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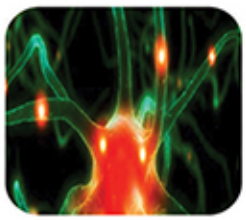

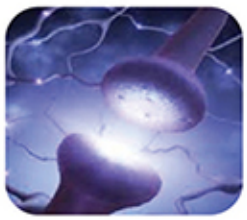

Praveen Tripathi

8th Edition

JAYPEE

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2 CHAPTER

Schizophrenia Spectrum or Other Primary Psychotic Disorders

Schizophrenia is the prototype of psychotic disorders. It is one of the most common serious mental disorders.

HISTORY

Emil Kraepelin

***Kraepelin classified psychotic illnesses into two clinical types*: Dementia Praecox[Q]** and **Manic Depressive Illness[Q]**. The basis of this classification was the course of illness and the cognitive decline, as the illness progressed.

According to Kraepelin, dementia praecox was characterized by a **chronic and deteriorating course** along with a **gradual decline of cognitive functions** (i.e. gradual decline of memory, attention and goal directed behavior).

	Dementia Praecox	Manic Depressive Illness (manic depressive psychosis)
Course	Chronic and deteriorating	Episodic
Cognitive decline	Gradual and progressive	None

The term "dementia" was used to indicate gradual decline in cognitive functions and the term "praecox' was added since the onset of illness was in young age (praecox means early onset).

In contrast manic depressive illness was characterized by **distinct[Q] episodes of illness alternating with period of normal functioning**. Also, there was **no cognitive decline**.

Eugene Bleuler

Bleuler **coined** the term **"schizophrenia"[Q]**, and changed the name of 'dementia praecox' to 'schizophrenia'. Bleuler proposed that diagnosis of schizophrenia should be based on the presence of characteristic symptoms. He proposed four symptoms, which he called as **fundamental (or primary) symptoms of schizophrenia**. These symptoms are also known as 4 **A's of Bleuler[Q]**. They include:

A. ***Autistic thinking and behavior (Autism)*[Q]**: Excessive fantasy thinking which is irrational and withdrawn behavior.
B. ***Ambivalence***: Marked inability to take a decision.
C. ***Affect disturbances***: Disturbances of emotions such as inappropriate affect.
D. ***Association disturbances***: Disturbances of association of thoughts such as formal thought disorders.

Kurt Schneider

Schneider described a group of symptoms, popularly known as **Schneiderian First Rank Symptoms (SFRS)[Q]** which were frequently seen in patients with schizophrenia and were characteristic of the illness. It must be however remembered that these symptoms can also be present in other illnesses and hence are not specific or pathognomonic of schizophrenia. There are 11 Schneiderian First Rank Symptoms and include:

A. ***Three thought phenomenon***: In the three thought phenomenon (or thought alienation phenomenon), the patient experiences that 'someone is tampering with his mind and thoughts.' The thought alienation includes the following:
   - **Thought insertion** (patient reports that someone is putting thoughts in his mind)
   - **Thought withdrawal** (patient experiences that thoughts are being taken out of his mind)
   - **Thought broadcast** (patient experiences that thoughts are leaving his mind and that others are able to access his thoughts, e.g. a patient said that "everybody understands my thoughts, though I never say anything)".
B. ***Three made phenomenon***: Here the patient experiences that his emotions, actions and drives are being influenced by others. It includes the following:
   - ***Made volition***: The patient experiences that his actions are being controlled by an external agency and not by himself. For example, a patient would repeatedly put his hand in the ceiling fan, and on

asking the reason reported, "I don't want to do it myself but I am being controlled by aliens who control my actions, I am a robot for them and they have my remote control".

- ***Made affect***: The patient experiences that someone is changing his affect (emotions). For example, a patient reported "at times I start laughing loudly and at times I cry. The neighbors control my emotions, they can change it whenever they want to. I feel helpless".
- ***Made impulses***: The patient experiences that someone is putting certain "drives" in his mind. For example, a patient suddenly threw his coffee mug onto a nurse. On asking about it he reported "a sudden impulse came over me, this impulse was sent by CBI officers who wanted me to throw the mug. I tried to resist the impulse, but could not control it".

C. ***Three auditory hallucinations****: Three specific types of auditory hallucinations are included in SFRS:*

- ***Voices arguing or discussing***: The patient reports hearing of two or more 'voices' (auditory hallucinations) which argue or discuss about the patient. The patient is usually referred to in third person (hence also called **third person auditory hallucinations**[Q]). For example, the first voice would say "he is a strange man, he doesn't have any good qualities". The second voice would respond "yes, also look how fat he has become". In this example, the patient is hearing two voices and the voices are using the word "he" to refer to the patient, hence patient is being referred to in third person.
- ***Voices commenting on patient's action***: The patient hears voices which give a running commentary on the patient's activities. For example, a patient who was working in the kitchen heard the following voice "she has peeled the potato and now she is about to switch on the gas. Now, she has started to wash the potatoes". The voice usually refers to the patient in the third person, hence this can again be an example of third person auditory hallucinations.
- ***Audible thoughts***: Here the patient hears a voice, which would say aloud whatever patient would think. For example, a patient had a thought that "I will have dinner at a restaurant tonight". Immediately he heard a voice of a middle-aged women who said "I will have dinner at a restaurant tonight".

  The German word "**Gedankenlautwerden**" or the French word "**echo de pensees**" are occasionally used to describe these audible thoughts.

D. ***Somatic passivity***: In somatic passivity, patient experiences certain somatic hallucinations (e.g. tactile hallucinations) which he believes are being imposed by some external agent. For example, a patient reported that he feels intense burning sensation inside his right knee and claimed that it is because of UV rays sent by FBI agents from New York".

E. ***Delusional perception***: In Delusional perception, a delusion is attached to a normal perception. For example, a patient with schizophrenia looked at the ceiling fan and immediately understood that "all the people in the city consider him a homosexual". In this example, there was a normal perception in the first step (i.e. the patient saw a ceiling fan) and in the second step a delusion was attached to this normal perception (i.e. the delusion that everybody in city considers patient a homosexual). Delusional perception is a type of "**primary delusion**"[Q].

Primary and Secondary Delusions

- ***Primary delusions***: These delusions arise as a direct result of morbid psychological process, caused by the underlying disorder
- ***Secondary delusions***: These develop secondarily to some other psychopathological phenomenon. For example, a patient who had continuous auditory hallucinations and heard a voice which said "you will be killed", started believing that "somebody wants to harm me". Now, this "delusion of persecution" which developed is a secondary delusion as it developed secondarily to the auditory hallucinations.

EPIDEMIOLOGY

1. Lifetime prevalence - **1%**
2. Point prevalence - **0.5–1%**
3. Incidence rate - **0.15–0.25 per thousand**.
4. ***Prevalence in specific population***: Schizophrenia has **high heritability**[Q] and the prevalence in relatives of patients is higher. Table 1 mentions the rates for specific population groups.

Table 1: Prevalence of Schizophrenia in specific populations.

• General: 1%
• Non twin sibling of a schizophrenia patient: 8%
• Dizygotic twin of a schizophrenic patient: 12%
• Monozygotic twin of a schizophrenic patient: 47%
• Child with one parent with schizophrenia: 12%
• Child with both parents with schizophrenia: 40%

5. ***Age of onset***: The usual age of onset of schizophrenia is **adolescence[Q] and young adulthood**. When the onset occurs after age of **45 years**, the disorder is called as **late-onset schizophrenia[Q]**.
6. ***Sex ratio***: It is equally prevalent in men and women, however the onset is earlier in men.
7. Schizophrenia is more prevalent in lower socioeconomic status.
8. ***Body type***: It was earlier believed that different body types were related to different personalities and also had different vulnerability to some disorders. Three types of body types were described:
   a. **Asthenic (thin and weak)**,
   b. **Athletic (muscular)** and
   c. **Pyknic (short and fat)**.

The **asthenic[Q]** and to a lesser extent athletic persons were believed to be predisposed to development of **schizophrenia** whereas the **pyknic** were believed to be predisposed to development of manic depressive illness (**bipolar disorder**).

ETIOLOGY AND PATHOGENESIS

A. ***Genetic factors***:
- Schizophrenia has a genetic contribution as reflected by higher monozygotic concordance rate than dizygotic concordance rate. Several genes appear to make a contribution to schizophrenia and nine linkage sites have been identified: 1q, 5q, 6p, 6q, 8p, 10p, 13q, 15q and 22q. Deletions at chromosome 22q11.2 (22q11 deletion syndrome, velocardiofacial syndrome, **DiGeorge syndrome[Q]**) have been associated with development of schizophrenia in around 30% cases.
- Several candidate genes contributing to schizophrenia have been identified, and they include α 7 nicotinic receptor, DISC 1 (Disrupted in schizophrenia), COMT (catechol-o-methyl transferase), NRG 1 (Neuregulin 1), GRM3 (Glutamate receptor metabotropic), RGS4 (Regulator of G protein signaling) and DAOA (or G72) (DAmino acid oxidase activator).
- There is increased risk of development of schizophrenia in family members of patients with schizophrenia. Also, family members of patients with bipolar disorders too have a slightly increased risk of development of schizophrenia[Q].

B. ***Biochemical factors:***
- ***Dopamine hypothesis***: This hypothesis proposes that **excess** of **dopaminergic activity[Q]** is responsible for schizophrenia.
- ***Serotonin***: Currently, along with dopamine, an excess of serotonin is also considered to be responsible for development of schizophrenia.
- Other neurotransmitters like GABA, glutamate, norepinephrine, acetylcholine, nicotine have also been implicated in pathogenesis of schizophrenia.

C. ***Neuropathological factors***: The neuropathology of schizophrenia is still not clear. Abnormalities have been found in various structures, such as:
- ***Cerebral ventricles***: Reduction in cortical gray matter volume and enlargement of lateral and third ventricles has been consistently observed.
- ***Limbic system***: Abnormalities in limbic system components such as hippocampus (smaller in size and functionally abnormal), amygdala (smaller size) and parahippocampal gyrus (smaller size) have been observed.
- ***Prefrontal cortex***: Anatomical abnormalities have been found.
- ***Thalamus***: Neuronal loss especially in medial dorsal nucleus of thalamus.
- ***Basal ganglia and cerebellum***: Abnormalities have been reported but findings are not consistent.

D. ***Environmental factors***: Apart from genetic factors, the following environmental factors have also been associated with development of schizophrenia.
- ***Obstetric complications and abnormalities in development***: Patients with schizophrenia are more likely to have history of obstetric complications in comparison to general population. Similarly they *more* often have abnormal development such as delayed milestones, poor motor coordination, etc.
- ***Stressful life events***: Early childhood trauma (including sexual abuse) is a risk factor. Furthermore, studies have shown an excess of stressful life events in few weeks prior to onset of schizophrenia.
- ***Season of birth and maternal exposure to infection***: Studies have shown that people who are born in **winters[Q]** and early spring are more likely to develop schizophrenia. Also prenatal exposure to influenza virus and prenatal malnutrition also increase the risk.
- ***Advanced paternal age***: Advanced paternal age has been found to be strongly associated with the risk of development of schizophrenia.
- ***Immigration***: Migrants have higher chances of developing schizophrenia than natives. The risk is especially higher for the second generation, who are born in the new homeland (the country of migration).

- ***Drug abuse***: Studies have shown that cannabis use increases the risk of development of schizophrenia.
- ***Urban birth and upbringing***: Birth and upbringing in urban areas have been associated with increase in risk for schizophrenia, in comparison to rural settings.

SYMPTOMS

The symptoms of schizophrenia can be divided into various symptom complexes, described as follows:

A. ***Positive symptoms (or psychotic symptoms)***: The two positive symptoms include **delusions** and **hallucinations**.

They respond **well to medications** and the presence of positive symptoms is **a good prognostic factor**[Q] in schizophrenia.

Delusions: The most common delusion in schizophrenia is **delusion of persecution**[Q].

- ***Hallucinations***: The most common hallucinations in schizophrenia are **auditory hallucinations**[Q]. Visual hallucinations are the second most common, however the presence of visual hallucination should always raise the suspicion of an organic mental disorder.
- The positive symptoms of schizophrenia are due to **dopamine excess** in **mesolimbic tract**[Q] **(neural pathway from ventral segmental area to nucleus accumbens)**[Q].

B. ***Negative symptoms***: Negative symptoms represent "loss of normal functions" in patients with schizophrenia. These symptoms **respond poorly to medications** and their presence is **a bad prognostic factor**[Q] in schizophrenia. Following are the negative symptoms:

- ***Avolition***: Loss of will or drive to indulge in goal directed activities (such as grooming and hygiene, educational and occupational activities).
- ***Apathy***: Loss of concern for an idea or task or results. For example, a student who had developed schizophrenia failed in exams. However, he appeared unconcerned with his results.
- ***Anhedonia***: Loss of ability to derive pleasure from activities or relationships.
- ***Asociality***: Indifference to social relationships and decrease in the drive to socialize.
- ***Affective flattening (or blunting***[Q]***)***: Inability of patient to understand emotions of others and inability to express own emotions.
- ***Alogia***: Decrease in verbal communication. The negative symptoms are due to decreased dopamine activity in **mesocortical pathway** (neural pathway from ventral segmental area to prefrontal cortex).

C. ***Disorganization symptoms***: This symptom complex includes the following symptoms:

- ***Formal thought disorder***: These are the disturbances in the form of thought characterized by loss of organization of thought.
- ***Disorganized behavior***: It is the odd and **inappropriate behavior** which may break the social norms. For example, a hospitalized schizophrenic patient would masturbate in front of the nursing staff, another patient of schizophrenia would wear sweaters and coats in hot summer season.
- ***Inappropriate affect***: Affect which is not in sync with the social situation.

D. ***Motor symptoms (catatonic symptoms or symptoms of conation)***: The term "**catatonia**[Q]" was given by **Karl Kahlbaum**[Q] who described these motor symptoms for the first time. These symptoms are sometimes described along with disorganization symptoms. For more clarity, they have been described separately here. These include:

- ***Stupor***[Q]**: Extreme hypoactivity** or **immobility (akinesis)** and minimal responsiveness to stimuli.
- ***Excitement***: Extreme hyperactivity which is usually non goal directed (i.e. the patient is very active but does not do any meaningful work).
- ***Posturing***: Spontaneous maintenance of posture for long periods of time.
- ***Waxy flexibility***: When examiner makes a passive movement on patient, there is a feeling of plastic resistance which resembles bending of a soft wax candle.
- ***Catalepsy***: When examiner makes a passive movement (e.g. say abduction at shoulder joint) on the patient, no resistance is experienced. But as the examiner stops the movement, whatever position the patient had reached, that position is maintained (e.g. say the examiner had taken the shoulder to 45 degree abduction, and after that he stops, now 45 degree abduction position at the shoulder joint will be maintained by the patient).
- ***Automatic obedience***: Excessive cooperation with examiner's commands despite unpleasant consequences. For example, a patient kept on protruding his tongue in response to examiner's commands, despite the fact that his tongue would be pricked by a pin every time he protruded it.
- ***Echolalia***: Mimicking of **examiner's speech**.
- ***Echopraxia***: Mimicking of **examiner's movements**.

- ***Negativism***: Patient refuses to accept examiner's instructions or any attempts to move him.
- ***Grimacing***[Q]: **Maintenance of odd facial expressions**.
- ***Stereotypy***[Q]: Spontaneous repetition of **odd, purposeless movements**. For example, making strange movements of fingers repeatedly[Q].
- ***Gegenhalten***: Resistance to passive movement, which is directly proportional to the strength of force applied.
- ***Mannerisms***: Spontaneous repetition of **odd, purposeful movements**. For example, repeatedly saluting the passerby.
- ***Perseveration***: It is an induced movement which is senselessly repeated. For example, a patient takes his tongue out and in, when asked however then keeps on repeating the out and in movement, even when he is no longer asked. It must be noted that perseveration occurs in response to an instruction, whereas stereotypy and mannerisms are spontaneous. Perseveration is also a sign of brain damage (**organic brain disorders**)[Q].

  When perseveration, affects speech, the patient may keep on repeating the same word or phrase. Logoclonia and palilalia are special forms of perseveration.

  Logoclonia: In logoclonia, the last syllable of last word is repeated. E.g. A patient may say 'tomorrow is Monday-ay-ay-ay-ay'. Here, the last syllable 'ay' is being repeated again and again.

  Palilalia: In palilalia, the patient repeats the perseverated word with increasing frequency.
- ***Ambitendency***: Inability to decide the desired motor movement. For example, when offered a hand for handshake, patient may repeatedly bring his hand forward and backward as he is not able to decide whether he wants to shake the hand or not. It is **ambivalence in motor movements**[Q].

E. ***Violence, homicide and suicide***: Violent behavior (excluding homicide) may be seen commonly in untreated patients with schizophrenia although schizophrenia patients are much more commonly the victims of violence rather than being the perpetrators. Also contrary to the common belief, the rate of homicide by patients with schizophrenia is no more than a member of general population. Suicide is the most common cause of premature death in patients with schizophrenia[Q]. Traditionally the suicide rate in schizophrenia was put at **10%**. However, according to newer studies and DSM5, the suicide rate is around 5 to 6% (around 20% patients attempt suicide). The risk factors for suicide in a patient with schizophrenia include:

a. The most important factor associated with suicide is presence of a major depressive episode, feeling of helplessness
b. Also periods of increased symptoms[Q] (especially presence of delusion of persecution, command hallucinations in which the hallucinatory voices give certain commands to the patient) are associated with increased risk.
c. At times, patients with better prognosis (such as lesser negative symptoms, absence of affect disturbances) have a paradoxically higher suicide risk. This may be because these patients are better able to understand the devastating effects of schizophrenia on their health and may become hopeless about future.
d. It has been found that there is increased risk of suicide early in course of illness, immediately after admission and also immediately after discharge.
e. Young males with comorbid substance use, and being unemployed.

DIAGNOSIS

According to DSM5, two or more of the following symptoms should be present for the duration of 1 month period and at least one of these must be either (1), (2) or (3).

1. Delusions
2. Hallucinations
3. Disorganized speech (or formal thought disorder)
4. Disorganized or catatonic behavior
5. Negative symptoms.

The total duration of illness should be at least 6 months, and the 6 months period must include at least one month of above mentioned symptoms.

The ICD-11 also uses similar criterion for diagnosis of schizophrenia however the total duration of symptoms should be more than **one month** unlike DSM5 which requires a total duration more than **six months**.

DSM-5 Update

In DSM-4, only one of the above symptoms was required if the delusions were bizarre or hallucinations were one of Schneiderian first rank symptoms (either voices discussing about the patient or voices giving a running commentary). However in DSM-5, this special attribution to bizarre delusions and schneiderian auditory hallucinations has been removed.

TYPES

According to ICD-10, the following are types of schizophrenia:

A. ***Paranoid schizophrenia***: This type is dominated by hallucinations and delusions. This is the **most common type**[Q] of schizophrenia. It has a **late onset** and a **good prognosis**[Q]. The **personality** is **usually preserved** (the person is able to maintain daily activities and social interaction is normal).

B. ***Catatonic schizophrenia***: This type is dominated by catatonic (motor) symptoms. It has the **best prognosis**[Q] of all types. The first line treatment for catatonic schizophrenia includes **intravenous lorazepam** and **electroconvulsive therapy**.

C. ***Hebephrenic (disorganized) schizophrenia***: This type is dominated by prominent disorganization symptoms and negative symptoms. It has an **early onset** and **bad prognosis**[Q]. There is **severe deterioration of personality** (patient is not able to maintain hygiene, social interaction is inappropriate, odd behaviors are present).

D. ***Undifferentiated schizophrenia***: The schizophrenia not conforming to any of the above subtypes or exhibiting features of more than one of them.

E. ***Residual schizophrenia***: Residual schizophrenia is characterized by progression from an early stage (with prominent delusions and hallucinations) to a later stage where the delusions and hallucinations have become minimal and mostly negative symptoms are present.

F. ***Simple schizophrenia***: There are prominent negative symptoms without any history of positive symptoms like delusion and hallucinations. It has the **worst prognosis**.

G. ***Postschizophrenic depression***: A depressive episode which develops after the resolution of schizophrenic symptoms. This disorder is associated with an **increased risk of suicide**.

DSM-5 & ICD-11 Update

Both DSM-IV and ICD-10, divided schizophrenia into types (e.g. paranoid, catatonic, etc.) on the basis of symptoms. DSM-5 and ICD-11 have removed these symptoms based subtypes. The types of schizophrenia that have been described in ICD-11 are according to the course of illness and include:

a. *Schizophrenia, first episode*: If patient meets diagnostic criterion of schizophrenia and there have been no past episodes
b. *Schizophrenia, multiple episodes*: If patient meets diagnostic criterion of schizophrenia, and there has been at least one episode in the past. Between the last and current episode, there was significant remission of symptoms
c. *Schizophrenia, continuous*: If patient has been fulfilling the diagnostic criterions of schizophrenia for almost the entire duration of illness (duration should be more than one year)

ICD-11 Update

In ICD-11, Catatonia has been made a separate diagnostic category. It has been further divided into following groups:

a. Catatonia associated with another mental disorder (e.g. catatonia associated with schizophrenia, mood disorders or autism spectrum disorder)
b. Catatonia induced by use of psychoactive substances (drugs of abuse) and medications

Other Classifications

Apart from ICD10 and DSM5, various other classifications have been proposed.

A. TJ Crow divided schizophrenia into two subtypes, namely Type I and Type II schizophrenia:
   - ***Type I***: Mostly positive symptoms with normal ventricles, good response **to medications** and **better prognosis.**

   Substances which can cause schizophrenia like symptoms: Amphetamines, cocaine, phencyclidine and other hallucinogens, cannabis.

   - ***Type II***: Mostly **negative symptoms** with **dilated ventricles**, **poor response** to medications and **poor prognosis**.

B. ***Pfropf-schizophrenia***: Schizophrenia in a patient with mental retardation.

C. ***Van Gogh syndrome:*** Self-mutilation (injuring self) occurring in schizophrenia has also been called as **Van Gogh syndrome**.

TREATMENT

Antipsychotics (also known as neuroleptics) are the main stay of treatment for psychotic disorders like schizophrenia, schizoaffective disorders, delusional disorders and others. Antipsychotics have been divided into two classes:

(1) Typical antipsychotics and (2) Atypical antipsychotics

1. ***Typical antipsychotics or first generation antipsychotics or dopamine receptor antagonists (DRAs)***: These drugs mainly act through dopamine, **D2 receptor antagonism**. They were the first antipsychotics that were used in the clinical practice. They are **effective** against **positive symptoms** but have **minimal effect** on **negative symptoms**. The therapeutic effect of improvement in psychotic symptoms is mediated by D2 receptor antagonism in mesolimbic tract. The typical antipsychotics can further be classified according to their chemical groups, as described here:

- ***Phenothiazines***: Chlorpromazine, thioridazine, trifluoperazine, prochlorperazine, trifluprom azine, fluphenazine, perphenazine

- ***Thioxanthenes***: Thiothixene, flupenthixol
- ***Butyrophenones***: Haloperidol, droperidol, penfluridol
- ***Miscellaneous***: Pimozide, loxapine, molindone.

The typical antipsychotics can further be classified as **low potency (like chlorpromazine, thioridazine)** and **high potency (like haloperidol and fluphenazine)**. Apart from differing in potency, the low potency and high potency antipsychotics also differ in their side effects profile. The common side effects of typical antipsychotics are as follows:

A. ***Movement disorders***: The antipsychotics can cause various movement disorders, which collectively are often referred as **extrapyramidal symptoms** (or **extrapyramidal side effects**). These side effects are caused by blockade of dopamine receptors in **nigrostriatal tract** (neural pathway from substantia nigra to striatum). The movement disorders are **more commonly** seen with typical antipsychotics in comparison to atypical antipsychotics and amongst typical antipsychotics, high potency typical antipsychotics are **more likely to** cause this side effect. The movement disorders can be of the following types:
   - ***Acute dystonia***: It is the **earliest side effect**[Q] of antipsychotics and can be seen within minutes of receiving an injectable antipsychotic (also with oral antipsychotic). It is characterized by **sudden contraction** of a muscle group and can result in symptoms like **torticollis**[Q], trismus (contraction of jaw muscles),[Q] **deviation of eye balls** (oculogyric crisis due to contraction of extraocular muscles), laryngospasm, etc. The management includes immediate administration of parenteral **anticholinergics**[Q] like benztropine, promethazine or **diphenhydramine**[Q]. To prevent acute dystonia, prophylactic use of oral anticholinergics is suggested while prescribing typical antipsychotics.
   - ***Acute akathisia***: It is the **commonest side** effect of antipsychotics and is characterized by an **inner sense of restlessness** along with **objective**, **observable movements** such as **fidgeting**[Q] of legs, **pacing around**, **inability to sit** or **stand** in one place for a long time. The treatment options include β **blockers**[Q] such as propranolol (**drug of choice**), **anticholinergics** and **benzodiazepines**. The antipsychotic can also be changed to a second generation or low potency first generation antipsychotics, which have lesser incidence of akathisia.
   - ***Drug induced parkinsonism***: It is characterized by the triad of rigidity, bradykinesia and resting tremors. The treatment options include use of anticholinergics or change of antipsychotics to second generation or low potency first generation antipsychotics. The dose reduction can also be tried. Often, use of prophylactic anticholinergics prevents the development of drug induced parkinsonism.
   - ***Tardive dyskinesia***: The term "tardive" refers to features which develop after prolonged exposure. Tardive dyskinesia develops after long-term treatment with antipsychotics and can present as involuntary movements of the tongue (e.g. twisting, protrusion), jaw (e.g. chewing), lips (e.g. smacking, puckering), trunk or extremities. Patient may also have rapid, jerky movements (choreiform movements) or slow, sinusoid movements (athetoid movements). The management usually includes shifting to a second generation medication.
   - ***Neuroleptic malignant syndrome***: It is a fatal side effect of antipsychotic use. It is characterized by **muscle rigidity**, **elevated temperature (greater than 38°C)**, and **increased CPK (creatine phosphokinase) levels**. The other symptoms include diaphoresis, tremors, confusion, autonomic disturbances, liver enzyme elevation and **leukocytosis**. The pathophysiology involves D2 antagonism at various levels. The D2 receptors blockade in corpus striatum causes muscle contraction and rigidity that initiates heat generation, whereas blockade of dopamine receptors in hypothalamus interferes with heat regulation. The autonomic disturbances are caused by dopamine blockade of spinal neurons. The increased CPK indicates muscle injury. The early recognition of symptoms and prompt withdrawal of antipsychotics is of paramount importance, otherwise the continuing muscle damage can cause **myoglobinuria** and **renal failure**. The treatment includes skeletal muscle relaxants like **dantrolene**[Q], dopamine agonists such as amantadine and bromocriptine are also useful. Supportive measures including adequate hydration are also important in the management. When drug treatment with antipsychotics is restarted, second generation antipsychotics should be used.

B. ***Endocrine side effects***: The blockage of dopamine receptors in **tuberoinfundibular tract** results in **hyperprolactinemia** (remember dopamine inhibits prolactin secretion and hence dopamine blockade causes hyperprolactinemia) and can cause galactorrhea, menstrual disturbances in females and impotence in males.

C. Sedation, orthostatic hypotension and anticholinergic side effects are usually see with low potency typical antipsychotics.

2. ***Atypical antipsychotics or second generation antipsychotics or serotonin dopamine antagonists***: These drugs act through **antagonism** of **5-HT2 receptors** as well of **D2 receptors**. These drugs have a higher ratio of 5 HT2 to D2 blockade, in contrast the typical antipsychotics primarily act on D2 receptors. Due to lesser D2 blockade, atypical antipsychotics have lesser risk of causing extrapyramidal side effects as well as hyperprolactinemia. Atypical antipsychotics are effective in treatment of **both** positive and negative symptoms. The following drugs are classified as atypical antipsychotics:

- Clozapine
- Olanzapine
- Risperidone
- Paliperidone
- Iloperidone
- Quetiapine
- Ziprasidone
- Aripiprazole
- Sertindole
- Zotepine
- Lurasidone
- Asenapine
- Amisulpride
- Brexpiprazole
- Cariprazine
- Pimavanserin

Newer Antipsychotics

Brexpiprazole: It is an atypical antipsychotic that acts as a partial agonist at D2 and 5HT1A receptors, and an antagonist at 5HT2A receptor.

Cariprazine: It is an atypical antipsychotics that acts as a partial agonist at D2, D3 and 5HT1A receptors and an antagonist at 5HT2A receptor. However, unlike aripiprazole and brexpiprazole, cariprazine exhibits higher affinity for the D3 versus the D2 receptor.

Pimavanserin: It is the first FDA approved drug for treatment of delusions and hallucinations in Parkinson's disease associated psychosis. Pimavanserin has a combination of inverse agonist and antagonist activity at 5HT2A receptors (and to a lesser extent 5HT2C receptors). It does not bind to D2 receptors. It can increase QT interval.

The side effect profile of atypical antipsychotics is as follows:

A. ***Movement disorders***: Atypical antipsychotics can cause all kind of extrapyramidal side effects described earlier, however the incidence is lesser in comparison to the typical antipsychotics.

B. ***Endocrine side effects***: The incidence of hyperprolactinemia is also lesser with atypical antipsychotics (except **risperidone**^{Q} and amisulpride which have a higher incidence).

C. Weight gain and increased risk of dyslipidemia, diabetes and cardiovascular disease is more commonly seen with atypical antipsychotics in comparison to typical antipsychotics.

D. Other side effects include sedation, **QTc prolongation (especially with ziprasidone)** and seizures.

Clozapine

It was the first atypical antipsychotic to be synthesized. Clozapine is the drug of choice in treatment resistance schizophrenia, **TRS**^{Q} (TRS is defined as a lack of response to two different antipsychotic given at adequate dosages for adequate duration of 4 to 6 weeks). Clozapine is a unique drug as unlike other antipsychotics, it has a relatively low affinity for D2 receptors. This low affinity for D2 receptor explains lack of extrapyramidal side effects on clozapine. Clozapine has a strong affinity for D4 receptors and also acts as an antagonist at 5 HT2A, D1, D3 and α (alpha) adrenergic receptors. The lack of extrapyramidal symptoms, makes clozapine a preferred antipsychotic in patients who are intolerant to other antipsychotics because of extrapyramidal side effects including tardive dyskinesia. Clozapine is the only antipsychotic that decreases the suicidal ideation in patients with schizophrenia who have been previously hospitalized for suicidality^{Q}.

Side effects: The common side effects of clozapine include sedation, syncope, hypotension, tachycardia, nausea and vomiting. Other side effects include weight gain (**clozapine causes highest** weight gain **amongst all antipsychotics**^{Q}), constipation, anticholinergic side effects. A particularly problematic side effect is **sialorrhea** or hypersalivation. Clozapine can also cause life-threatening side effects which include **agranulocytosis, seizures and myocarditis**. In view of possibility of agranulocytosis, during the first six months of clozapine treatment, WBC and neutrophil counts should be measured every week. Also, if during the therapy, WBC counts fall below 3000/mm^3 or neutrophil counts fall below 1500/mm^3, the clozapine therapy should be stopped. The agranulocytosis and myocarditis are dose independent side effects of clozapine whereas seizures are dose dependent^{Q} (seen only at higher dosages).

The only contraindication to clozapine use is a **WBC count of less than 3500/dL** at the time of starting clozapine, a history of agranulocytosis during clozapine treatment or use of other drug that is known to suppress the bone marrow (e.g. clozapine and carbamazepine cannot be given together as both are bone marrow suppressants).

Specific Points about Antipsychotics

A. ***Long-acting injectable antipsychotics (Depot antipsychotics)***: In patients who have **poor compliance**[Q] with medications (i.e. who refuse to take medications) long-acting injectable antipsychotics can be used. The patients typically receive the **intramuscular injections** of antipsychotics once a month or once a fortnight. Long-acting injectable preparations are available for following antipsychotics:
   - Flupenthixol
   - Fluphenazine
   - Haloperidol
   - Pipotiazine
   - Zuclopenthixol
   - Risperidone
   - Olanzapine
   - Paliperidone
   - Aripiprazole

B. Thioridazine can cause irreversible **retinal pigmentation**[Q]. Thioridazine can also cause **cardiac arrhythmias**[Q] (prolongation of QT interval). It is also the drug with **least extrapyramidal side effects**[Q] amongst typical antipsychotics, overall clozapine is the antipsychotic with least extrapyramidal side effect.

C. Chlorpromazine can cause **corneal** and **lenticular deposits**[Q].

D. Penfluridol is the **longest acting antipsychotic**[Q].

E. Ziprasidone is known to cause **cardiac arrhythmias** (prolongation of QT interval).

F. Aripiprazole is a partial agonist at **D2 receptors** (all other antipsychotics are D2 antagonists).

Psychosocial Treatment[Q]: Apart from medications, psychological and social interventions have been found to be effective in treatment of schizophrenia, especially after the acute phase is treated with medications. The following psychosocial treatments can be used:

a. ***Family interventions***: The family of patient is involved with focus on illness education, coping with the illness and providing emotional support to the entire family.

b. ***Supported employment***: An attempt is made to provide employment to patient while giving ongoing support.

c. ***Assertive community treatment***: It involves reaching out to the patient in community and providing necessary support.

d. ***Skills training***: The focus is on improving skills, especially social skills of the patient.

e. ***Cognitive behavioral therapy***: It involves use of cognitive behavioral therapy (explained in next chapter in detail) for management of residual symptoms (the symptoms that have not responded to medicine). Another therapy, called **cognitive remediation therapy**[Q] (or cognitive enhancement therapy) focuses on improvement of cognitive functions (such as attention and concentration, working memory, etc.) and has shown promising results in patients with schizophrenia.

f. ***Token economy***: Mostly used in inpatient settings, it involves use of tokens, which are given to patients, when they indulge in desirable behaviors (like remaining calm, taking medicines regularly, etc.). Patients can redeem the tokens to get material items or privileges.

PROGNOSIS

Good prognostic factors:

1. Acute or abrupt onset
2. **Advanced age at onset (age > 35 years)**[Q]
3. Catatonic subtype and paranoid subtype
4. Female sex
5. Prominent positive symptoms
6. Presence of **affective symptoms** (such **as depression**[Q])
7. **Family history**[Q] of mood disorder.

Bad prognostic factors:

1. Insidious onset
2. Early onset (age < 20 years)
3. Simple, disorganized, undifferentiated subtype
4. Male sex
5. Prominent negative symptoms
6. Absence of affective symptoms
7. **Family history** of schizophrenia.

OTHER PSYCHOTIC DISORDERS

A. ***Acute psychotic disorders***: There are disorders which have symptoms (e.g. delusions, hallucinations and disorganization symptoms) similar to schizophrenia, however do not meet the duration criterion. These disorders have been classified separately in DSM-5 and ICD-11. These disorders frequently are preceded by a **stressor** (stressful life event), have an acute onset and often resolve completely. These disorders may also be precipitated by **fever**[Q].

In ICD-11, if the symptoms (delusions, hallucinations, disorganization) are present for less than one month, a diagnosis of **acute and transient psychotic disorder** is made.

In DSM-5, if symptoms (delusions, hallucinations, disorganization) are present for less than one month, a diagnosis **of brief psychotic disorder** is made; and if symptoms last between **1–6 months**, a diagnosis of **schizophreniform disorder** is made.

Treatment: Antipsychotics and benzodiazepines are used for the treatment of acute psychotic disorders.

B. ***Schizoaffective disorder***: Schizoaffective disorder has features of both schizophrenia and mood disorders concurrently. Depending on whether manic episode or depressive episode is present along with schizophrenia symptoms, there are two subtypes:
   - ***Schizoaffective disorder (Bipolar type or manic type)***: With manic symptoms
   - ***Schizoaffective disorder (Depressive type)***: With depressive symptoms.

     Treatment: It involves combination of mood stabilizers, antipsychotics and antidepressants depending on the presentation. In schizoaffective (manic type episodes) a combination of antipsychotics and mood stabilizer is commonly used. In schizoaffective (depressive type episodes) a combination of antipsychotics, and antidepressants is often used.

C. ***Delusional disorder***: These disorders are characterized by development of either a **single delusion** or a **set of related delusions**, which are usually persistent and sometimes are life long. Other psychotic symptoms like hallucinations, disorganization, negative symptoms are usually absent. If hallucinations occur they are for a very short duration, presence of frequent hallucinations goes against the diagnosis of delusional disorder. The following are the risk factors for development of delusional disorders:
   a. Advanced age
   b. Social isolation
   c. Sensory impairment or isolation (e.g. auditory or visual disturbances)
   d. Family history of delusional disorder
   e. Recent immigration
   f. Certain personality features, like excessive interpersonal sensitivity (even trivial interpersonal problems cause lot of negative emotions)

   The following are the types of delusional disorder:
   - ***Persecutory type***: Delusion of persecution.
   - ***Jealous type***: Delusion of infidelity.
   - ***Erotomanic type***: Delusion of love.
   - ***Somatic type***: Patient may have delusion that he is infested by parasites (**delusional parasitosis**), that he has misshaped body parts (delusion of dysmorphophobia) or that his body has a foul odor (**delusion of halitosis**).
   - ***Grandiose type***: Delusion of grandiosity.
   - ***Unspecified type***: In patients where the above-mentioned categories are not applicable. Delusion of misidentification is an example of unspecified type. Delusion of misidentification can be of many types like:

     Capgras syndrome: Patient believes that a familiar person has been replaced by an impostor. For example, a patient believed that his wife has been replaced by a stranger who looks exactly like his wife.
     - ***Fregoli syndrome***[Q]: Patient believes that a familiar persons are can change his physical appearance and disguise as a stranger, and that he can take multiple different appearances. For example, a patient saw a beggar, and claimed that his brother is following him in the guise of the beggar.
     - ***Syndrome of intermetamorphosis:*** Patient believes that people can undergo changes in physical and psychological identity and become a different person altogether.
     - ***Syndrome of subjective doubles***: Patient believes that he has many doubles who are living life of their own.

     The patients of delusional disorder are usually able to **function normally in domains which are unaffected by the delusion**. For example, a patient with delusion of infidelity may incessantly doubt his wife and fight with her, however he may be perfectly normal at work place.

     Treatment: Antipsychotics are the drug of choice.

D. ***Shared psychotic disorders (or induced delusional disorder)***: This disorder is characterized by spread of delusions from one person to another. The individual who has the delusion (the primary case) is typically the influential member of close relationship with a more suggestible person (the secondary case) who also develops the delusion. When two people are involved, the term **"folie a deux"** is used. Occasionally more than two individuals are involved (known as **folie a trois**, **folie a quatre**, etc.).

E. ***Attenuated psychosis syndrome***: Attenuated Psychosis Syndrome has been included in DSM-5 as a condition that needs further study before it can be included as an official diagnosis. The proposed criterion for this condition include, the following:
   1. At least one of the following symptoms is present in attenuated (less severe and transient) form, with relatively intact insight,—a. delusions b. hallucinations, c. Disorganized speech. [Here attenuated means that, for example, if delusions are present patient may appear suspicious at times (transient) but not always and he may be made to question his beliefs (less severe, not fixed)].
   2. Symptom(s) must have been present at least once per week for the past month.
   3. Symptom(s) must have begun or worsened in the past year.
   4. Symptom(s) is sufficiently distressing and disabling to the individual to warrant clinical attention.

Multiple Choice Questions

History

1. The term "Dementia praecox" was coined by: *(AI 2008)*
A. Freud B. Bleuler
C. Kraepelin D. Schneider

2. The term "schizophrenia" was coined by: *(DNB NEET 2014-15)*
A. Eugen Bleuler B. Emil Kraepelin
C. Hecker D. Kurt Schneider

3. The term "catatonia" was coined by:
A. Kahlbaum B. Freud
C. Maxwell D. Adler

4. Not a fundamental symptom of schizophrenia: *(FMGE 2018, NIMHANS 2018)*
A. Autism
B. Automatism
C. Association disturbances
D. Ambivalence

5. Schneiderian First Rank Symptoms are found in:
A. Schizophrenia *(PGI Nov 2011)*
B. Organic mental disorders
C. Schizoaffective disorder
D. Mood disorder
E. Delusional disorder

6. The American mathematician who got a Noble prize for game theory and also was a known case paranoid schizophrenia? *(NIMHANS 2018)*
A. John Nash B. Reinhard Selten
C. John Harsanyi D. Sylvia Nasar

Epidemiology

7. Schizophrenia is associated with which of the following personalities? *(AIIMS 1997)*
A. Athletic
B. Pyknic
C. Asthenic
D. All of the above

8. True about late onset schizophrenia: *(AIIMS Nov 2010)*
A. Onset is after 45 years
B. Onset is between 25-30 years
C. Prognosis is poor
D. Olfactory hallucinations are common

9. Maximum heritability is seen in which of the following illness? *(DNB 2005, MP 2004, WB 2003, UP 2001)*
A. Depression
B. Mania
C. Schizophrenia
D. Panic disorder

Etiology and Pathogenesis

10. Neurotransmitter related to the pathology of schizophrenia are: *(PGI 1997)*
A. Acetylcholine B. Dopamine
C. Serotonin D. Norepinephrine

11. Which of the following is not an environmental risk factor for schizophrenia? *(NIMHANS 2014)*
A. Cannabis use
B. Migration
C. Higher socioeconomic status
D. Obstetric complications

12. Schizophrenia is a common presentation in which genetic disease? *(NIMHANS 2013)*
A. Down's syndrome B. DiGeorge syndrome
C. Klinefelter's syndrome D. Neurofibromatosis

Controversial Question

13. Blood sample of a 45-year-old male shows increased levels of homovanillic acid (HVA). This patient is most likely suffering from: *(AIIMS Nov 2008)*
A. Dementia B. Schizophrenia
C. Depression D. Parkinson's disease

14. Schizophrenia is caused by overactivity in which of the following dopaminergic systems? *(NIMHANS 2014, DNB 2007)*
A. Nigrostriatal pathway
B. Tuberoinfundibular pathway
C. Mesolimbic/Mesocortical pathway
D. None of the above

15. True about schizophrenia is all except: *(NIMHANS 2016)*
A. Ambivalence
B. Hypodopaminergic state
C. Hyperdopaminergic state
D. Autism

Symptoms and Diagnosis

16. Which of the following is a first rank symptom in schizophrenia? *(JIPMER Nov, 2018)*
A. Delusions
B. Thought insertion
C. Hallucinations
D. Word salad

17. Which of the following is not a paranoid symptom?
A. Delusion of persecution *(NIMHANS 2017)*
B. Delusion of reference
C. Delusion of grandiosity
D. Thought alienation

18. Mutism and akinesia in a person in awake state is a feature of: *(AIIMS May 2017)*
A. Oneiroid state B. Stupor
C. Twilight state D. Delirium

19. Schizophrenia is characterized by all of the following symptoms except: *(AI 1993)*
A. Delusion of reference B. Delusion of control
C. Waxy flexibility D. Altered sensorium

20. The characteristic clinical manifestation of schizophrenia is: *(PGI 1998)*
A. Confusion B. Anxiety
C. Auditory hallucinations D. Visual hallucinations

21. Which of the following hallucinations is pathognomonic of schizophrenia? *(AIIMS 2K, Delhi 2003)*
A. Auditory hallucinations commanding the patient
B. Auditory hallucinations giving running commentary
C. Auditory hallucinations criticising the patient
D. Auditory hallucinations talking to the patient

22. Which of the following is not a risk factor for development of schizophrenia? *(NIMHANS 2019)*
A. Family history of bipolar disorder
B. History of childhood sexual abuse
C. Child born to a younger mother
D. Winter birth

23. Hallucinations in schizophrenia are characterized by all of the following except:
A. Hallucinations commanding and controlling action of the person
B. Hallucinations of voices, singing songs
C. Hallucinations are almost always continuous
D. Hallucinations commenting on action of the person

24. Which of the following sign is not a part of catatonia? *(AIIMS May 2015)*
A. Akathisia B. Ambivalence
C. Ambitendency D. Akinesia

25. All of the following are features of catatonia except: *(DNB NEET 2014-15)*
A. Automatic obedience B. Cataplexy
C. Catalepsy D. Negativism

26. Which of the following is the surest sign of schizophrenia? *(NEET 2016)*
A. Auditory hallucinations
B. Delusion of persecution
C. Thought broadcast
D. Visual hallucinations

27. The following are features of catatonic schizophrenia, except: *(MP 2000)*
A. Mutism
B. Echolalia
C. Waxy flexibility
D. Deep tendon reflexes are increased

28. In catatonic schizophrenia, which of the following sign is not found: *(PGI Dec 2008)*
A. Waxy flexibility B. Automatic obedience
C. Somatic passivity D. Gegenhalten
E. Hallucinations

29. True about schizophrenia: *(PGI 2003)*
A. Thought broadcasting B. Third person hallucinations
C. Violent behavior D. Elated mood
E. Good self care

30. All of the following are true about paranoid schizophrenia except: *(MP 1997)*
A. Most common type of schizophrenia
B. Onset in 3rd/4th decade
C. Delusion of grandeur is a symptom
D. Rapid deterioration of personality

31. Defect of conation is typically seen in: *(PGI 1997, AIIMS 1996, UP 2006)*
A. Simple schizophrenia
B. Hebephrenic schizophrenia
C. Catatonic schizophrenia
D. Paranoid schizophrenia

32. Stereotypic movements are: *(NEET 2018)*
A. Sustained posture against gravity
B. Passive inducible movements
C. Repetitive, spontaneous nonfunctional movements
D. Resistance to passive movements

33. Waxy flexibility is a characteristic sign of: *(NIMHANS 2013, Orissa 2004, Jharkhand 2006)*
A. Excitatory catatonia
B. Stuporous catatonia
C. Obsessive compulsive disorder
D. All of the above

34. Early onset and bad prognosis is seen in: *(NIMHANS 2012, AIIMS 1991)*
A. Catatonic schizophrenia
B. Hebephrenic schizophrenia
C. Paranoid schizophrenia
D. Undifferentiated schizophrenia

35. Schizophrenia with late onset and best prognosis: *(NEET 2016, DNB NEET 2014-15)*
A. Simple schizophrenia B. Hebephrenic schizophrenia
C. Catatonic schizophrenia D. Paranoid schizophrenia

36. Good prognosis in schizophrenia is indicated by:
A. Soft neurological signs *(PGI 1998)*
B. Affective symptoms
C. Emotional blunting
D. Insidious onset

37. A 30-year-old female was diagnosed with paranoid schizophrenia. Her father wanted to know about the poor prognostic factors. Which of the following is a poor prognostic factor? *(NIMHANS 2018)*
A. Married
B. Female gender
C. Insidious onset
D. Concomitant mood disorder

38. Prognosis of schizophrenia is less favorable in the following clinical scenario: *(MCI Screening)*
A. Occurring in women
B. Anxiety is prominent
C. Emotional blunting is present
D. In presence of rapid onset of psychosis

Answers With Explanations

History

1. C. Kraepelin.
2. A. Eugen Bleuler.
3. A. Kahlbaum.
4. B. Automatisms are usually a feature of epilepsy. They are apparently meaningful behaviors, for which patient doesn't have any memory later on. They are not seen in schizophrenia.
5. A, B, C, D, E.
   Although, SFRS were described in relation to schizophrenia, however they are not specific to schizophrenia. They can be found in all the disorders mentioned in this question. However, if it was not a PGI question, and only option had to be chosen, it would be schizophrenia.
6. A. John Nash was a famous mathematician who later developed Paranoid Schizophrenia. A movie called 'A beautiful mind' was also made and was based on the life of John Nash.

Epidemiology

7. C. Asthenic.
8. A. Onset is after 45 years.
9. C. Schizophrenia. Amongst psychiatric disorders, highest heritability is seen in autism spectrum disorders. Schizophrenia and bipolar disorder too have high heritability.

Etiology and Pathogenesis

10. A, B, C, D.
11. C. Higher socioeconomic status is not a risk factor.
12. B. DiGeorge syndrome.
13. B. The HVA is a metabolite of dopamine and dopamine is usually increased in schizophrenia. A large number of studies have found that levels of HVA are increased in schizophrenia.
14. C. Strictly speaking, only positive symptoms are caused by dopaminergic excess in mesolimbic pathway.
15. B. Hypodopaminergic state. The best answer here is B. Although now we know that negative symptoms are caused by a hypodopaminergic state in mesocortical tract, however the traditional hypothesis that schizophrenia is caused by dopaminergic excess, should be given preference while answering such questions. Ambivalence and autism are of course symptoms of schizophrenia.

Symptoms and Diagnosis

16. B. Thought insertion.
17. D. The term 'paranoid' is often used as a substitute for the term 'persecutory' hence paranoid delusions usually means Delusion of persecution but strictly speaking the term 'paranoid' means 'delusional'. Hence all delusions are paranoid symptoms (Reference Fish's clinical psychopathology)
18. B. Stupor
    In stupor, patient is minimally responsive (including lack of speech output, i.e. mutism) and immobile (akinesis).
19. D. Please remember altered sensorium (or clouding of consciousness) is a sign of delirium. This is a frequently repeated question.
20. C. Auditory hallucinations are the most common type of hallucinations in schizophrenia and the third person auditory hallucinations are quite characteristic for schizophrenia.
21. B. Actually, the correct answer is none. No single symptom or sign is pathognomonic of schizophrenia. However, earlier, the Schneider's first rank symptoms were considered to be pathognomonic. Hence the best answer here is B.
22. C. Younger maternal age at time of birth is not a risk factor for development of schizophrenia.
23. C. Hallucinations in schizophrenia are usually not continuous.
24. A. Akathisia is a side effect of antipsychotics. Ambivalence might be confusing here, but please remember ambitendency is nothing but ambivalence of motor movements. Akinesia, which is lack of voluntary movements is another term for stupor.
25. B. Cataplexy is a feature of narcolepsy.
26. C. Thought broadcast. The language of this question is tricky. As such there is no pathognomonic or 'surest' sign of schizophrenia. However, if we have to choose, thought broadcast would be the best answer as presence of thought broadcast will be enough to diagnose schizophrenia if duration criterion is also met. Rest three options are not enough by themselves to make the diagnosis of schizophrenia.
27. D. Deep tendon reflexes are increased.
28. C, E.
    The other three options are classical catatonic signs. While in catatonic schizophrenia, hallucinations and delusions can be seen, however they are not prominent.
29. A, B, C.
    Schizophrenic patients are much more likely to engage in violent acts in comparison to those without schizophrenia.
30. D. Rapid deterioration of personality.
31. C. Catatonic schizophrenia.
32. C. Repetitive, spontaneous nonfunctional movements.
33. B. Stuporous catatonia has stupor as a prominent symptom. Waxy flexibility is seen in stuporous catatonia more commonly.
34. B. Hebephrenic schizophrenia.

Review of PSYCHIATRY

Salient Features

- Fully updated with ICD-11
- Updated with INI-CET pattern questions
- Updated with recently asked topics like Mental Healthcare Act
- Concise theory
- Genuine questions with explanations
- Controversial questions fully explained
- Includes image-based questions
- Written in a simple, easy-to-understand language
- Latest questions with explained referenced answers

Praveen Tripathi MBBS MD is a leading psychiatrist practising in Delhi-NCR. He is currently working as Director at The Renowa Care, Noida, Gautam Buddha Nagar, Uttar Pradesh, India. His areas of interest includes Adult Psychiatry, Deaddiction and Sexual Disorder. He is routinely cited in electronic and print media. He has conducted various workshops with esteemed institutions like CISF, The British School, etc. and is closely working with various Indian corporators. Dr Tripathi is also an avid researcher and has a large number of National and International publications to his credit.

He has been teaching psychiatry to the undergraduates and postgraduates for the last 5 years and is widely recognized as a teacher, who can simplify the complex subject of psychiatry. His unique teaching method, which focuses on building a conceptual framework and inclusion of a large number of real-life examples, has made him very popular amongst the students.

This book is a result of his efforts to reach as many as students as possible and make the process of learning psychiatry a simple and happy one.

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