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Schizophrenia: Psychotic Disorder

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Research Article

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ABSTRACT

Schizophrenia is a severe brain disease, which makes the person difficult to communicate with others, respond emotionally and to make decisions. Psychosis is a major symptom of schizophrenia. Abnormalities in brain may lead to development of Schizophrenia, which includes symptoms like mood disorders to suicidal tendency. The disease can be diagnosed by observing the symptoms, thus the patients can be treated with antipsychotics.

INTRODUCTION

Schizophrenia is a mental disorder, involves abnormal behavior of the individual. It is usually characterized by failure to recognize what is real. Symptoms ^[1-12] include confused or unclear thinking, false beliefs, hallucinations (auditory), paranoia.

Abnormality of Brain in Schizophrenia Patients: Patients with schizophrenia showed smaller brain volume especially in areas involved in concentration, memory, thinking and perception. The distinguishing feature was patients with schizophrenia had larger ventricles, cavities within the brain that are filled with the same fluid as in the spine which bathes the brain, both cushioning it and providing nutrients. Another feature includes schizophrenic patients had a reduction in the size of the left temporal lobe and the front part of the hippocampus, a ridge along each lateral ventricle of the brain, wider cortical sulci, spaces in the folding's at the surface of the cortex. Frontal lobes and hippocampus plays a vital role in decision making, emotion and memory.

Causes of Schizophrenia

The main cause of schizophrenia ^[13-24] is still unclear, but it might be caused due to heredity (genetics), viral infections or due to immune disorders.

Due to heredity characters the person may develop disease, which may be triggered by environmental events like (stressful situations, or viral infections). Schizophrenia ^[25-40] is also reported due to physical or hormonal changes which may occur during puberty in teen and young adults.

Symptoms

It includes positive and negative symptoms. The symptoms of schizophrenia ^[41-59] are usually classified into one of two categories – positive or negative. Positive symptoms include behavioral changes or thoughts like hallucinations or delusions, and negative symptoms involve withdrawal or lack of function,

the person may feel apathetic or emotionless. Cognitive symptoms relate to thinking process, characterized by illness and they often struggle with functioning and organizing their thoughts.

Types of Schizophrenia:

- Paranoid Schizophrenia: Paranoid schizophrenia is characterized with delusions or hallucinations
- Disorganized Schizophrenia: It is characterized by in appropriate emotion or disorganized behavior.
- Catatonic Schizophrenia: Characterized by repeating another's speech and movements.
- Undifferentiated Schizophrenia: May involve Many and varied Symptoms.

Diagnosis of Schizophrenia

There are no specific diagnostic methods for Schizophrenia. Patients are diagnosed with schizophrenia by observing the symptoms which may include physical examination and certain medical and psychological tests. Lab test includes complete blood count and imaging studies like MRI or CT scan. A doctor monitors mental status by observing appearance and asking about delusions, hallucinations, substance abuse, thoughts, moods, and suicide.

Prevention of Schizophrenia

There is no perfect way to prevent schizophrenia, however earlier diagnosis may help prevent serious complications like suicidal tendency. The earlier medication prevents relapse or worsening of symptoms.

Treatment

Antipsychotics are used to treat schizophrenia ^[60-70], but they are also effective in other psychotic states including manic states such as hallucinations, paranoia and delusions which are characterized as typical and atypical

Typical are conventional neuroleptics and major tranquilizers. Atypical antipsychotics are novel 2nd generation drugs.

Classification of antipsychotic drugs:

- Typical antipsychotics or First generation antipsychotics
 - Phenothiazines: e.g. chlorpromazine, fluphenazine, thioridazine
 - Thioxanthines: e.g. chlorprotixen, thiothixene
 - Butyrophenones: e.g. haloperidol, droperidol
- Atypical antipsychotics or second generation antipsychotics
 - Dibenzodiazepines
 - Benzamides: remoxipride (investigational)
 - Diphenylbutylpiperazines: e.g. pimozide

First generation

First generation antipsychotics act by competitive blocking of D₂ dopamine receptors. They also block muscarinic acetylcholine receptors, α adrenoreceptors and antihistamine receptors. First generation antipsychotics are associated with movement disorders, especially for drugs that bind tightly to dopaminergic neuroreceptors.

Pharmacokinetics includes rapid oral absorption, undergoes extensive phase 1 metabolism and excreted in urine

Adverse drug reactions

- Due to blockade of dopamine D2 receptors –it may cause galactorrhoea, gynaecomastia or infertility in men.
- Increased triglycerides
- lowers seizure threshold
- hyperglycaemia
- prolongs QT interval, ventricular arrhythmias and may lead to sudden death.

Second generation

Second generation antipsychotics acts by blocking both serotonin and dopamine receptors. Has efficacy against negative symptoms.

Adverse drug reactions: Second generation antipsychotics have extrapyramidal symptoms when compared to first generation antipsychotics, but are associated with metabolic side effects like diabetes and weight gain.

Other treatment

Apart from antipsychotics, trans cranial magnetic stimulation (TMS) can be used in treating schizophrenia, which involves electromagnetic induction of electric field in the brain. Deep TMS affects cells to a depth of 6cm, whereas standard TMS affects neurons within 1.5-2 cm from the scalp, which acts by changing the excitability of the neurons, with fewer side effects. TMS decreases negative symptoms and auditory hallucinations in patients with schizophrenia.

Psychosocial Treatments: Individual and family treatments have been developed as therapies for treatment of schizophrenia [71-73]. Family interventions involve psych education with groups of families, which includes education about the illness, and options for reducing critical and emotionally over involved attitudes and behavior.

Studies demonstrated that family interventions reduce relapse rates and improve symptoms, quality of life in patients with schizophrenia.

Interventions in the Maintenance Phase involve identification of symptoms of relapse, teach self-management of symptoms

Stages of relapse

Stage 1: Overextension: in which patient feels overloaded and overwhelmed.

Stage 2: restricted consciousness: depression is coupled with withdrawal and anxiety.

Stage 3: disinhibition: Appearance of psychotic features like hallucinations and delusions in which patient can no longer control.

Stage 4: Psychotic disorganization: intensification of delusions and hallucinations in which patient loses control which involves inability to differentiate reality from psychosis and failure to recognize the environment.

Stage 5: psychotic resolution- Patient experiences psychosis, [74-76] but the symptoms are quiet

Managing Relapse: identification and management of symptoms decreases the severity of relapses, Prodromal phase arise before relapse-Time between the onset of symptoms and the requirement for treatment.

Causes of Relapse: Studies demonstrated, that people with schizophrenia without medication relapse at a rate of 60-70 % within the first year, interventions in the Health Promotion Phase, focus on prevention of relapse and symptom management.

Advances

Studies have demonstrated that the disease is less prevalent in women, when compared to men and they have fewer symptoms due to presence of estrogen. As the estrogen reduces the effect of dopamine in the central nervous system, it can be given in men, but it might not be an effective long term solution, as it leads to feminization of men.

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