



Schizophrenia & Other Psychotic Disorders



- Features.
- DDx
- Schizophrenia.
- Other Psychotic disorders
- Substance-Induced Psychosis.
- Personality Disorders (cluster A).

Aggressive Patient

Antipsychotics

ECT

صحيفة سبق الإلكترونية - الرياض (٢٧ محرم ١٤٣٤ هـ): اقترح مريض نفسي فجر أمس الاثنين كلية الملك فهد الأمنية بالرياض بسيارته، ودخل للميدان الرئيسي أثناء وجود طلبة الكلية، وقام بالتفحيط. وكشفت مصادر "سبق" أن المريض النفسي عسكري (سبق فصله)، وبعد التفحيط توقف، ثم ترجل من سيارته وصعد للمنصة الرئيسية ورفع الأذان. وكان قد اقتحم الكلية بعد كسر العمود الخاص بالدوابة الشرقية للكلية، فيما تم إلقاء القبض عليه، وإحالاته للجهات المختصة.



Ahmed is a 28-year-old single man was brought by his father to Emergency Department with 7 months progressive history of: 1. Talking to himself with giggling and grimacing. 2. Staring at the roof of his room. 3. Over-suspiciousness (e.g. his family may poison his food). & 4. Agitation.
Past history: Several psychiatric hospitalizations because of disturbed behavior and perception (hearing non-existent distressing voices commenting on his action).



Saleh, what do you know about **psychotic disorders**?

What are the **clinical features** of psychotic disorders?

Psychotic Disorders are mental illnesses characterized by gross impairment in reality testing and personal functioning as evidenced by disturbances in thinking (delusions), perception (hallucinations), or behavior (e.g. violence). Examples: schizophrenia, severe mood disorders, delusional disorders.

Defects in	Examples
Behavior	Abnormal movements/posture/smile/laughter
Perception	Hallucinations
Thinking	Delusions/concrete thinking/loose association
Insight	Denial of mental illness
Judgment	Reckless/dangerous decisions
<i>Not all mental functions are defected in all patients.</i>	



Great! that means you have reviewed (signs & symptoms) p 17 -21. Pay more attention to **delusions** and **hallucinations** (the main signs of ...)



Saleh, tell us about **DDx** of psychotic disorders

Well, there are organic & functional causes of psychosis. I can simplify them in the table below:



Psychosis due to medical/organic causes:

Delirium/dementia/ CNS infections / frontal lobe pathology / temporal lobe epilepsy.
 Medications (e.g. steroids, bromocriptine, L-dopa).
 Autoimmune D. (e.g. SLE).
 Substance-induced psychosis e.g.: stimulants, cannabis, alcohol...e.t.c
Features: like functional psychosis (but hallucinations; visual > auditory + cognitive impairment)

Functional psychosis:

1. Brief Psychotic disorder.
2. Schizophreniform disorder.
3. Delusional disorders.
4. Schizophrenia.
5. Schizoaffective disorders.

Personality Disorders:

Paranoid, schizoid, schizotypal, and borderline personality disorders may confuse or co-occur with psychotic disorders.

Brief Psychotic Disorder: an acute and transient psychotic condition that lasts ≥ 1 day but ≤ 1 month and not induced by an organic cause. Common features include paranoid delusions, hallucinations, emotional volatility, odd behavior, & screaming. It may be triggered by stress (e.g. death of a relative). Remission is full, and the individual returns to the premorbid level of functioning. It occurs among young (20- 40 years) > old patients. Comorbidity: personality disorders (most commonly, borderline personality disorders, paranoid, schizoid, schizotypal). Patients have a biological or psychological (inadequate coping mechanisms) vulnerability for the development of psychotic symptoms. **DDx**: substance-induced psychosis, manic episode, and PTSD (see later). **Management**: brief hospitalization for protection, evaluation, & antipsychotic treatment; e.g. haloperidol 10 mg or olanzapine 10 mg). ECT for postpartum psychosis. **Prognosis**: varies some patients show no further major psychiatric problems and others progress to mood disorders or schizophrenia.

If the onset is within 4 weeks after delivery, it is called "**Postpartum Psychosis**". It is uncommon (about 1 in 500 birth). The most common form is affective psychosis (70 %). It begins 2-4 days after delivery. More frequent among primiparous women, those with family history of psychiatric illness and those with previous major psychiatric disorders. The clinical features include disturbed mood, perplexity, excitement, restlessness (or withdrawal), excessive guilt, disturbed thinking and suicidal and infanticidal threats. Schizophrenia-like psychosis occurs in about 25 % of cases who usually remain chronically ill. About 5 % of patients develop delirium. **Treatment**: hospitalization **ECT** (Its rapid effect enables the mother to care for her baby). Drugs: antipsychotics (e.g. risperidone 4 mg).

Schizophreniform Disorder: Similar features to those of brief psychotic disorder but the duration is > 1 month & < 6 months. **DDx:** manic episode, substance-induced psychosis.

Management: brief hospitalization for protection, evaluation, & antipsychotic treatment; e.g. risperidone 4mg. for 3- to 6-month course. Patients respond to antipsychotic treatment much more rapidly than patients with schizophrenia. **Prognosis:** recurrence is high as well as progression to schizophrenia.

Delusional Disorders: ≥ 1- month systematized delusion(s) (such as being persecuted, followed, loved at a distance, or deceived by spouse). Patients usually do not have prominent or sustained hallucinations. Patients' moods are consistent with the content of their delusions (a patient with grandiose delusions is euphoric). **Types:** **Persecutory type:** delusions that the person (or someone to whom the person is close) is being malevolently treated in some way. **Grandiose type:** delusions of inflated worth, power, knowledge, identity, or special relationship to a deity or famous person. **Jealous type:** delusions that the individual's sexual partner is unfaithful. **Erotomaniac type:** delusions that another person, usually of higher status, is in love with the individual. **Somatic type:** delusions that the person has some physical defect or general medical condition. **Mixed type:** delusions characteristic of more than one of the above types but no one theme predominates. **Unspecified type.** **DDx:** schizophrenia, schizoaffective, mood disorder, organic psychosis. **Treatment:** in-patient or outpatient, antipsychotics oral or depot (long acting IM injections e.g. clopixol 200 mg / month) if patient is not compliant with oral medications. Insight-oriented, supportive, and cognitive therapies are often effective. **Prognosis:** varies depending on many factors (type of delusion, personality, psychosocial stresses, and treatment).

Affective (Mood) Disorders: Manic episode or major depressive episode with psychosis. Note that in mood disorders: hallucination and delusions are mood – congruent and usually develop after the mood disturbance. The course of mood disorders is fluctuating: (repeated episodes of mood disturbance with normal periods in between) see later; module -4; Mood Disorders.

High mood		mania			
Normal mood					
Low mood				depression	

Schizoaffective Disorder: Concurrent presence of mood disturbance (depressive or manic episodes) and psychotic features (delusions or hallucinations, for at least 2 weeks in the absence of prominent mood symptoms during some phase of the illness).

High mood		mania			
Normal mood			+ 2 w(delusion or hallucinations)		
Low mood				depression	

DDx: mood disorders, substance-induced psychosis, delusional disorders, and schizophrenia. **Treatment:** an antipsychotic (e.g. olanzapine 10 mg) for psychotic features, mood stabilizer (e.g. sodium valproate 500 mg twice/day), and when depressed an antidepressant (e.g. fluoxetine 20 mg) can be added. **Prognosis:** it has a better prognosis than schizophrenia and a worse prognosis than mood disorders.



Schizophrenia: ≥ 6 months duration of disturbance (including the prodromal and residual phases). ≥ 1 month period of psychotic features with 2 out of 5: delusions/hallucination/disorganized speech (e.g. incoherence) / or disorganized behavior/ catatonic features or negative features (e.g. flat affect). Significant functional impairment (occupational, social, academic...etc.) Exclusion of other psychotic disorders (see above; the differential diagnosis).

There are no specific limited pathognomonic features for schizophrenia. The best starting point is to study simplified descriptions of two variants; the acute and the chronic presentations of schizophrenia.

Epidemiology: Worldwide lifetime prevalence is about 1 %. Worldwide, 2 million new cases appear each year. Incidence is about 20 per 100,000 per year. The lifetime risk of developing schizophrenia is about 1%. Most common between 15 - 35 years. Paranoid type: later onset than other types. Sex ratio is 1: 1 Median age at onset: Males = 28 years, Females = 32 years.



Acute Schizophrenia

Presence of **active/positive** features :

- Prominent Delusions (paranoid - bizarre)
- Prominent Hallucinations: (3rd or 2nd but with derogatory content)
- Disorganized thinking and speech.
- Disturbed behavior +/- aggression.
- Incongruity between affect thinking and behavior.

Chronic Schizophrenia

Presence of **negative features** :

- Poor self-care and hygiene.
 - Lack of initiative and ambition.
 - Social withdrawal.
 - Poverty of thought and speech.
 - Restricted or apathetic affect.
 - Cognitive deficit.
 - Loose association >>> Word salad.
- Delusions and hallucinations become less prominent.



What is the cause of schizophrenia?

No single etiological factor is considered causative. The model most often used is that the person who develops schizophrenia has a specific biological vulnerability (or diathesis) that is triggered by stress and leads to emergence of schizophrenic symptoms.



Etiology:

1. Genetic:

- Single gene (serotonin receptor on chromosomes 5, D4 dopamine receptor gene on chromosome 11).
- Polygenic theory appears to be more consistent with heterogeneity of the presentation of schizophrenia.
- Consanguinity:
 - Incidence in families is higher than in general population.
 - Monozygotic twin concordance rate is greater than dizygotic concordance rate (50 % , 15 % respectively).
 - Adoptive Studies: Test for genetic versus environmental influence by examining rates of schizophrenia in adopted away offspring and of normal parents. (10 % from schizophrenic parents versus 0 % from normal parents).

• Family Studies :

Morbid Risk	Relationship to Schizophrenic
14 %	Child of one schizophrenic parent
46 %	Child of two schizophrenic parents
10 %	Sibling
5 %	Parents



2. Neurobiological:

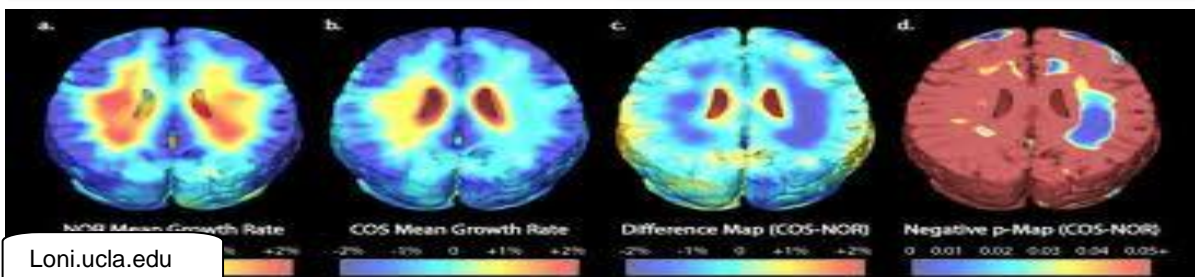
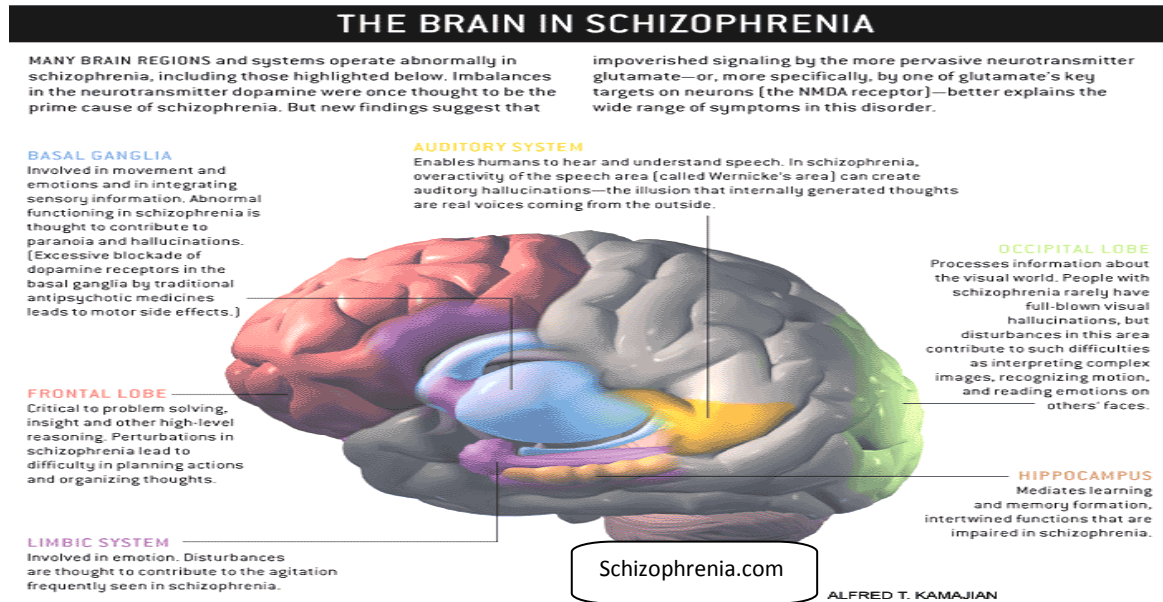
- Dopamine hypothesis : schizophrenic symptoms are in part a result of increased dopamine activity in mesolimbic & mesocortical pathways.
- Serotonin hypothesis: abnormal serotonin metabolism in some patients.
- Disturbed balance between dopamine and serotonin as supported by the new generation of antipsychotics (dopamine-serotonin antagonists).
- Glutamate hypothesis:
 - Glutamate hyperactivity causes glutamate-induced neuro- toxicity.
 - Glutamate hypoactivity. It has been implicated because ingestion of phencyclidine, a glutamate antagonist, produces an acute syndrome similar to schizophrenia.
- GABA hypothesis: the loss of inhibitory GABAergic neurons could lead to the hyperactivity of dopaminergic neurons. Some patients with schizophrenia have a loss of GABAergic neurons in the hippocampus.

3. Neuropathology and Neuroimaging :


- CT scan studies: Cortical atrophy in 10 - 35 %. Enlargement of the lateral and third ventricles in 10-50%.
- Findings correlate more with negative features and with cognitive impairments.
- MRI and PET (Positron Emission Tomography): Abnormal frontal, parietal and temporal lobe structure and metabolism.

4. Psychosocial and Environmental:

- A. Life Events:** Life stressors, particularly in the three months before onset, can induce schizophrenia in those who are vulnerable. **B. High Expressed Emotions (EE)** of the family (critical comments and emotional over-involvement). Patients whose families have high expressed emotions have higher relapse rate than those whose families have low expressed emotions.



Management: Bio-Psycho-Social approach / Multidisciplinary team.

Hospitalization	Medications	Psychosocial
<p>It is usually indicated in the acute phase in order to:</p> <ul style="list-style-type: none"> - Clarify diagnosis (rule out possible organic causes). - Control the disturbed behavior. - Protect patient and / or others (risk of dangerousness or suicide; close 1:1 nurse observation).  <p>- Give electroconvulsive therapy (ECT) for catatonic type, those with concomitant depression and in resistant cases.</p>	<p>Antipsychotics:</p> <p>e.g. haloperidol (10 - 20 mg) or olanzapine (10 - 20 mg).</p> <p>Adjust the dose based on the response and side effects.</p> <p>See antipsychotics down for further details.</p>	<ul style="list-style-type: none"> - Family therapy, education, and explanation can significantly reduce relapse rate and high-EE family interaction can be diminished. Compliance may also be enhanced. - Supportive therapy and counseling. - Rehabilitation (Community - based process): <ol style="list-style-type: none"> 1-Social skill training (e.g. self-care). 2-Illness-management skills (e.g. when to take medication). 3-Vocational rehabilitation (for more stable cases). - Token economy: Positive and negative reinforcement are used to alter patient's unacceptable behavior.

Course and prognosis: Patient may recover from the active psychotic phase but complete return to normal level of functioning is very unusual. The common course is one of acute exacerbations with increasing residual impairment between episodes. The longitudinal course is that of downhill nature (disintegration of personality and deterioration of mental abilities and psychosocial functioning).

Prognostic Factors:

Good Prognostic Factors	Bad Prognostic Factors
<ul style="list-style-type: none"> • Late onset • Acute onset • Obvious precipitating factors • Good premorbid personality • Presence of mood symptoms (especially depression) • Presence of positive symptoms • Good support (married, stable family) 	<ul style="list-style-type: none"> • Young age at onset • Insidious onset • No precipitating factors • Poor premorbid Personality • Low IQ • Many relapses • No remission in 3 years • Poor compliance • Negative symptoms • Poor support system • Family history of schizophrenia • High EE family

In general; third>>>good prognosis, third>>>poor prognosis, & third>>>Intermediate prognosis.

Community Psychiatry

أسئلة شائعة من أقارب المرضى

هل يعفى المريض العقلي المريض من المسؤولية القانونية و الجنائية؟ وهل يحجر عليه؟

- ليس كل مرض عقلي يسلب المريض مسؤوليته عن تصرفاته وأخطائه أو يبرر الحجر عليه.

- لكل حالة وضعها الخاص بها، تنظر فيها الجهات المختصة (لجان شرعية أمنية طبية) مع الاهتمام بالتقييم الطبي النفسي للحالة العقلية للمريض بكافة الوظائف العقلية (خصوصاً إدراك حقيقة الواقع والاستبصار بالمرض والقدرة على تمييز الأمور وضبط التصرفات).

هل يستطيع المريض العقلي أن يتوظف؟

- يختلف الحال باختلاف ظروف المرضى (قدرات المريض وطبيعة أعراضه ونحو ذلك).

- رغم وجود عبء نفسي في العمل إلا إن له أثراً نفسية إيجابية إذا تم اختياره بما يلائم وضع المريض.

هل يستطيع المريض العقلي الزواج؟

- يختلف الحال باختلاف ظروف المرضى (شدة الحالة واستجابتها للعلاج و وجود الدعم الأسري والمتابعة الطبية المستمرة) فمن المرضى من يناسبه الزواج ويكون عامل استقرار لحالته ومنهم من قد يزيد حالته شدة.

- يعد الزواج وتكوين أسرة ورعايتها عبئاً نفسياً على كثير من المرضى ، وبعضهم ليس لديه دافع قوي لذلك (في حين يبالغ بعض الناس في المجتمع في أن الزواج هو الحل الأمثل للمريض العقلي).

رابط فيلم تثقيفي عن الفصام إصدار وزارة الصحة <https://www.youtube.com/watch?v=dPaR7Z7DGeA>

Psychosis induced by Stimulants (amphetamine [captagon], cocaine [crack]).

Rakan is a 20-year-old male brought to Emergency Department by police who arrested him because of reckless driving (drifting with high speed) and violent behavior. He looked over-suspicious, agitated, and over-talkative.



Main features:

- Suspiciousness .?→ paranoid delusion.
- Hallucinations (visual > auditory).
- Overconfidence > grandiosity.
- Hyperactivity / agitation/ hypervigilance.
- Euphoria or irritable mood.
- Insomnia.
- Confusion and incoherence.

Treatment: Inpatient setting.

Symptomatic use of an antipsychotic medication e.g. olanzapine 10-20mg. For 4- 6 months). Upon abstinence some patients develop headache and depression, and may require antidepressants (e.g. paroxetine 20 mg/ day or 6 months). Psychotherapeutic methods (individual, family, and group psychotherapy) are usually necessary to achieve lasting abstinence.

However , it can be indistinguishable from functional psychosis (e.g. brief psychotic disorder, schizophreniform), and schizophrenia) and only the resolution of the symptoms in a few days or a positive finding in a urine drug screen test eventually reveals the diagnosis.

Psychosis induced by cannabis (marijuana/ hashish)



Bandar is a 32-year-old male brought to outpatient clinic by his concerned wife because of recurrent brief periods of being over-suspicious, euphoric, and talkative. He admitted abusing cannabis in the week-ends.

Main features:

Transient paranoid ideation is more common than florid sustained psychosis.

- Features may be correlated with a preexisting personality disorder.
- Impaired memory.
- Impaired psychomotor performance.
- +Reddening of the conjunctiva.
- +Respiratory tract irritation



Treatment: Usually outpatient setting.

Short-term symptomatic use of an antipsychotic medication (e.g. risperidone 2- 4 mg /day for 4- 6 months).

Psychotherapeutic methods (individual, family, and group psychotherapy) are usually necessary to achieve lasting abstinence.

Cannabis may trigger anxiety / panic attacks & can induce delirium. Following discontinuation of cannabis, some patients may develop depressive features. Chronic use of cannabis can lead to a state of apathy and amotivation (**amotivation syndrome**) but this may be more a reflection of patient's personality structure than an effect of cannabis.

Personality Disorders relevant to psychosis (cluster A personality disorders)DSM-IV

Ameer is a 28-year-old newly married man came with his wife to psychiatry clinic for marital therapy. He has a chronic sense of insecurity, suspiciousness towards others, and difficulties in initiating and maintaining relationships.



General Criteria for personality disorders: Lifelong pervasive disturbances in interpersonal relationships/behavior/emotional reactions/ adaptation to stress/or impulse control. Lead to functional impairment /significant distress. Age : > 18 years (21 years). Not due to other causes.

Classification of personality disorders: **Cluster A** (Odd thinking); 1. Schizoid, 2-Paranoid, 3-Schizotypal. **Cluster B** (Dramatic behavior); 1- Borderline. 2-Antisocial. 3-Narcissistic . 4- Histrionic.

Cluster C (Fearful): 1-Avoidant . 2.Dependent . 3.Obsessive Compulsive.

Paranoid Personality Disorder:

Excessive mistrust /suspiciousness of others' motives (even friends & associates) without sufficient basis. Exaggerated bearing of grudges persistently (e.g. insults, slights, injuries).

DDx; other personality disorders and psychotic disorders.

Coping style: Guarded and protective of their autonomy, often with arrogant belief in their own superiority.

Defense Mechanisms: *Splitting:* Self and others are seen as all good or all bad. *Denial:* Refusal to admit painful realities . *Projection:* Ascribe to others one's own impulses. *Projective identification:* Project one's impulses plus control of others as a way to control one's own impulses.

Patient concern: Exploitation and betrayal.

Approach: Acknowledge complaints without arguing and honestly explain medical illness.

Treatment: Psychotherapy + Antipsychotics (e.g. olanzapine 10 mg).

Schizoid Personality Disorder:

Social isolation (with self-sufficiency), indifference to praise, criticism and feelings of others, choosing solitary activities and jobs, and poor social skills.

DDx; other personality disorders and psychotic disorders.

Coping style: Inner world insulated from others.

Defense Mechanisms: *Denial and splitting:* See above. *Isolation of affect:* Thoughts stored without emotion. *Intellectualization:* Replace feelings with facts. *Fantasy* : obtaining gratification through excessive day dreams.

Patient concern: Violations of privacy.

Approach: Accept his unsociability and need for privacy. Reduce the patient's isolation as tolerated

Treatment: Psychotherapy + Antipsychotics (e.g. olanzapine 10 mg).

Schizotypal Personality Disorder:

Odd patterns of thinking, speech, belief, behavior or appearance compared to the social norms, unusual perceptual experiences (e.g. bodily illusions), superstitious thinking or claim powers of clairvoyance, and Idea of reference.

DDx; other personality disorders and psychotic disorders.

Defense Mechanism:

Regression: Revert to childlike thoughts, feelings, and behaviors. *Denial, splitting, and fantasy:* See above.

Patient concern:

Exploration of oddities.

Approach: Empathize with the patient's oddities without confrontation.

Treatment: Psychotherapy + Antipsychotics (e.g. olanzapine 10 mg).

For details about personality disorders & defense mechanisms:
كتاب " ما تحت الأقنعة ، اعرف شخصيتك وشخصيات من تعرف " أ د محمد الصغير



AGGRESSIVE / VIOLENT PATIENT

صحيفة سبق الأليكترونية- مكة المكرمة (٢٧ محرم ١٤٣٤ هـ) : أكدت جماعة المسجد أن الجاني كان حريصاً على الصلاة في المسجد جماعة ولا يفارقها، ويواصل مكوثه بالمسجد بعد الفجر يقرأ القرآن إلى طلوع الشمس ، وأم المصلين فيه عدة فروض، وشهد في الفترة الأخيرة تغيرات نفسية، وكان يراجع مستشفيات للصحة النفسية، وفي يوم الجريمة قابل الباكستاني في الطريق، وأطلق عليه النار وأرداه قتيلاً، ومن ثم دخل المسجد ويده المسدس وباليه الأخرى عصي، وطلب من المصلين الخروج من المسجد، وهو يردد "اليوم ذبح"، وقتل الضحية الثانية، وطرد إمام المسجد بعد أن حاول ضربه، وأغلق على نفسه الباب وأوضحوا أنه تمت محاصرة الموقع من قبل الجهات الأمنية ، وبعد مفاوضات مع الجاني باءت بالفشل تدخلت الجهات الأمنية بقيادة قوات الطوارئ الخاصة، ودخلت المسجد ، وسيطرت على الجاني بعد محاصرته من أذان العصر إلى ما بعد صلاة العشاء ، مستخدمة الغازات المسيلة للدموع ، وشهد الموقع وجود مساعد مدير شرطة العاصمة المقدسة لشؤون الأمن.



Aggressive patients are frequently seen in emergency departments and in the medical and psychiatric wards.

DDx of Causes:

1. Brief psychosis /schizophreniform disorder /acute schizophrenia.
2. Substance abuse (intoxication / withdrawal).
3. Acute organic brain syndrome (e.g. delirium).
4. Mood disorders; mania - severe agitated depression.
5. Personality disorders (e.g. borderline personality disorder).

Approach:

- Arrange for adequate help.
- Appear calm and helpful.
- Avoid confrontation.
- Take precautions:
 - Never attempt to evaluate an armed patient.
 - Other persons should be present (security guards or police officers).
 - Keep the door open for an unavoidable exit.
 - Restraints if needed by an adequate number of people using the minimum of force.
 - Carefully search for any kind of offensive weapon.
- Aim to save patient and others.
 - Anticipate possible violence from hostile, threatening behavior and from restless, agitated abusive patient.
- Do not bargain with a violent person about the need for restraints, medication or psychiatric admission.
- Reassure the patient and encourage self-control and cooperation.

Medications:

Major Tranquilizers e.g. :

Olanzapine 5-10mg IM,
(Haloperidol 5 - 10 mg IM or
Chlorpromazine 50 - 100 mg IM.)

Benzodiazepines: e.g. diazepam 5-10 mg (slow IV infusion to avoid the risk of respiratory depression). However, benzodiazepines may aggravate hostile behavior in certain susceptible people (release of inhibitory mechanisms).

Hospitalization:

For further assessment and treatment.



Restraint Technique: Enough staff should be available. If restraint becomes necessary, assign one team member to the patient's head and to each extremity. Be humane but firm, and do not bargain, start together to hold the patient and accomplish restraint quickly.

[youtube.com/watch?v=8zXsNEf7DuI](https://www.youtube.com/watch?v=8zXsNEf7DuI)

Antipsychotic Medications

Indications:

A.Functional psychosis: schizophrenia, schizoaffective disorders, schizophreniform disorder, brief psychotic disorder, mania, postpartum psychosis, psychosis with depressed mood, and delusional disorders.

B.Organic psychosis: psychosis induced by medications, substance abuse, delirium, and dementia.

C.Violence/aggression, agitation, and excitement.

First Generation Antipsychotics [FGAs] (Also called conventional, typical, or traditional antipsychotics).

Chlorpromazine (Largactil) was the first drug (in the mid-1950s) that significantly reduced symptoms of psychosis. Then, other drugs with similar clinical effects were introduced; haloperidol, sulpiride, ...).

Mechanism of action; high blockade of dopamine receptors type 2 (D₂).

Therapeutic effect: in the mesolimbic pathway D₂ blockade reduces active psychotic features. This may take up to 6 weeks to appear).

Adverse effects: (may appear within hours - weeks)

Antidopaminergic S/E; 1. In Nigrostriatal tract >>> EPSE (because of the resulting hypercholinergic effect, which manifests in skeletal muscle spasms. These side effects, in contrast to Parkinson's disease, are better treated with anticholinergic medications rather than dopaminergic drugs). **2. In Tuberoinfundibular tract >>> hyperprolactinemia** (dopamine inhibits prolactin release from the anterior pituitary. Thus, antidopaminergics induce excessive prolactin secretion, which lead to gynecomastia and amenorrhea. Some gynecologists prescribe dopaminergic medications (e.g. bromocriptine) to reverse amenorrhea in psychotic females, which may aggravate their psychosis). **3. In Mesocortical tract >>> reduced concentration, low initiation, lack of motivation, and restricted affect.**

Anticholinergic S/E; dry mouth, constipation, urinary retention, poor erection, blurred vision, and precipitation of closed-angle glaucoma.

Antiadrenergic S/E; postural hypotension and inhibition of ejaculation.

Antihistaminergic S/E; sedation and weight gain.

Second Generation Antipsychotics [SGAs] (Also called novel or atypical antipsychotics). **SGAs;** olanzapine (Zyprexa), quetiapine (Seroquel), clozapine (Clozaril). ; risperidone (Risperdal), paliperidone (Invega), and ziprasidone (Geodon).

Mechanism of action; blockade of dopamine and serotonin (5HT A₂) receptors.

Therapeutic effects; More specific for the mesolimbic than nigrostriatal dopamine system >>> less EPSE. In the mesocortical tract blockade of 5HT A₂ enhances dopamine function (5HT inhibits dopamine) >>> improve negative symptoms of psychosis: low initiation, lack of motivation, and restricted affect. They improve *both positive and negative* symptoms of psychosis and can help some *resistant* cases.

Adverse effects; Less EPSE, antiadrenergic, anticholinergic S/E. but there is a high risk of metabolic syndrome (see down).

Third Generation Antipsychotics

Dopamine System Stabilizers [DSS].


Aripiprazole: Unlike the SDAs, it is not a D₂ antagonist, but is a partial D₂ agonist; in mesolimbic it competes with dopamine (functional antagonism) >>> less active symptoms. However, in the mesocortical tract it acts like the SDAs. It does not increase weight and is usually non-sedating but somnolence may occur in some patients. Side effects include agitation, anxiety, headache, insomnia, dyspepsia, and nausea. Seizures have been reported. Prolactin elevation does not typically occur. Aripiprazole does not cause significant QT_c interval changes.



Medication	First GAS	Second GAS				Third GAS
Side effects	Haloperidol (Haldol) 10 mg	Risperidone (Risperdal) 4 mg	Olanzapine (Zyprexa) 10 mg	Quetiapine (Seroquel) 200mg	Clozapine (Leponex) 400mg	Aripiprazole (Abilify) 15 mg
						
	18 SR / 25 tablets	582 SR / 60 tablets	314 SR / 28 tablets	665 SR / 30 tablets	156 SR / 50 tablets	225 SR / 28 tablets
EPSE	++ to +++	0 to ++ (> 6 mg)	0	0	0	0 +
Sedation	+ to +++	+	+	+	+++	0
Weight gain	0 to ++	+	+++	+	+++	0
Prolactin increase	++ to +++	+ to ++	0 to +	0	0 to +	0
Orthostatic hypotension	+ to +++	+	+	0	+ to +++	0
Agranulocytosis	0	0	0	0	+++	0
Prolonged QT In ECG	0 to ++	+	0	+	0	0
Seizures	+	0	+	0	+++	+
Anticholinergic S/Es	++ to +++	0	+	0	+++	0
Advantages	Effective on active symptoms Cheap.	Effective on negative features	Effective on negative features	No hyperprolactinemia	Effective in resistant cases.	No wt gain No hyperprolactinemia
Disadvantages	Severe EPSE + Many other S/Es	Hyperprolactinemia + metabolic syndrome	Metabolic syndrome	Metabolic syndrome	Metabolic syndrome + Agranulocytosis (check WBCs). + High risk of seizures	Insomnia + Agitation

DEPOT (SLOW RELEASE) ANTIPSYCHOTICS: These are long-acting antipsychotic drugs, given as deep intramuscular injections to patients who improve with drugs but cannot be relied on to take them regularly by mouth (i.e. poor compliance). Such patients usually suffer from either; chronic schizophrenia, delusional disorders, or schizoaffective disorder. A test dose is usually given ($\frac{1}{4}$ - $\frac{1}{2}$ the dose) to check patient's tolerability. Depot injections are released slowly in 1 – 8 weeks.

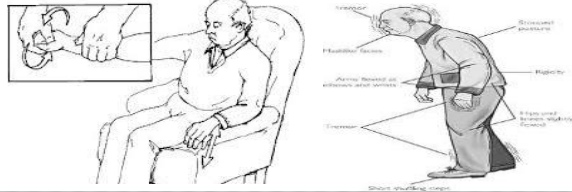
- Risperdal consta: 25-50 mg./2weeks.
- Zuclopenthixol decanoate (Clopixol) : 200 – 600 mg. /month.
- Flupenthixol decanoate (Depixol – Fluanxol): e.g. 20 – 100 mg / month.
- Haloperidol decanoate (Haldol) : 200 – 400 mg. / month.
- Fluphenazine decanoate (Anatensol – Modecate): e.g. 25 – 75 mg / month.

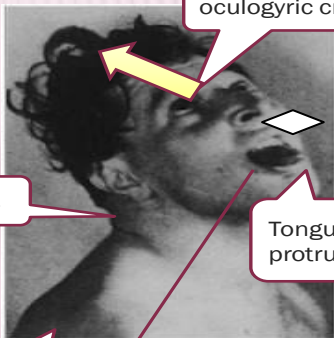


Extra-Pyramidal Side Effects (EPSE)

1- Acute dystonia: appears within days after Rx. Severe painful spasm of neck muscles (torticollis), ocular muscles (oculogyric crisis) muscles of the back (opisthotonus) and tongue protrusion. Treated with anticholinergic drugs (e.g. procyclidine 5 – 10 mg IM or P.O.).

2- Parkinsonism: appears within weeks after treatment, its features: stooped posture, akinesia, muscle rigidity, masked face, and coarse tremor. Treated with anticholinergic drugs (e.g. procyclidine)





oculogyric crisis


Torticollis

Tongue protrusion

Opisthotonus

شد وألم شديد في عضلاتي من المسؤول DA / Ach? عالجوني بسرعة.



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Extra-Pyramidal Side Effects (EPSE)


3- Akathisia :
Inability to keep still + unpleasant feelings of inner tension. Appears within days – weeks. Generally disappears if the dose is reduced. Benzodiazepine or beta-blockers may help in the treatment, whereas anticholinergics have no therapeutic effect.

4- Rabbit Syndrome:
Rapid perioral tremor.





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Extra-Pyramidal Side Effects (EPSE)

5- Tardive Dyskinesia:
It occurs in about 10 – 20 % of patients on long-term antipsychotics for several years. *Features:* chewing, sucking or choreo-athetoid movements of the facial neck and hand muscles. Super-sensitivity of dopamine receptors. No specific treatment, the only agreed treatment is to discontinue the antipsychotic drug when the patient's state allows this.







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ANTIADRENERGIC


Postural hypotension.

Inhibition of ejaculation.


ANTICHOLINERGIC

Blurred vision.




Precipitation of closed – angle glaucoma.


Dry mouth.



Constipation




Urinary retention.



Poor erection.

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Metabolic syndrome (with atypical Rx)

The syndrome is diagnosed when a patient has three or more of the following five risk factors:

- (1) abdominal obesity,
- (2) high triglyceride level,
- (3) low HDL cholesterol level,
- (4) hypertension.
- (5) an elevated fasting blood glucose level.

It increases risk of cardiovascular disease and type II diabetes.



Others:

Hyperprolactinemia.

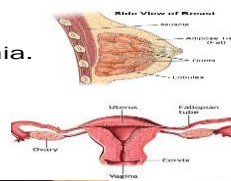


Galactorrhea.

Amenorrhea.

Low libido.

Sedation
(antihistamine effect).

Weight gain.

Toxic Effect:

Neuroleptic Malignant Syndrome (NMS)
see Psychiatric Emergencies.

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Neuroleptic Malignant Syndrome (NMS): idiosyncratic reaction to antidopaminergics

Features:

Muscle rigidity (trunk, limbs, neck, and throat), sweating and hyperthermia (check temperature), autonomic instability: fluctuating pulse, BP and respiration, akinesia, and clouding consciousness. **Onset** after 2 – 28 days , lasts 5 – 10 days after oral antipsychotics. **Incidence** is higher in males > 40 years.

Laboratory Abnormalities (Secondary Features) Raised CPK (creatinine-phosphokinase), raised potassium, neutrophilia.

Treatment (should be in Medical Intensive Care Unit “ MICU”): Stop antipsychotics, monitor vital signs, support respiratory functions, reduce body temperature (cooling), treat secondary infection (if any), rehydrate, bromocriptine (30 – 60 mg / day) to enhance dopaminergic activity, Dantrolene (5 – 10 mg / day) to reduce muscle rigidity, and supportive treatment: dialysis may be required, to reduce the risk of acute renal failure that may result from excessive amounts of myoglobin in the blood following muscle tissue destruction due to excessive prolonged very severe muscle rigidity.



★ ELECTROCONVULSIVE THERAPY (ECT)

Indications for ECT:

1. Schizophrenia (catatonic, resistant to drugs).
2. Depression:
 - Depressive disorder with suicidal risk.
 - Depressive stupor or marked retardation.
 - Depressive disorder with delusions
 - Inability to take drugs :
 - First trimester of pregnancy.
 - In the elderly.
 - In physical diseases e.g. renal failure.
3. Post partum psychosis.
4. Schizoaffective disorder.
5. Mania and mixed affective states.

History and Concept: Patients with concomitant schizophrenia and epilepsy were found to improve in psychosis following repeated fits. It was therefore, thought that there is an antagonism between schizophrenia and epilepsy. In 1938 Cerletti administered an electrically – induced fit to a catatonic vagrant schizophrenic patient who then showed reasonable improvement. Later, anesthesia was introduced and convulsions were modified using muscle relaxing agents.

Psychiatric disorders that may show deterioration or no response to ECT: Phobic disorders, conversion disorder, Primary hypochondriasis (not due to depression), depersonalization disorder.

Precautions: Recent research showed no absolute contraindications to ECT. At one time raised intracranial pressure was considered as the only absolute contraindication to ECT. Remember that not all space occupying lesions produce raised intracranial pressure. **Relative Contraindications:** **A- To anesthesia and muscle relaxants.** **B- To ECT itself:** Cardiac infarct in the preceding 3 months (some references extend it to 2 years). Other cardiac diseases including arrhythmias. History of cerebral infarction. Brain tumor.

Mode of Action of ECT: The exact mode of action is unknown. The current hypothesis: the beneficial effect which depends on the cerebral seizures (not on the motor component) is thought to result from neurotransmitter changes probably involving serotonin and noradrenaline transmission.

ECT Preparations: Explanation to the patient (or his caretakers). ECT consent by the patient or his caretaker. Hospital admission for full physical assessment (fitness for anesthesia and ECT). Fasting (midnight). Oxygenation to overcome succinylcholine-induced apnea, to facilitate seizure activity and to reduce memory impairment. Muscle relaxant to reduce the consequent motor effects (severe muscle contraction may lead to bone fracture). Placing a mouth gag in patient's mouth to prevent tongue or lip bites. Machine and electrodes preparations. Decreasing scalp's resistance with jelly or normal saline.

ECT Procedure:

- Bilateral (most commonly used procedure)
 - One electrode on each side of the head (fronto-temporal position).
 - It gives a rapid response.
 - Bi-frontal position can be used; it produces less memory impairment therapeutically ineffective.
 - Unilateral:
 - Both electrodes are placed on the non – dominant side.
 - It produces less memory impairment but less effective than bilateral.
 - ECT is usually given **2 – 3 times a week** with a total of **6 – 12** sessions, according to response and progress. Response begins usually after 2 – 4 sessions. If there is no response after 8 sessions, it is unlikely that more sessions will produce a useful change.
- In depressed patients, antidepressants should be started towards the end of the course of ECT to reduce the risk of relapse.



[youtube.com/watch?v=9L2-B-aluCE](https://www.youtube.com/watch?v=9L2-B-aluCE)

Side Effects of ECT: (ECT in general is a safe procedure)

- Headache (due to temporary increase in intracranial pressure).
- Body aches and myalgias (due to muscle contraction)
- Memory impairment (both retrograde and anterograde amnesia).
 - Duration varies (days – several months).
 - May be due to neuronal hypoxia during seizure.
- It may induce mania in certain susceptible depressed patients.
- Bone fracture and tongue or lip injury.

Misconceptions about ECT: Dangerous procedure/causes serious brain damages/involves a high voltage (110 – 220 V) current. Some traditional healers tried 110 V current with some patients assuming that it is the same procedure used by psychiatrists (ECT).

- Very rarely death (in patients with cardiovascular disease).

Schizophrenia
&
Other
Psychotic
Disorders

• **Test 3**

1. A 25-year-old man was brought to outpatient psychiatry clinic with 3 months history of hearing voices commenting on his actions, persecutory delusion, and disorganized behavior without disturbed mood. However, he returned normal with no medications. The most likely diagnosis is:

- a. Brief psychotic disorder.
- b. Schizophreniform disorder.
- c. Schizoaffective disorder.
- d. Schizophrenia.

2. A 23-year-old single woman has 9-month history of self-neglect, flat affect, social isolation and inappropriate smiles. The following is the most appropriate treatment:

- a. Haloperidol.
- b. Quetiapine.
- c. Diazepam.
- d. Amitriptyline.

3. A 26-year-old single jobless male was brought to Emergency Department by his parents who gave a 4-year history of self-neglect, restricted affect, and disorganized behavior. He is treated with a monthly injection at a mental hospital. Parents are worried about their son's mutism, rigid limbs, and clouding consciousness. The most appropriate management step is:

- a. Give him haloperidol IM.
- b. Brain CT-Scan is essential.
- c. Check his creatinine-phosphokinase (CPK).
- d. Apply CAGE questionnaire.

4. A 35-year-old woman delivered two weeks ago, she then gradually became paranoid, agitated aggressive, restless and insomniac. The most appropriate treatment is:

- a. Imipramine
- b. Fluoxetine.
- c. ECT.
- d. Psychotherapy.

5. A 27-year-old single female had a three-week period of hearing nonexistent voices, disorganized thoughts and behavior without any precipitating factor. Her mood was not elevated or irritable. She then became normal with no intervention.

The most likely diagnosis is:

- a. Schizophreniform disorder.
- b. Brief psychotic disorder
- c. Disorganized schizophrenia.
- d. Schizoaffective disorder.

1	2	3	4	5
b	b	c	c	b

6. A 30-year-old driver became increasingly irritable, insomniac, over-suspicious and hyper-vigilant for the past 4 weeks. The most likely diagnosis is:

- a. Cannabis abuse.
- b. Major depressive episode.
- c. Amphetamine abuse.
- d. Paranoid Schizophrenia.

7. A 33-year-old man has been noticed by his father over the last 6 months to have rapidly changing behavior and mood. Sometimes he appears very relaxed, euphoric, repeating songs and has good appetite. At other times, he appears irritable, anorexic, and insomniac. The most likely substance he has been abusing is:

- a. Heroin.
- b. cannabis.
- c. Amphetamine.
- d. Inhalants.

8. A 25-year-old college student has one year history of poor academic performance, poor self care, posturing, rigidity and lack of motivation. The most likely diagnosis is:

- a. Catatonic schizophrenia.
- b. schizoaffective disorder.
- c. Schizoid personality disorder.
- d. Paranoid personality.

9. A 28-year-old male patient has third person auditory hallucinations, and disorganized behavior for more than 8 months. His premorbid personality revealed that he was self-sufficient person with emotional coldness and has little interest in interpersonal relationship. Using the multi-axial system for diagnosis, the following statement is true about the diagnosis:

- a. In Axis I: delusional disorder.
- b. In Axis I: Schizotypal personality disorder.
- c. In Axis II: Schizophrenia disorganized type.
- d. In Axis II: schizoid personality disorder.

10. A 19-year-old girl known case of schizophrenia was brought to Emergency Department because of tongue protrusion, rigid limbs and sustained upward gaze of her eyes. Your best initial procedure would be:

- a. I.M. haloperidol.
- b. Immediate admission.
- c. I.M. anticholinergic medication.
- d. Restrain her.

6	7	8	9	10
c	b	a	d	c

11. A 28-year-old single female developed hallucinations, paranoid delusions and disorganized behavior. She was treated with risperidone 4 mg/day. For the last two months, she missed her menstrual cycles. Your best initial step would be:
 - a. Bromocriptine 10 mg.
 - b. Discontinue risperidone.
 - c. Reduce risperidone to 3 mg.
 - d. Change to clozapine 200 mg.

12. A 23-year-old man has been given haloperidol 10 mg twice/ day to treat his delusions and hallucinations. A week later he came to Emergency department with very painful spasm of neck muscles. To overcome this problem give him:
 - a. Quetiapine.
 - b. Propranolol.
 - c. Olanzapine.
 - d. Benztropine.

13. A 34-year-old single man seen at outpatient psychiatry clinic with his father who described the patient as "emotionally cold person, has no friends, and indifferent to criticism. The father described:
 - a. Paranoid personality traits.
 - b. Schizoid personality traits.
 - c. Chronic schizophrenia.
 - d. Schizotypal personality traits.

14. A 28-year-old woman seen at marital therapy clinic. Her husband gave the following description of her personality: "Stubborn woman, oversensitive to offenses, and projecting her faults onto others". Her mother confirmed what the husband said. The husband described:
 - a. Paranoid personality traits.
 - b. Disorganized schizophrenia.
 - c. Schizotypal personality traits.
 - d. Schizoaffective disorder.

15. A 24-year-old man seen at Emergency Department with two days' history of violence and destructive behavior. The most convenient treatment is:
 - a. Procyclidine.
 - b. Carbamazepine.
 - c. Olanzapine.
 - d. clozapine.

11	12	13	14	15
c	d	b	a	c