing at-home support at whatever level is needed
- Recent Baltimore study of 77 homeless individuals with severe mental illness (86 percent with schizophrenia or major affective disorder) were assigned to PACT teams and followed for one year and medication compliance improved from 29% to 50% and 57 % during the remainder of the year. Found that approximately 1/3 people were noncompliant at any given time during the research year

Treatment

- More than 70% of first-episode achieve full remission of psychotic signs and symptoms within 3 to 4 months, and more than 80% achieve stable remission at the end of 1 year
- Predictors of poor treatment response include:
  - male gender
  - more severe hallucinations and delusions
  - attentional impairments
  - poor premorbid function
  - longer duration of untreated psychosis
  - development of EPS
  - distressing emotional climate

Practice Guideline for the Treatment of Patients With Schizophrenia, Second Edition, originally published in February 2004.

Treatment Article

- Schizophrenia and Psychosis; Diagnosis, Current Research Trends, and Model Treatment Approaches with Implications for Transitional Age Youth
  - Vivien Chan, MD
  - Disclosure: V. Chan, MD has common stock holdings in AbbVie, Inc, Abbott Laboratories, Bristol-Myers Squibb Co, Eli Lilly & Co., and Johnson & Johnson.
- http://www.childpsych.theclinics.com/article/S1056-4993(16)30127-4/fulltext

Assessment of AH

- How did the voices start—suddenly or gradually? With or without drug use? Do they speak clearly, or are they muffled and indistinct?
- Hear 1 voice, 2 voices, or more? Male or female? Recognizable voices?
- Do the voices come from inside or outside your head?
- Recognize them as his or her own thoughts spoken out loud?
- Do the voices speak directly to you in the first person ?
- Do the voices give orders? Do these orders include harming oneself or others? Can you resist those commands, or are you worried that you might carry them out?
- Do the voices insult or praise?

Assessment of AH (continued)

- Do the voices occur continuously or sporadically throughout the day? What makes them more intense, decrease, or stop? Are they worse at any time during the day? Do they sometimes prevent you from falling asleep?
- Have the voices led you to become more paranoid or suspicious toward others? Do they make you depressed, anxious, or agitated?
- Do you want the voices to stop or do you like hearing them, regard them as "friends," and would miss them if they disappeared? Have the voices stopped in the past in response to medication, and did you discontinue the medication just to have the voices return?

(credit to Dr. Henry A. Nasrallah, Current Psychiatry editor)

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