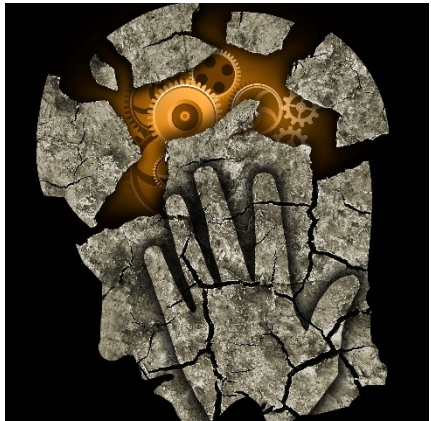
Schizophrenia and other psychotic disorders

Psychosis, schizophrenia

- What does „psychosis“ mean?
- What does „schizophrenia“ mean?
- Is there any difference between them?



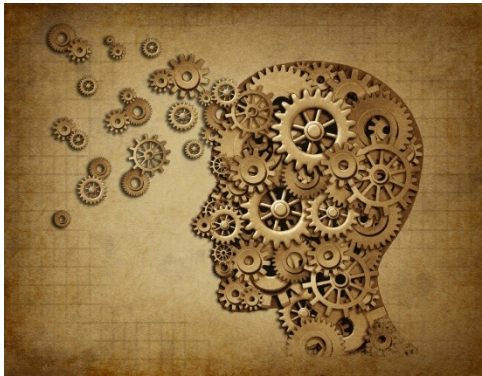
Psychosis, schizophrenia

- Psychosis:

- symptom, not illness
- halucinations, delusions, thought disorder

- Schizophrenia:

- one of the psychoses, diagnosis

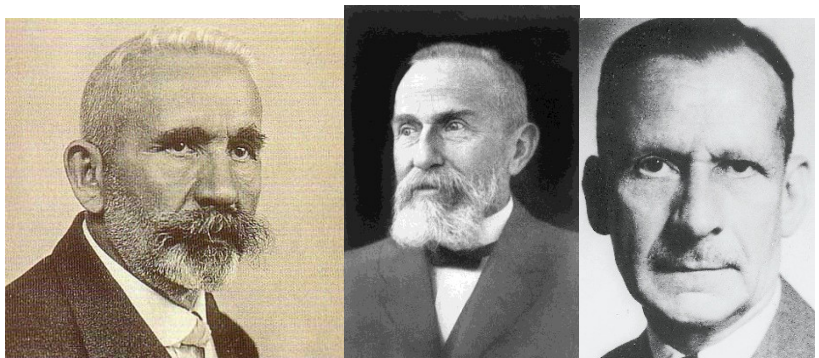


Definition of SCH

- The schizophrenic disorders are characterized in general by fundamental and characteristic distortions of thinking and perception, and affects that are inappropriate or blunted. Clear consciousness and intellectual capacity are usually maintained although certain cognitive deficits may evolve in the course of time.
- The most important psychopathological phenomena include
  - thought echo
  - thought insertion or withdrawal
  - thought broadcasting
  - delusional perception and delusions of control
  - influence or passivity
  - hallucinatory voices commenting or discussing the patient in the third person
  - thought disorders and negative symptoms.

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.
- **Kurt Schneider**: He emphasized the role of psychotic symptoms, as hallucinations, delusions and gave them the privilege of „the first rank symptoms” even in the concept of the diagnosis of schizophrenia.



4 A (Bleuler) – „four“ A

- Bleuler maintained, that for the diagnosis of schizophrenia are most important the following four fundamental symptoms:
  - affective blunting
  - disturbance of association (fragmented thinking)
  - autism
  - ambivalence (fragmented emotional response)

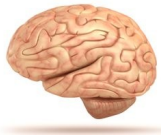
- Bleuler thought, that they are „primary” for this diagnosis.

- 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 — from intoxication to infection or other disease entities.

Symptoms

- Positive – „plus“, an excess or distortion or normal function

- Negative – „minus“, „lost“ functions



- Cognitive

- (Affective)

Positive symptoms

- Halucinations
- Delusions
- Formal thought disorder
- Bizarre behaviour

Halucinations

- What types of halucinations do you know?
- Which are typical for SCH?
- Can you imagine „hearing voices“?

Halucinations

Disturbance of **perception**

Auditory:

„hearing voices“, usual more, words or sentences, usually unplesant

commenting, imperative, giving advice

Intrapsychical:

hearing own thoughts, thought broadcasting, thought insert, externalization, control

Tactile, olfactory – not so typical

Visual – not typical (delirium)

Delusions

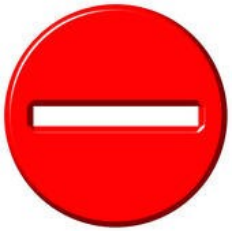
- Disturbance of **thinking**/thought
- Delusion - a mistaken belief that is held with strong conviction
- 3 types:
- Macromanic – immortality, grandeur, inventory, erotomania, …
- Micromanic- nihilistic, autoaccusative, hypochondric, …
- **Paranoid – paranoid, persecutory, control, jealousy, dysmorfofobic, …**

Formal thought disorder

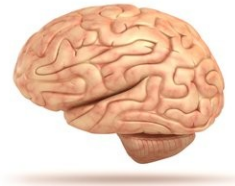
- Disorganized thinking (and speech, and behaviour)
- Organized (logical) – tangencial - disorganized

Negative symptoms

- **Alogie** – relative absence of thoughts and speech
- **Affective flattening** – little expressed emotion
- **Avoliation – apathy** – lack of initiation and persistence
- **Anhedonia** – asociality – lack of pleasure feeling
- **Attentional impairment**



Cognitive symptoms



- Impaired memory and attention

- Difficulty thinking through complicated processes, making sense of information

- Impaired ability to organize

- Poor decision-making

- Difficulty in interpreting social cues

Other symptoms

- Sleep distorsion
- Paralogia
- Catatonia
- Ambivalency (having simultaneous conflicting reactions, beliefs, or feelings towards some object)
- Anosognosia

The Criteria of Diagnosis (ICD-10)

For the **diagnosis of schizophrenia** is necessary

- presence of one very clear symptom - from point a) to d)
- or the presence of the symptoms from at least two groups - from point e) to h)

for **one month or more**:

a) the hearing of own thoughts, the feelings of thought withdrawal, thought insertion, or thought broadcasting
b) the delusions of control, outside manipulation and influence, or the feelings of passivity, which are connected with the movements of the body or extremities, specific thoughts, acting or feelings, delusional perception
c) hallucinated voices, which are commenting permanently the behavior of the patient or they talk about him between themselves, or the other types of hallucinatory voices, coming from different parts of body
d) permanent delusions of different kind, which are inappropriate and unacceptable in given culture

The Criteria of Diagnosis

e) the lasting hallucination of every form

f) blocks or intrusion of thoughts into the flow of thinking and resulting incoherence and irrelevance of speach, or neologisms

g) catatonic behavior

h) „the negative symptoms", for instance the expressed apathy, poor speech, blunting and inappropriatness of emotional reactions

i) expressed and conspicuous qualitative changes in patient's behavior, the loss of interests, hobbies, aimlesness, inactivity, the loss of relations to others and social withdrawal

- Diagnosis of acute schizophorm disorder (F23.2) – if the conditions for diagnosis of schizophrenia are fulfilled, but lasting less than one month
- Diagnosis of schizoaffective disorder (F25) - if the schizophrenic and affective symptoms are developing together at the same time

Types of schizophrenia

F20 Schizophrenia

F20.0 Paranoid schizophrenia

F20.1 Hebephrenic schizophrenia

F20.2 Catatonic schizophrenia

F20.3 Undifferentiated schizophrenia

F20.4 Post-schizophrenic depression

F20.5 Residual schizophrenia

F20.6 Simple schizophrenia

F20.8 Other schizophrenia

F20.9 Schizophrenia, unspecified

F20.0 Paranoid Schizophrenia

- is characterized mainly by **delusions of persecution**, feelings of passive or active **control**, feelings of intrusion, and sometimes 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.

F20.2 Catatonic Schizophrenia

- is characterized mainly by **motoric activity**, which might be strongly **increased** (hypekinesis) or **decreased** (stupor), or automatic obedience and negativism.

  – productive form — which shows catatonic excitement, extreme and often aggressive activity.

    (rare symptoms: echopraxia, echolalia, echomimia)

  – 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.

movie

- Catatonic symptoms

F20.3 Undifferentiated Schizophrenia

- Psychotic conditions meeting the general diagnostic criteria for schizophrenia but not conforming to any of the subtypes in F20.0-F20.2, 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.

F20.4 Postschizophrenic Depression

- A depressive episode, which may be prolonged, arising in the aftermath of a schizophrenic illness. Some schizophrenic symptoms, either „positive“ or „negative“, must still be present but they no longer dominate the clinical picture.
- These depressive states are associated with an increased risk of suicide.

F20.5 Residual Schizophrenia

- 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 l**ong-lasting negative symptoms and deterioration** (not necessarily irreversible).

F20.6 Simple Schizophrenia

- Simple schizophrenia is characterized by early and slowly developing initial stage with growing **social isolation, withdrawal** („introvertization“)**, small activity, passivity, avolition and dependence on the others**.
- The patients are indifferent, without any initiative and volition. There is not expressed the presence of hallucinations and delusions.

What is the incidence of SCH?

When (what age) does SCH start?

Incidence, onset

- Schizophrenia occurs with regular frequency nearly everywhere in the world in 1 % of population and begins mainly in young age (mostly around 16 to 25 years).
- Men usually earlier then women.
- Women: second peak of incidence – year 37 or 38.
- Onset after 40 is very unusual.

(Women – better prognosis, more „affective“ symptom, later onset then men)

Course of Illness

- Course of schizophrenia:
  - continuous without temporary improvement
  - **episodic** with progressive or stable deficit
  - episodic with complete or incomplete remission

- Typical stages of schizophrenia:
  - prodromal phase
  - active phase
  - residual phase

Suicidality, lenght of life

- Approximately 5-6% of SCH patients commite suicide.
- Schizophrenia shorten life of approximately 15 years.

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
  - 5.6% for parents
  - 10.1% for siblings
  - 12.8% for children

Etiology of Schizophrenia

- The etiology and pathogenesis of schizophrenia is not known

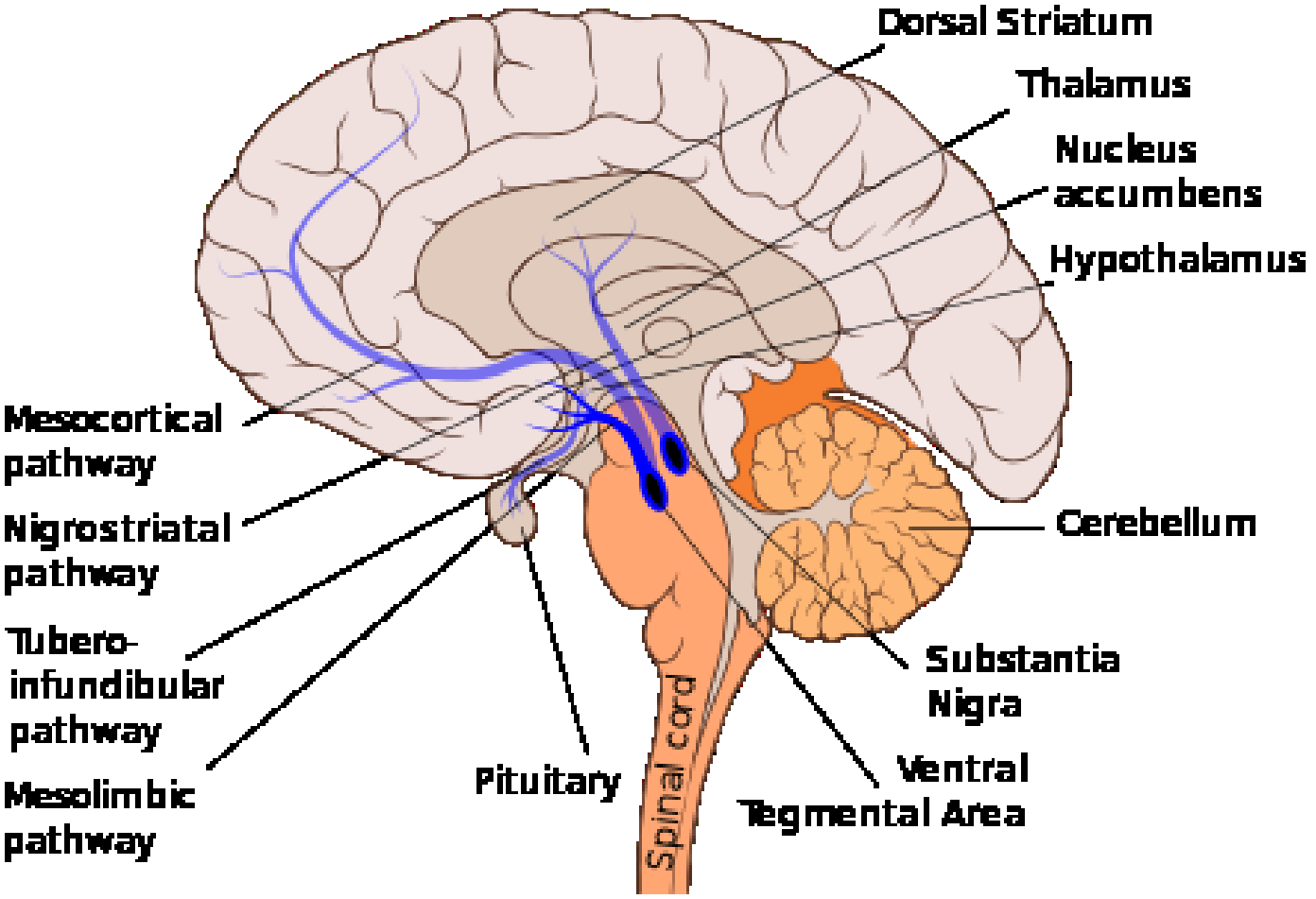
- It is accepted, that schizophrenia is „the group of schizophrenias“ which origin is multifactorial:
  - internal factors – genetic, inborn, biochemical
  - external factors – trauma, infection of CNS, stress

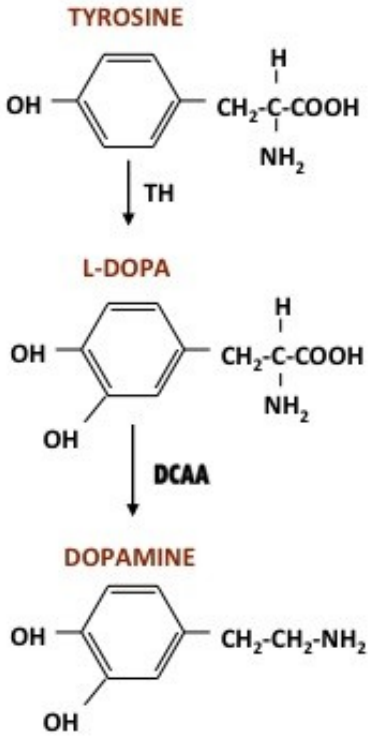
Etiology of Schizophrenia - Dopamine Hypothesis

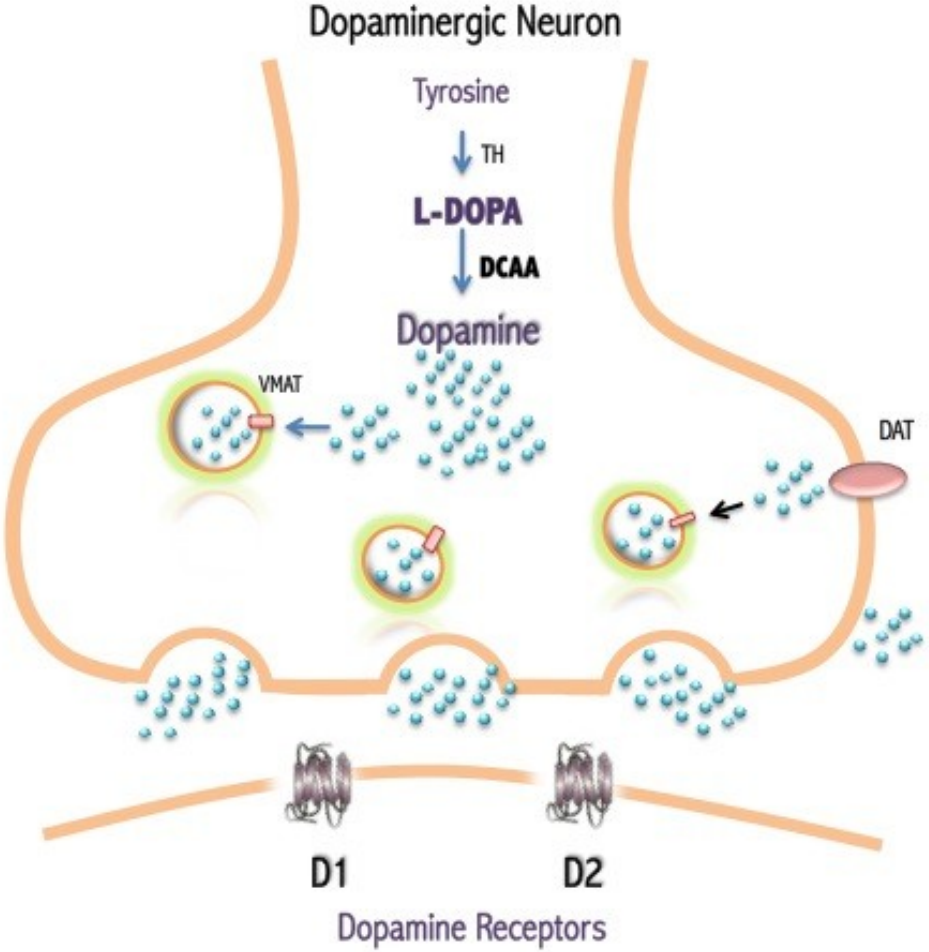
- The most influential and plausible are the hypotheses, based on the supposed **disorder of neurotransmission** in the brain, derived mainly from
  1. the **effects of antipsychotic** drugs that have in common the ability to **inhibit the dopaminergic system by blocking action of dopamine** in the brain
  2. **dopamine-releasing drugs** (amphetamine, mescaline, diethyl amide of lysergic acid - LSD) that **can induce state closely resembling paranoid schizophrenia**

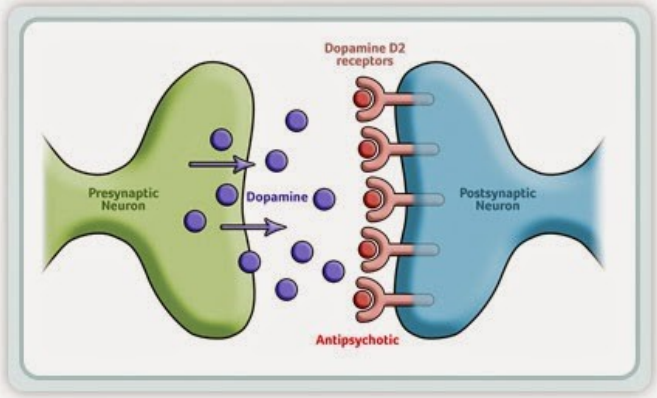
- Classical dopamine hypothesis of schizophrenia: Psychotic symptoms are related to dopaminergic hyperactivity in the brain. **Hyperactivity of dopaminergic systems** during schizophrenia is result of **increased sensitivity and density of dopamine D2 receptors** in the different parts of the brain.

Positive symptoms – hyperdopaminergic state in mesolimbic pathway
Negative symptoms – hypodopaminergic state in mesocortical area




TYROSINE
OH
H
CH2-C-COOH
NH2
TH
L-DOPA
OH
H
CH2-C-COOH
NH2
OH
DCAA
DOPAMINE
OH
CH2-CH2-NH2
OH


Dopaminergic Neuron
Tyrosine
TH
L-DOPA
DCAA
Dopamine
VMAT
DAT
D1
D2
Dopamine Receptors


Dopamine D2 receptors
Presynaptic Neuron
Dopamine
Postsynaptic Neuron
Antipsychotic

Etiology of Schizophrenia - Contemporary Models

- Dopamine hypothesis revisited: various neurotransmitter systems probably takes place in the etiology of schizophrenia (norepinephric, serotonergic, glutamatergic, some peptidergic systems); based on effects of atypical antipsychotics especially.

- Contemporary models of schizophrenia conceptualize it as a neurocognitive disorder, with the various signs and symptoms reflecting the downstream effects of a more fundamental cognitive deficit:
  - the symptoms of schizophrenia arise from “cognitive dysmetria” (Nancy C. Andreasen) (a dysfunction in cortical-subcortical-cerebellar circuitry)
  - concept of schizophrenia as a neurodevelopmental disorder (Daniel R. Weinberger)

Etiology of Schizophrenia - Neurodevelopmental Model

- Neurodevelopmental model supposes in schizophrenia the presence of “silent lesion” in the brain, mostly in the parts, important for the development of integration (frontal, parietal and temporal), which is caused by different factors (genetic, inborn, infection, trauma...) during very early development of the brain in prenatal or early postnatal period of life.
- It does not interfere too much with the basic brain functioning in early years, but expresses itself in the time, when the subject is stressed by demands of growing needs for integration, during formative years in adolescence and young adulthood.

Abnormities in brain structure

- Nonspecific, not visible on basic MRI
- cortical gray matter loss (i.e. superior temporal and inferior frontal regions)
- disrupted neural connectivity

Treatment of schizophrenia

- Antipsychotics
- Individual psychotherapy
- Family therapy
- Social sklil training
- Supported employment etc
- ECT or rTMS in the minority of patient

(ECT – usually pharmacoresistant patients with affective symptoms, rTMS – vocal hallucinations, negative symptoms)

Antipsychotics

- The acute psychotic schizophrenic patients will respond usually to antipsychotic medication.
- According to current consensus we use in the first line therapy the newer atypical antipsychotics, because their use is not complicated by appearance of extrapyramidal side-effects, or these are much lower than with classical antipsychotics.

conventional antipsychotics (classical neuroleptics)	chlorpromazine, chlorprotixene, levopromazine, thioridazine
	flupentixol, fluphenazine, haloperidol, melperone, perphenazine
atypical antipsychotics	amisulpride, aripiprazole, clozapine, olanzapine, quetiapine, paliperidone, risperidone, sertindole, sulpiride, ziprasidone

LAI: Long-acting injectable antipsychotics

- Some of the antipsychotics are availble also in the form of **long-acting injections.**

How long should pharmacotherapy last?

- After first episode – 2 years
- After second episode – 5 years
- After third and other episodes, in patients with chronic course, in patients with repetitive suicidal behaviour – longer, usually the whole life

F21 Schizotypal disorder

- eccentric behavior,
- deviations of thinking and affectivity, which are similar to that occurring in schizophrenia,
- but without psychotic features and expressed symptoms of schizophrenia of any type.

F22.0 Delusional Disorder

- A disorder characterized by the development of one delusion or of the group of similar related delusions, which are persisting unusually long, very often for the whole life.
- Other psychopathological symptoms — intrusion of thoughts etc. are not present and are excluding this diagnosis.
- It begins usually in the middle age.

F23 Acute and Transient Psychotic Disorders

- The criteria should be the following features:
  - acute beginning (to two weeks)
  - quickly changing “polymorphic symptoms”
  - presence of typical schizophrenic symptoms
- Complete recovery usually occurs within a few months, often within a few weeks or even days.
- The disorder may or may not be associated with acute stress, defined as usually stressful events preceding the onset by one to two weeks.

F24 Induced Delusional Disorder

- A delusional disorder shared by two or more people with close emotional links. Only one of the people suffers from a genuine psychotic disorder; the delusions are induced in the other(s) and usually disappear when the people are separated.

F25 Schizoaffective Disorders

- Episodic disorders in which both affective and schizophrenic symptoms are prominent (during the same episode of the illness or at least during few days) but which do not justify a diagnosis of either schizophrenia or depressive or manic episodes.
- Patients suffering from periodic schizoaffective disorders, especially with manic symptoms, have often good prognosis with full remissions without any remaining defects.
- They are divided in different subgroups:
  - F25.0 Schizoaffective disorder, manic type
  - F25.1 Schizoaffective disorder, depressive type
  - F25.2 Schizoaffective disorder, mixed type
  - F25.8 Other schizoaffective disorders
  - F25.9 Schizoaffective disorder, unspecified