



Schizophrenia

{ . . وَمَا تَوْفِيقِي إِلَّا بِاللَّهِ . . }

Objective	Color index
<ul style="list-style-type: none">• Appreciate that schizophrenia is a serious, brain illness that needs early intervention and comprehensive management approach.• Enhance his knowledge of schizophrenia including epidemiology, etiology, diagnosis and management.• Acquire preliminary skills to evaluate and intervene adequately to manage schizophrenic patients.	<p>Black : Main content. Gray : Notes. Red : important.</p>

Case: Mr. Schi

Mr. Schi is a 28 year-old single male who was brought to Emergency room by his family because of **gradual changes in his behavior** started 9 months ago. Since then, he became **agitated**; eat **only canned food** but not cooked food made by his family, **afraid of being poisoned**. He talks to himself and stares occasionally on the roof of his room.

He had two **brief psychiatric hospitalizations** in last 3 years that were precipitated by anger at his neighbor and voices commenting about his behavior.

His personal history indicated that he was a healthy child, but his parents reported that he was a bed wetter and seemed slower to develop than his brothers and sisters.

Schi smokes tobacco frequently to calm himself. During his early adolescence he used to smokes **Hash heavily**¹ plus occasional use of **amphetamine**. He stopped both Hash and Amphetamine use 5 years ago.

Definition

It is not a single disease but a group of disorders with heterogeneous (diverse) etiologies found in all societies with equal prevalence and incidence

Epidemiology

- **Prevalence** (number of cases at a given time) of 0.6-1.9%
- Annual **incidence** (rate of occurrence of new cases) of 0.5-5 for every 10000 people
- Peak age onset of 10-25 years for male and 25-35 years for female
- **The most important Risk Factor is Family history comes first**

Etiology

Exact etiology is **unknown**, It is a multifactorial disease that include:

1. Neurobiology: (the dr's said just know that it's related to neurotransmitters especially Dopamine)

• **Certain areas of the brain are involved in schizophrenia:**

- Limbic system
- Frontal cortex
- Cerebellum
- Basal Ganglia

• This includes the following neurobiological changes:

A. Dopamine hypothesis:

- **Too much dopaminergic activity of unknown cause**
- **There'll be an overactivity in the mesolimbic pathway**
- **There'll be an impairment in the mesocortical pathway**

B. Other Neurotransmitters:

- Such as: Serotonin, (NE) Norepinephrine, GABA, Glutamate, Neuropeptides

C. Neuropathology:

- Neuropathological and neurochemical changes have been reported in the brain especially the limbic system, basal ganglia and the cerebellum³

D. Psychoneuroimmunology:

- ↓ in T-cell IL-2, lymphocytes
- Abnormal cellular and humoral reactivity to neurons
- Presence of antibrain antibody

E. Psychoneuroendocrinology

- Abnormal dexamethasone suppression test
- ↓ LH/FSH²
- Blunted release of prolactin and growth hormone on stimulation

2. Stress-Diathesis model: (READ)

- This model integrates biological, psychological and environmental factors
- It shows that symptoms of schizophrenia develop when a person has a specific vulnerability that can be triggered by a **stressful event**

3. Genetic Factors: (READ)

- Studies suggest a genetic component to the inheritance of schizophrenia that outweighs the environmental influences
- These studies include:
 - Family studies
 - Twin studies
 - Chromosomal studies

(Highest rate of SCHI among relatives of SCHI patients in the identical twins)

4. Psychosocial Factors: (READ)

- Family dynamic studies
- No well-controlled evidence indicates specific family patterns that plays a causative role in schizophrenia
- In high expressed emotion family there was an increase in the risk of a relapse

Summary

• Schizophrenia is mostly caused by:

1. Gene defect

- Neurodevelopment
- Neural connectivity
- Synaptogenesis

2. Stressors

3. Abnormal Neurotransmission

- Especially excessive glutamate action on NMDA receptors

1. Hash & amphetamine increase the risk of schizophrenia 6 folds,
 2. (follicle-stimulating hormone/ luteinizing hormone)
 3. either in structure or connections



Schizophrenia

Clinical Features

- No single clinical sign or symptom is pathognomonic for schizophrenia (in other words, if someone is having hallucinations , we can't say he is having Schizophrenia!)
- Patient history and mental status are important in diagnosis

Features differ based on the phase of schizophrenia. There are 3 phases

1. Premorbid features: (<13 years old)

1. History of schizotypal personality
2. Few friends
3. Exclusion of social activity

2. Prodromal features (Adulthood)

1. Obsessive-Compulsive Disorders (OCDs)
2. Positive psychotic features

3. Chronic/Residual Phase

Symptoms are divided into positive, negative, and cognitive symptoms

Symptoms

Not all symptoms have to come together, But some of them can come.

Positive symptoms:

- Are symptoms that are present but should be absent (problem)
 - Hallucinations ¹
 - Delusions

Negative Symptoms:

- Are symptoms that reflect the absence of normal behavior
 - Blunted affect (no emotions)
 - Poverty of speech (Alogia)
 - Lack of motivation (Avolition)
 - Social withdrawal
 - Poor grooming

Cognitive Symptoms:

- Are symptoms that reflect abnormal thinking and poor judgement
 - Decrease in learning and memory
 - Deficit in executive function
 - Decrease in attention

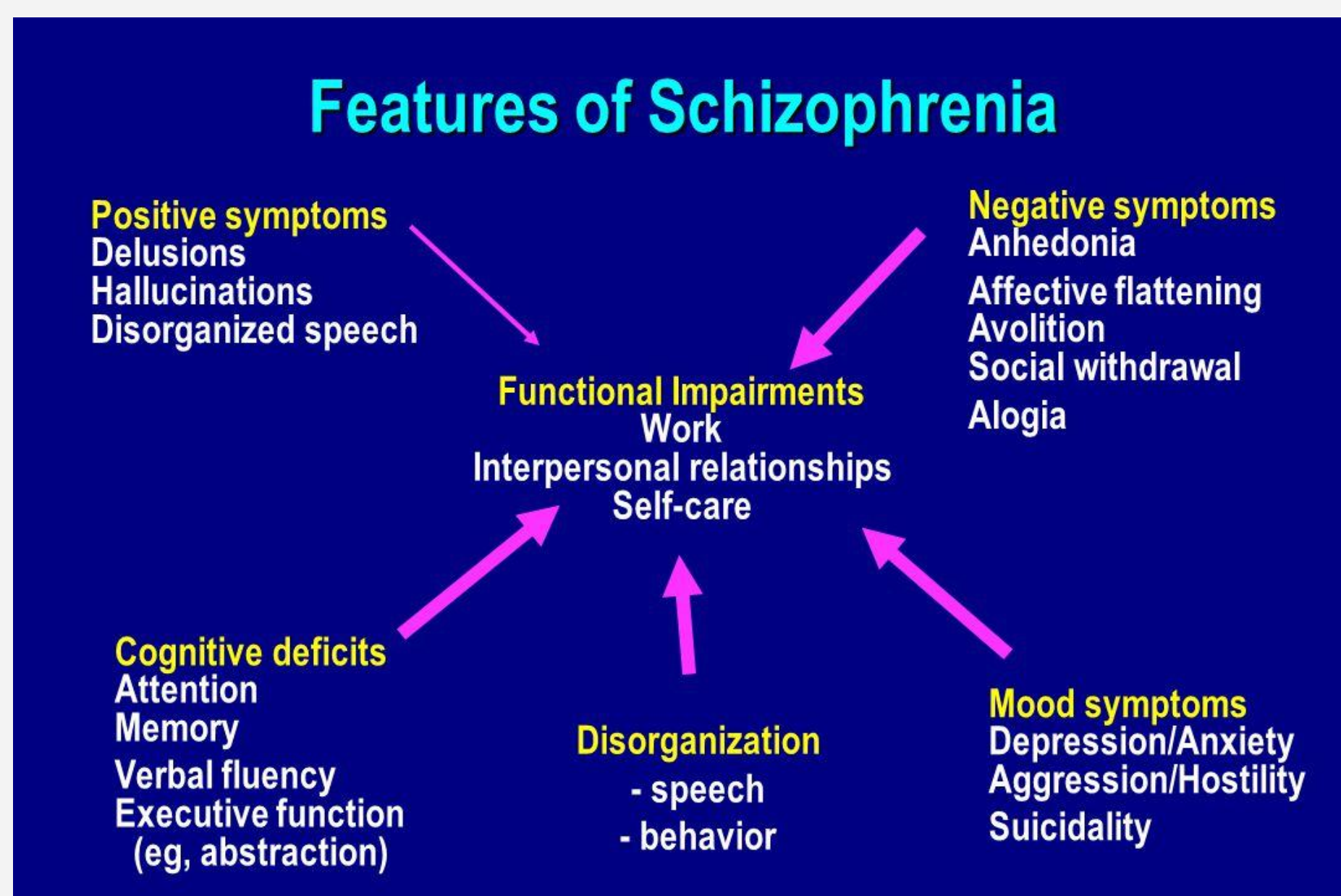
Mood Symptoms:

- Depression
- Anxiety
- Aggression
- Suicidal thoughts

Disorganization: (positive symptoms)

- Speech and behavior incoherence

These will lead to social, occupational and self-care impairment (Functional Impairment)



1. The difference between Hallucination and illusions? -illusions (there's stimulus) -hallucination (no stimulus)

Schizophrenia

Diagnostic Criteria

A) ≥ 2 symptoms for one month

• At least one of them is 1, 2 or 3

1. **Delusions** (false fixed beliefs)
2. **Hallucinations** (imagine something not true without stimuli)
3. **Disorganized speech** (frequent derailment or incoherence)
4. Disorganized behavior
5. Negative symptoms
 - Lack of emotions or drive (avolition)

B) Social, Occupation or self-care dysfunction

C) Duration of at least 6 months of disturbance and one month of active symptoms

D) Schizoaffective and mood disorder exclusion

- Check if it's not a mood disorder

E) Disturbance is not due to substance or other medical conditions

F) There's NO history of autism or communication disorder of childhood onset

- If there was, the diagnosis is made only if delusions or hallucinations plus other criteria are present

Cancel symptom (3)

Course

- Longitudinal course is downhill (progressive)
- Acute Exacerbation with increased residual impairment
- Full recovery is **very rare (but there are factors associated with the prognosis of schizophrenia; either poor or good)**

Prognosis

Good Prognosis Factors (PF)

- Late age of onset (**females**)
- Acute onset
- Obvious precipitating factors
- Presence of mood component
- Good response to treatment
- Good supportive system (family)

Poor Prognosis Factors (PF)

- Young age of onset (**males**)
- Insidious onset
- Multiple relapses
- Low IQ with poor premorbid personality
- Negative symptoms
- Positive family history



Schizophrenia

Differential Diagnosis

- We need to know whether the psychotic disorder was schizophrenia or was it induced by other agents such as: substance abuse or CNS diseases
- This is important for diagnostic criteria D and E
- **(Primary disorders of unknown causes. Secondary disorders of known cause).**

Primary Psychiatric Disorders

- **Schizophreniform disorder (1-6 months of disturbance)**
- **Brief (acute) psychotic disorder (<1 month of disturbance)**
- Delusional disorder (delusions only)For more than 1 month
- Mood disorders
- Personality disorder
- Schizoaffective disorder (schizophrenia + mania or depression)
- factitious disorder
- Malingering

Secondary Psychiatric Disorders

- Substance induced-disorders
- Psychotic disorders due to:
 - Epilepsy
 - CNS diseases
 - Trauma
 - Others

Treatment

(Mentioned in details in the pharmacology lecture)

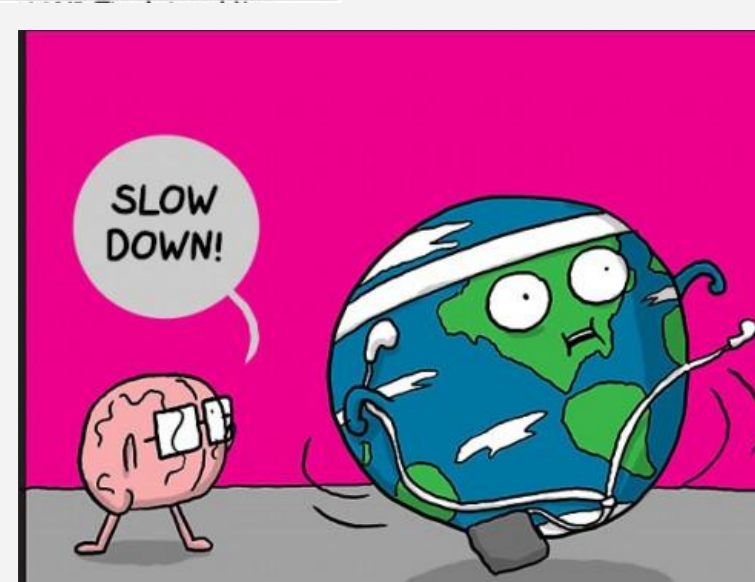
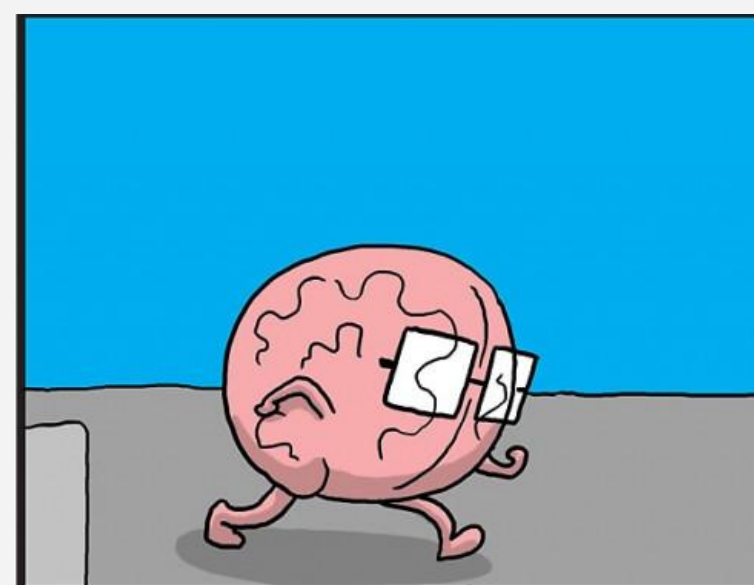
- All of the following must be taken into consideration:
 - What are the indications for hospitalization?
 - Patient & Staff safety
 - Initiating & Stabilizing medications
 - Establishing and effective association between the patient and the community

Biological therapies

- We have two major classes:
 1. Conventional (typical) drugs
 - Such as: haloperidol and chlorpromazine
 - High potency neurological side effects
 - Low potency of other side effects
 2. Atypical drugs
 - Such as: risperidone, clozapine and olanzapine
 - Little or no neurological side effects
 - **Clozapine** is used in refractory cases due to its side effects (resistance Cases)
- **Electroconvulsive therapy (ECT) for catatonic or poorly responding patients**

Psychosocial therapies

- Social skills training
- Family oriented therapies
- Group therapy
- Individual psychotherapy
- Assertive community treatment
- Vocational therapy



Quiz

Answers Key!

1.C 2.A 3.C 4.D 5.C 6.C 7.B 8.C

1) When the patient is poorly responding to the medication, we usually use:

- A. Social skills training (SST)
- B. hospitalize the patient
- C. Electroconvulsive therapy (ECT)
- D. Depot forms

2) The main reason of schizophrenia is:

- A. unknown
- B. Genetics
- C. increase release of dopamine
- D. decrease T-cell interleukin-2

3) Which one is the only reason to hospitalize the patient ?

- A. positive family history of schizophrenia
- B. appearance of negative symptoms
- C. unable to properly care for himself or herself
- D. history of autism spectrum

4) which one of them is poor prognosis factor:

- A. Acute onset
- B. Presence of mood component
- C. Obvious precipitating factors
- D. Insidious onset

5) from the flowing ,which one is classified as negative symptom of schizophrenia?

- A. Hallucinations
- B. delusion
- C. avolition
- D. All of the above

6) 29 years old male presented with 2 months history of delusion. poor self care. Disorganized speech. What is the diagnosis?

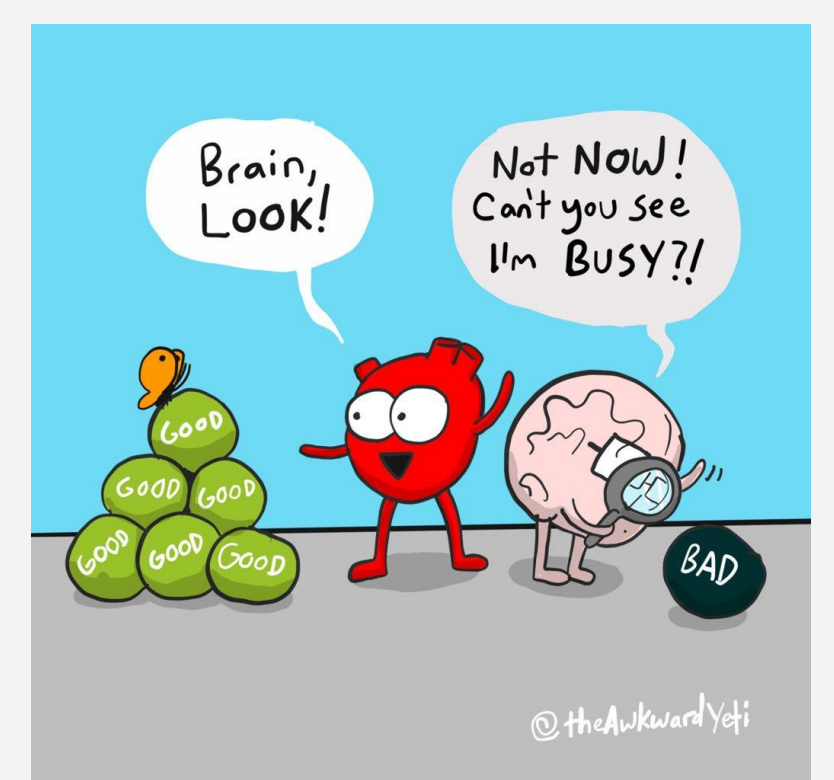
- A. Depression
- B. Alzheimer disease
- C. Schizophrenia
- D. Delirium

7) In Schizophrenia psychotic symptoms such as hallucinations delusions, disorganised speech and grossly disorganised or catatonic behaviours are known as:

- A. Negative symptoms
- B. Positive symptoms
- C. Mediating symptoms
- D. Catastrophic symptoms

8)The biochemical theory of schizophrenia known as the Dopamine hypothesis refers to

- A. Insufficient Dopamine activity
- B. Contaminated Dopamine
- C. Excess Dopamine activity
- D. Allergic sensitivity to Dopamine



Good luck!

Every struggle in your life has shaped you into the person you are today.
Be thankful for the hard times, they can only make you stronger.

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