Schizophrenia

Schizophrenia is a serious mental illness that significantly impairs the patient's ability to understandably behave, act and apply himself in life. It is a protracted psychotic illness tending to become chronic. It disrupts a person's relationship to reality, it causes personality changes, and affects the ability to work. Striking psychopathological changes occur - thought disorder (delusions, loosening of the connection of thoughts), perception disorder (hallucinations), behavior disorder (strange and incomprehensible).

Self-portrait of a schizophrenic

- Risk factors: male gender, depression, high IQ.
- Diagnostics: Patient observation

History

The term was first used in 1911, until then the term *dementia praecox* (Kraepelin) was used - at that time similar entities - catatonia (strange motor behavior), paranoia, hebephrenia (derangement), etc.

Schizophrenia means "splitting" of the mind, describing patients' ability to experience and behave according to disparate scenarios (described as "double accounting"). The patient behaves according to a morbidly distorted reality and at the same time respects reality in many respects and is able to adapt. In the 1960s, the WHO launched a study **International Pilot Study of Schizophrenia** (http://apps.who.int/iris/bitstream/10665/39405/1/WHO_OFFSET_2_(chp1-chp8).pdf).

Epidemiology, etiology and pathogenesis

This disease is *"relatively common"* (approx. 1%), it usually starts between the ages of 15 and 35, affects men and women equally, and tends to be hereditary.

The **etiology** is unknown and probably multifactorial. Theories describe the formation:

- **Theory of load and disposition**
  - inherited or acquired disposition of maladaptive thought structures that eventually result in clinical manifestation.
  - disposition can be a defect in a protein, a receptor, a broken structure.
- **Dopamine hypothesis**
  - They explain the effect of neuroleptics - they block the effect of dopamine,
  - dopamine agonists (amphetamine) cause psychoses,
  - a greater amount of D receptors was found in the brains of untreated schizophrenics,
  - mainly D_2 receptors (but e.g. clozapine blocks D_2 minimally),
  - the influence of serotonin is also assumed,
  - for identical twins, concordance is 35 to 58%.
- **Neurodevelopmental Model**

An alternative hypothesis that states that the clinical disease is only the culmination of a process that begins very early in the development of the individual as a disorder of migration, selection and functional involvement of neurons.

Progress

Due to advances in treatment, the course changes, with attacks alternating with periods of relative calm.

- **Premorbid stage** - does not manifest itself clinically, there may be latent disorders of cognition, character traits.
- **Prodromal stage** - suitable for prevention, attacks alternate with retreat, later psychopathology stabilizes.

The curability is approximately the same as, for example, hypertension, we can control the symptoms, with mutual cooperation, schizophrenia can practically be cured.

Clinical forms

Simplex schizophrenia

This form is infrequent, but prognostically significant. In the foreground are changes in behavior, decline of will, loss of interests, flattening of emotions.

> ***Case report***

Young boy, fine at school, mocked by classmates, withdrawn, problems with concentration started in grammar school, sharp drop in grades, completely stopped preparing, stopped reading, gives the impression that he has become lazy, doesn't take care of himself, scribbles nonsense. He is completely passive, strange behavior - he spits on the carpet, distracted, doesn't remember anything, doesn't suffer from anxiety or fear, the only thing he misses is that he coughs on everything and can't change it, sometimes he asks people around if he can hear birds outside the window, cars passing by . In the foreground is the impoverishment of experience, impoverished thinking, a striking contradiction between inner life and flat emotionality. The patient knows that something is wrong, he spends time passively, without interest in his surroundings, the simpler his surroundings, the more satisfied he is.

Paranoid Schizophrenia

This form is common. It is accompanied by hallucinations and delusions, which are mostly persecutory, but also grandiose, and often affect the thinking and experience of the patient. Its urgency varies according to the stage of the disease.

Case report *The patient, 54 years old, a doctor, emigrated to Switzerland in 1968, returned to Czechoslovakia in 1979, where he was sent to psychiatry. He explains his return: "...I am running for my life. I'm running from the Yugoslav secret service...", he said he found a page from Porcupine taped to the wall of the room, where there was a picture of a television and his photo in it, under which was written "living men are more valuable than dead", which he said meant that they wanted him catch alive. He carried a knife with him so he could kill himself if caught, etc. He was convinced he had prevented World War III because he had uncovered a Soviet base in Madagascar.*

Hebephrenic Schizophrenia

It is characterized by fickleness, aimless or erratic activity. There is fragmentation of behavior due to inappropriately naughty, erratic displays. He speaks mechanically, philosophizes wildly, and his clothes are striking.

Case report *Patient up to 20 years old, healthy, without difficulties, shy and shy by nature, excellent results, after high school on a business course there was a sudden, profound change in behavior. During the course, she giggled, shouted, hit the bench, talked loudly, lay on the bench, danced, spoke vulgarly, imitated the announcer, gestures (echopraxia), grimaces (echomimia). She behaved playfully in the psychiatric hospital - splashing water in the toilet, disassembling the faucet. Describes the pressure in the head associated with the compulsion to speak rudely. He expresses himself bluntly even about rude things*

Catatonic schizophrenia

In the foreground are psychomotor disorders, excessive excitement, aimless restlessness. The body and limbs remain in the set positions. There is increased tone (catalepsy, *flexibilitas cerea*), stupor, command automatism, imitation, negativism.

Case report

- *The patient, shy and fearful in childhood, suffered from insomnia after elementary school, exercised a lot, went to the forest, went to a forestry school, where he was apparently bullied. He was sad, didn't eat much, lost weight, suicidal thoughts, then accepted to forestry high school, changed since then - used profanity, did not study well, forgot, changed habits, did not concentrate.*
- *Convoluted speech, unintelligible, conspicuously steps on left foot, suddenly runs, then stops abruptly. When asked if he feels healthy or sick, he answers: "the day that is on the calendar to make it worth it." didn't understand the surroundings". Performs small, simple exercises - pull-ups, pull-ups, squats, push-ups, etc.*
- *After a while, manifestations of passive and active negativism - he acted as if he did not hear the requests or instructions of those around him, ran naked around the department, scrubbed the sinks and toilets, jumped on the table when asked to sit down. These states were alternated with states of total muscle stiffness, he remained in a set position, pillow symptom - when he lay down, he automatically held his head above the mat without support.*

Other forms of schizophrenia

This includes all undifferentiated schizophrenias, i.e. those that *can't be classified anywhere*. Residual schizophrenia or post-schizophrenic depression often follow after the acute symptoms of schizophrenia subside.

A new typology of schizophrenia

According to the presence of the so-called positive and negative symptoms:

- **negative symptoms** - the result of the reduction or disappearance of some characteristic, slowing down of motor skills, hypobulia, apathy, flat emotionality;
- **positive symptoms** – delusions, hallucinations, bizarre, restless behavior.

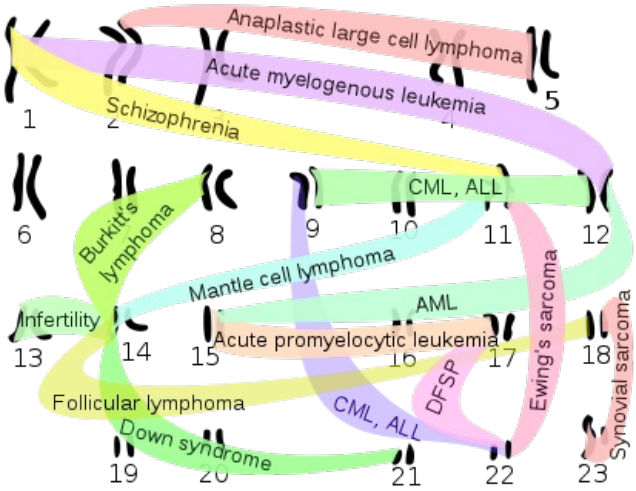
Negative often given by a disorder, positive a kind of reaction to the reduction of other abilities.

Accordingly, we divide into:

- type I,
- type II,

or

- positive schizophrenia (they respond well to pharmacotherapy),
- negative schizophrenia,
- mixed schizophrenia.



Chromosomal translocations associated (not only) with schizophrenia.

Diagnosis

There is '*no test or method* that is specific for this disease. The diagnosis is based on the observation of the patient and the analysis of the information obtained from him. In the prodromal stage, *behavioral changes* appear, a tendency to anxiety, despondency, reduced self-care. Typical symptoms follow, such as *hearing* and voicing one's own thoughts, taking away or inserting thoughts, delusions of control, hallucinated voices that comment on the patient's behavior or come from some part of his body, bizarre, culturally alien delusions.

They are accompanied by *inactivity*, loss of interests, social withdrawal, flatulence, inappropriateness of emotional reactions, catatonia, halt in thinking, incoherence, neologisms. Relational thinking often appears - a strong delusional belief that everything around is staged, everything has a different meaning.

Definition, pathogenesis, symptoms, complications, treatment.

These symptoms must last at least a month. Determining the beginning is difficult, but important - the sooner it is caught, the better.

Differential diagnosis and auxiliary examinations

Diagnosing this disease takes time. The main thing is to distinguish an acute attack from intoxication hallucinogens or toxic psychosis after stimulants. It is also important to differentiate the manic component of bipolar disorder at the beginning. Other diseases in the differential diagnosis include dementia, Wilson's disease, porphyria, SLE, Huntington's disease, tumors and [[neuroinfection]].

Ancillary examinations can help in the differential diagnosis. Organic disorders are seen on CT or MRI. On SPECTu (Tc-HMPAO) we see a lower perfusion frontally and temporally on the left.

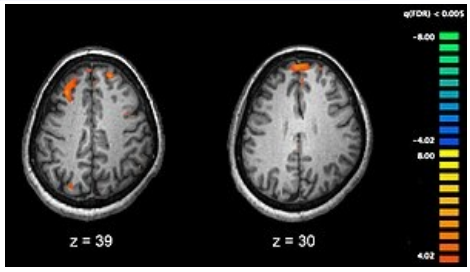
Treatment

- Relies on pharmacotherapy **antipsychotic** (formerly neuroleptic);
- the term neuroleptics was associated with their main adverse effect – **extrapyramidal muscle stiffness'**;
- with the introduction of antipsychotics II. generation of (atypical) side effects **decline**;
- for a good prognosis, it is important to make a correct diagnosis and draw up a treatment plan;
- it is good to start treatment as soon as possible, the earlier, the better the prognosis and fewer relapses;
- in general, it is good to stick to one drug, not to combine drugs from the same group.

Before Antipsychotics

- barbiturates, bromine preparations, plant alkaloids were used,
- were looking for '*miracle methods* - insulin coma, atropine coma, frontal lobotomy, also ECT,
- then in the fifties - the discovery of the effects of chloropromazine.
- We divide them into drugs with:
  - **high'** (*haloperidol, fluphenazine*),

- **moderate'** (*perphenazine*),
- **low** (*chlorpromazine*) potency.
- It was also divided into those with a sedative effect and those without.



A recording from a functional MRI. The red areas show the working parts of the brain during the memory test.

Side effects

- tremor, dystonia (torticollis, torsion spasms of the trunk) and akathisia, dyskinesia (chewing, chewing);
- early 90s – **antipsychotics II. generation'** - *risperidone, olanzapine, clozapine* (clozapine carries the risk of neutropenia and agranulocytosis;
- sometimes it is necessary to give in depot preparations - they release slowly;
- for patients with acute restlessness, a good combination with **benzodiazepines'**;
- for non-responders – **electroconvulsions**;
- **psychoeducation** - an effort to teach about the nature of the disease, the patient should understand what is happening to him;
- care for a schizophrenic is highly individualized;
- **psychotherapy** - occupational therapy, assertiveness training, cognitive-behavioral module, family therapy.

🔎 *For more information see Biological treatment methods in psychiatry.*

Links

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- BENEŠ, Jiří. *Study materials, cited Questions from Psychiatry* [online]. ©2006. [cit. 12.10.2022]. <http://jirben2.chytrak.cz/>.

- WHO,. *Report of The international pilot study of schizophrenia* [online]. ©1973. [cit. 12.10.2022]. <http://apps.who.int/iris/bitstream/10665/39405/1/WHO_OFFSET_2_(chp1-chp8).pdf>.