# SCHIZOPHRENIA

# DEFINITION

Schizophrenia is a clinical syndrome of variable , but profoundly disruptive , psychopathology that involves cognition , emotion , perception , and other aspects of behavior. The expression of these manifestations varies across patients and over time , but the affect of the illness is always severe and is usually long lasting. The disorder usually begins before age 25 , persist throughout life , and affects persons of all social classes. Both patients and their families often suffer from poor care and social ostracism because of widespread ignorance about the disorder. Although schizophrenia is discussed as if it is a single disease, it probably comprises a group of disorders.

# HISTORY

- Emil Kraepelin: This illness develops relatively early in life, and its course is likely deteriorating and chronic; deterioration reminded dementia (dementia praecox), but was not followed by any organic changes of the brain, detectable at that time.
- Eugen Bleuler: He renamed Kraepelin's dementia praecox as schizophrenia (1911); he recognized the cognitive impairment in this illness, which he named as a „splitting" of mind.

# 4 A (BLEULER)

- Bleuler maintained that for the diagnosis of schizophrenia are most important the following four fundamental symptoms:
  - Associational disturbances of thought
  - Affective disturbances
  - Autism
  - Ambivalence
- These groups of symptoms, are called „four A' s" and Bleuler thought, that they are „primary" for this diagnosis.
- The other known symptoms, hallucinations, delusions, which are appearing in schizophrenia very often also, he used to call as a "secondary symptoms", because they could be seen in any other psychotic disease, which are caused by quite different factors.

# EPIDEMIOLOGY

- The lifetime prevalence: 1 %
- Men = women
- Peak age: 10-25 y/o for men , 25-35 y/o for women
- First degree biological relatives: 10X greater risk
- Higher mortality rate
- Infection & birth season
- Substance abuse(nicotine)
- Population density
- Socioeconomic & cultural factors

# ETIOLOGY OF SCHIZOPHRENIA

- Genetic factors
- Biochemical factors
- Neuropathology
- Neural circuits
- Brain metabolism
- Applied electrophysiology
- Psychoneuroimmunology
- Psychoneuroendocrinology

# GENETICS OF SCHIZOPHRENIA

- Many psychiatric disorders are multifactorial (caused by the interaction of external and genetic factors) and from the genetic point of view very often polygenically determined.

- Relative risk for schizophrenia is around:
  - 1% for normal population
  - 12 % for one parent
  - 40% for two parents
  - 8% for non-twin siblings
  - 12% for dizygotic twin
  - 47% monozygotic twin

# DOPAMINE HYPOTHESIS

- The most influential and plausible are the hypotheses, based on the supposed disorder of neurotransmission in the brain, derived mainly from
  1. the effects of antipsychotic drugs that have in common the ability to inhibit the dopaminergic system by blocking action of dopamine in the brain
  2. dopamine-releasing drugs (amphetamine, mescaline, diethyl amide of lysergic acid - LSD) that can induce state closely resembling paranoid schizophrenia
- Classical dopamine hypothesis of schizophrenia: Psychotic symptoms are related to dopaminergic hyperactivity in the brain. Hyperactivity of dopaminergic systems during schizophrenia is result of increased sensitivity and density of dopamine D2 receptors in the different parts of the brain.

# OTHER BIOCHEMICAL FACTORS

- Serotonin ↑ : positive &negative symptoms
- Norepinephrine : anhedonia
- GABA ↓
- Neuropeptides
- Glutamate
- Acetylcholine
- Nicotine

# NEUROPATHOLOGY

- Cerebral ventricles : lateral & $3^{d}$ ventricle enlargement
- Reduced symmetry
- Limbic system : ↓ in the size of amygdala , hippocampus , parahippocampal gyrus
- Prefrontal cortex
- Thalamus : volume shrinkage or neural loss
- Basal ganglia and cerebellum

# DSM-IV DIAGNOSTIC CRITERIA

**A. Characteristic Symptoms**

Two or more of the following, each present for a significant portion of time during a 1-month period (or less if successfully treated)

(1) delusion
(2) hallucinations
(3) disorganized speech
(4) grossly disorganized or catatonic behavior
(5) negative symptoms

Note: Only one Criterion A symptom is required if delusions are bizarre or hallucinations consist of a voice keeping up a running commentary on the person's behavior or thoughts, or two or more voices conversing with each other.

**B. Social/Occupational Dysfunction**

**C. Duration** (continuous signs of the disturbance for at least 6 months, with or without prodromal or residual phases)

# Positive and Negative Symptoms

| ***Negative*** | ***Positive*** |
|---|---|
| Alogia | Hallucinations |
| Affective flattening | Delusions |
| Avolition-apathy | Bizarre behaviour |
| Anhedonia-asociality | Positive formal thought disorder |
| Attentional impairment | |

# SUBTYPES OF SCHIZOPHRENIA

- Paranoid type
- Disorganized type
- Catatonic type
- Undifferentiated type
- Residual type

# PARANOID TYPE

- Paranoid schizophrenia is characterized mainly by delusions of persecution, feelings of passive or active control, feelings of intrusion, and often by megalomanic tendencies also. The delusions are not usually systemized too much, without tight logical connections and are often combined with hallucinations of different senses, mostly with hearing voices.
- Disturbances of affect, volition and speech, and catatonic symptoms, are either absent or relatively inconspicuous.

# DISORGANIZED TYPE

Disorganized type of schizophrenia is characterized by a marked regression to primitive , disinhibited , and unorganized behavior and b the absence of symptoms that meet the criteria for catatonic type . the onset of this subtype is generally early . these patients are usually active but in an aimless , non constructive manner. Their thought disorder is pronounced . Incongruous grinning and grimacing are common in these patients.

# CATATONIC TYPE

- Catatonic schizophrenia is characterized mainly by motoric activity, which might be strongly increased (hyperkinesis) or decreased (stupor), or automatic obedience and negativism.
- We recognize two forms:
  - productive form – which shows catatonic excitement, extreme and often aggressive activity. Treatment by neuroleptics or by electroconvulsive therapy.
  - stuporose form – characterized by general inhibition of patient's behavior or at least by retardation and slowness, followed often by mutism, negativism, fexibilitas cerea or by stupor. The consciousness is not absent.

# UNDIFFERENTIATED TYPE

- Psychotic conditions meeting the general diagnostic criteria for schizophrenia but not conforming to any of the subtypes or exhibiting the features of more than one of them without a clear predominance of a particular set of diagnostic characteristics.

- This subgroup represents also the former diagnosis of atypical schizophrenia.

# RESIDUAL TYPE

- A chronic stage in the development of schizophrenia with clear succession from the initial stage with one or more episodes characterized by general criteria of schizophrenia to the late stage with long-lasting negative symptoms and deterioration (not necessarily irreversible).

# OTHER SUBTYPES

- Bouffee Delirante(acute delusional psychosis)
- Latent
- Oneiroid
- Paraphrenia
- Pseudoneurotic schizophrenia
- Simple schizophrenia
- Postpsychotic Depressive Disorder of schizophrenia
- Early onset schizophrenia
- Late onset schizophrenia
- Deficit schizophrenia

# CLINICAL FEATURES

- No clinical sign or symptom is pathognomonic for schizophrenia.
- Clinicians cannot diagnose schizophrenia simply by result of a mental status examinations.
- A patient's symptoms change with time.
- Clinicians must take into account the patient's educational level ,intellectual ability ,and cultural and subcultural membership.

# MENTAL STATUS

## General description

The appearance of a patient with schizophrenia can range from that of a completely disheveled , screaming , agitated person to an obsessively groomed , completely silent , and immobile person.

Their behavior may become agitated or violent.

- Catatonia
- Precox feeling

# MENTAL STATUS

## Mood , feelings , and affect

Two common affective symptoms:

1. Reduced emotional responsiveness(anhedonia)
2. Overly active and inappropriate emotions

- A flat or blunted affect can be a symptom of the illness itself , of the parkinsonian adverse affects of antipsychotic medications , or of depression.

# MENTAL STATUS

## Perceptual disturbances

- Hallucinations : any of five senses may be affected . auditory hallucinations are the most common.
  - Cenesthetic hallucinations
- Illusions
- Thought
  - Content: delusions , loss of boundaries , derailment ,cosmic identity , gender identity problems
  - Form: looseness of associations , incoherence , tangentiality ,neologism , circumstantiality , word salad , ...
  - Process: flight of ideas , thought blocking , impaired attention , preservation , thought control , thought broadcasting
- Impulsiveness , violence , suicide , homicide

# MENTAL STATUS

## Sensorium and cognition

- Orientation : usually oriented to person , time and place
- Memory :usually intact
- Cognitive impairment  : subtle cognitive dysfunction
- Judgment and insight : poor insight
- Reliability : reliable as other psychiatric patients

# SOMATIC COMORBIDITY

- Neurological findings:
  - Localizing
  - Non localizing
- Eye examination : saccadic movement , elevated blink rate
- Speech : looseness of associations ,aphasia

# OTHER COMORBIDITY

- Obesity
- Diabetes mellitus(type II)
- Cardiovascular disease
- HIV
- COPD
- Rheumatoid  arthritis

# DIFFERENTIAL DIAGNOSIS

- Secondary psychotic disorders
- Other psychotic disorders
- Mood disorders
- Personality disorders
- Malingering  and factitious disorders

# COURSE

Characteristically the symptoms begin in adolescence and are followed by the development of prodromal symptoms in days to a few months. The classic course of schizophrenia is one of exacerbations and remissions. after the first episode a patient gradually recovers and may the n function relatively normally for a long time. Patients usually relapse , however , and the pattern of the illness during the first 5 years after the diagnosis generally indicates the patients course.

# TREATMENT

## Hospitalization:

Indications:

- Diagnostic purpose
- Stabilization of medications
- For patient's safety(suicidal or homicidal ideation)
- Disorganized or inappropriate behavior

Short stays of 4-6 weeks are just as effective as long-term hospitalization.

# TREATMENT

**Pharmacotherapy:**

Chlorpromazine → reducing hallucinations and delusions

Antipsychotics diminish psychotic symptom expression and reduce relapse rates.

The drugs used to treat schizophrenia have a wide variety of pharmacological properties , but all share the capacity to antagonize postsynaptic dopamine receptors in the brain.

# TREATMENT

antipsychotics can be categorized into two main groups:

1. The older conventional antipsychotics , which have also been called first generation antipsychotics or dopamine receptor antagonists.
2. The newer drugs , which have been called second generation antipsychotics or serotonin dopamine antagonists.

# TREATMENT

## Other biological therapies:

- Psychosocial therapies
- Family-oriented therapies
- Case management
- Assertive community treatment
- Group therapy
- Cognitive behavioral therapy
- Individual psychotherapy
- Personal therapy
- Dialectical behavior therapy
- Vocational therapy
- Art therapy

# PROGNOSIS

- Only about 10-20 % of patients can be described as having a good outcome.
- More than 50 % of patients can be described as having a poor outcome , with repeated hospitalizations.

# THANK YOU

مریم محمدعلی ابراهیمی