

**MEDICINE**  
KING SAUD UNIVERSITY



# Introduction to neuropsychiatric disorders

- Important
- Definition
- Extra
- Notes

Please check the [Editing File](#) before studying

“ A Goal should scare you a little, Excite you A LOT “

# Objectives

- To know basic types of neurocognitive disorders.
- To understand in concise manner their etiology.
- To know baseline management of neurocognitive disorders.

# Definitions

**Cognition (المعرفة)** : Includes memory, language, orientation, judgment, conducting interpersonal relationships, performing actions (praxis), and problem solving.

**Cognitive disorders** : characterized by significant impairment in functions such as memory, judgment (like schizophrenia), language, and attention. this impairment represent a **change from base line** .

- Cognitive disorders reflect disruption in one or more of the above domains, and are also frequently complicated by behavioral symptoms .
- Cognitive disorders represent the complex interface between neurology, medicine, and psychiatry .
- **Organic mental disorders or organic brain disorders** VS **Functional disorders** . (check the notes)
- Advances in molecular biology, diagnostic techniques, and medication management have significantly improved the ability to recognize and to treat cognitive disorders.

- Change from base line (the person is normal but something happened to cause the cognitive decline). Before 17 it is called Mental Retardation, after 17 it is called Dementia.
- يعني الشخص ما كان مولود بالحالة هذي ، يعني اللي ينولد ب cognitive disorder ما يعتبر عنده Mental retardation
- Organic mental (brain) disorders we can call it (induced) like drugs induced psychosis or like someone who has a brain tumor in frontal lobe leading to **frontal lobe syndrome** which characterized by behavioral changes ( easily irritated, disinhibited ...), can be seen with visual, auditory, gustatory hallucinations.
- تصوير هذي المتلازمة بعد اللي يتعرضون لحوادث سيارات ويتأثر frontal lobe وتتغير طبائعهم ويصير يعصب بسرعة وقليل أدب و ما يفكر بالعواقب والخطوط الحمراء ويمكن يتحرش باللي قدامه بعد .
- Functional disorders (pure) : like normal psychiatric disorders due to reaching the age of onset such as schizophrenia in 20's .Auditory hallucinations can be associated with it.
- Psychosis "كثير يجيبونه بالأفلام" : impairment in reality testing ما يفرق بين الواقع والخيال
- Can be due to autoimmune diseases (MS or SLE) or it can be drug induced .



# Delirium

**Delirium (هذيان)** : is **an impairment of consciousness** (short-term confusion (**acute confusion state**) and changes in cognition)

- Usually accompanied by global impairment of cognitive functions, associated with emotional lability, hallucinations or illusions and inappropriate behavior.
- **There is also memory loss but it is temporary.**
- It is an acute reversible condition.

## REMEMBER:

In physiology we said that Delirium is one of the Geriatric syndromes and it could be the only sign of a life threatening disease in older adults.



[Delirium 7:39](#)

- Continue Psychosis treatment : 1. ECT (electro convulsive therapy) best way of treatment which use joules not current to induce seizures which make the patient feels better . They were inducing seizures using insulin that leads to hypoglycemia but that was dangerous .
- 2. Some drugs like barbiturates
- طبعا شغل الأفلام اللي يصعقونه بالكهرب ١١٠ ولا ٢٢٠ مو صحيح 😊
- Delirium can happen at any age and the patient will have hallucinations and not oriented by the time and place ..
- هي اللي يقصدونها الشيبان لما يقولون فلان جته حمى وقام يهذري .. يصير فجأه يضحك بعيدين يصيح بدون سبب وبعض الأحيان إذا جت للكبار يشك بأهله و غيرها .
- Hallucinations : true perception without the presence of real stimulus.
- Illusions: false perception in the presence of real stimulus
- تجينا كلنا ، زي لما تتحرك الستارة في غرفتك وتحسب واحد دخل عليك

# Delirium



## Epidemiology

Common among hospitalized patients, about 10% of all hospitalized patients.

**Very young** and **elderly** are more susceptible to delirium.

Patients with history of delirium or brain injury are more likely to have an episode of delirium than the general population.

## Etiology

Major causes include systemic disease, CNS disease, and either **intoxication** with or **Withdrawal** from prescribed medications, or drug of abuse.

Delirium is thought to involve dysfunction of **reticular formation** and **acetyl-choline transmission**.

**Noradrenergic hyperactivity** has been associated with **alcohol withdrawal delirium**.

- Epidemiology
  - Brain injury like (frontal lobe syndrome)
- Etiology
  - Systemic diseases : autoimmune
  - CNS disease: Parkinson's , MS , TB of the brain
  - Intoxication : like when an elderly patient is on ( morphine) and developed delirium, we call it intoxication.
  - Withdrawal : alcohol withdrawal ( **delirium tremens** ) **IMPORTANT**
  - Drug abuse :
    - Like tramadol abuse usually it is prescribed as a painkiller after surgery and then the patient get addicted to it (Dr. HOUSE) .
      - وحتى عندنا في مناطق معينة يستخدمونه خصوصا بعض الشباب اللي أخذوها بعد العمليات (( يقول خذك حبتين ترام ووضعك بيصير تمام ☹ )) خصوصا للي عندهم خجل اجتماعي يصير ياخذها قبل ما يروح للتجمعات
  - **Peer pressure** is the most common cause of relapse after drug stopping.

# Delirium diagnosis and management

- **Diagnosis** : It is diagnosed according to etiology: delirium due to medical condition, substance intoxication delirium, substance withdrawal delirium.
  - Key features: disturbance of consciousness, change in cognition, or the development of perceptual disturbance, over a short period of time and tend to fluctuate during the day.



## Management

Laboratory tests : **Delirium is a medical emergency**, its cause must be identified as quick as possible.

Treatment : **Identify and treat the underlying cause.**

- Treating the underlying cause:
  - Infection
  - **Electrolyte imbalance**  
خصوصا عند كبار السن.

# Dementia

**Dementia (خرف)** : It is characterized by severe multiple cognitive deficits, including **memory loss** but **consciousness is not impaired**.

- The major defects involve orientation, memory, perception, intellectual functioning, and reasoning.
- The defects represent a change from baseline and interfere with functioning.
- Marked changes in personality, affect, and may be associated with behavioral problems.
- Dementias are commonly accompanied by **hallucinations**(20-30%),and **delusions**(30-40%).
- Symptoms of depression and anxiety are present in 40-50%of pts with dementia.

- Intellectual functioning :  
"language "
  - زي اللي كان يتكلم بأكثر من لغة
  - (انجليزي – فرنسي) يبدأ يفقدها ئيبقى اللغة الأم عنده وممكن يفقدها بعدين
- Aphasia : inability to talk or express although the vocal cords are intact.
- Delusions (ضلالات)a strong unshakable believe.
  - زي لما واحد يقول أنا متأكد ان جارنا أبو فلان يترصد لي و يروح يعتدي عليه وهو المسكين ما سوا شيء .
- Hallucinations: (visual hallucinations)
  - زي العجوز اللي تقول شف مدخلين رجال علينا في البيت وما فيه أحد
  - ولا العجوز اللي تقول أنا متأكدة ان الشغلات يسرقون ذهبي وتروح تفتش أغراضهم و ذهبها في دالوبها محد لمسها .

# Dementia



## Epidemiology

Increasing age is the most important risk factor.

A syndrome of the elderly, 5% of Americans over the age of 65 have severe dementia, and 15% have mild dementia.

15% of dementia cases are reversible.

## Etiology

Most common cause is **Alzheimer's disease** (50-60%)

followed by **vascular disease**.

Other common causes include head trauma, alcohol, movement disorders (such as Huntington's disease and parkinsonism) and HIV infection.

- Reversible causes :
  - ✓ Vitamin B12 deficiency
- Irreversible causes :
  - ✓ Alzheimer's disease
  - ✓ **Lewy body**



# Dementia

- **Diagnosis :**

1. **Dementia of the Alzheimer's type**, which usually occurs in persons over 65 years of age and is manifested by progressive intellectual disorientation and dementia, delusions, or depression.
2. **Vascular dementia**, caused by vessel thrombosis or hemorrhage.
3. **Other medical conditions** (e.g. human immunodeficiency virus [HIV] disease, head trauma, Pick's disease, Creutzfeldt-Jakob disease, which is caused by a slow-growing transmittable virus)
4. **Substance induced**, caused by toxin or medication (e.g., gasoline fumes, atropine)
5. **Multiple etiologies**
6. **Not otherwise specified** (if cause is unknown).



# Dementia management

Potentially reversible causes for the dementia (hypothyroidism, CNS syphilis, subdural hematoma, **vit B12 deficiency**, uremia, hypoxia).

**Identify other treatable medical conditions** that may worsen the dementia.

Supportive measures.

Ensure proper treatment of any underlying medical problems or associated disruptive symptoms.

Maintain proper nutrition, exercise, and daily activities.

Provide an environment with frequent cues for orientation to day, date, place, and time.

As functioning decreases, nursing home placement may be necessary.



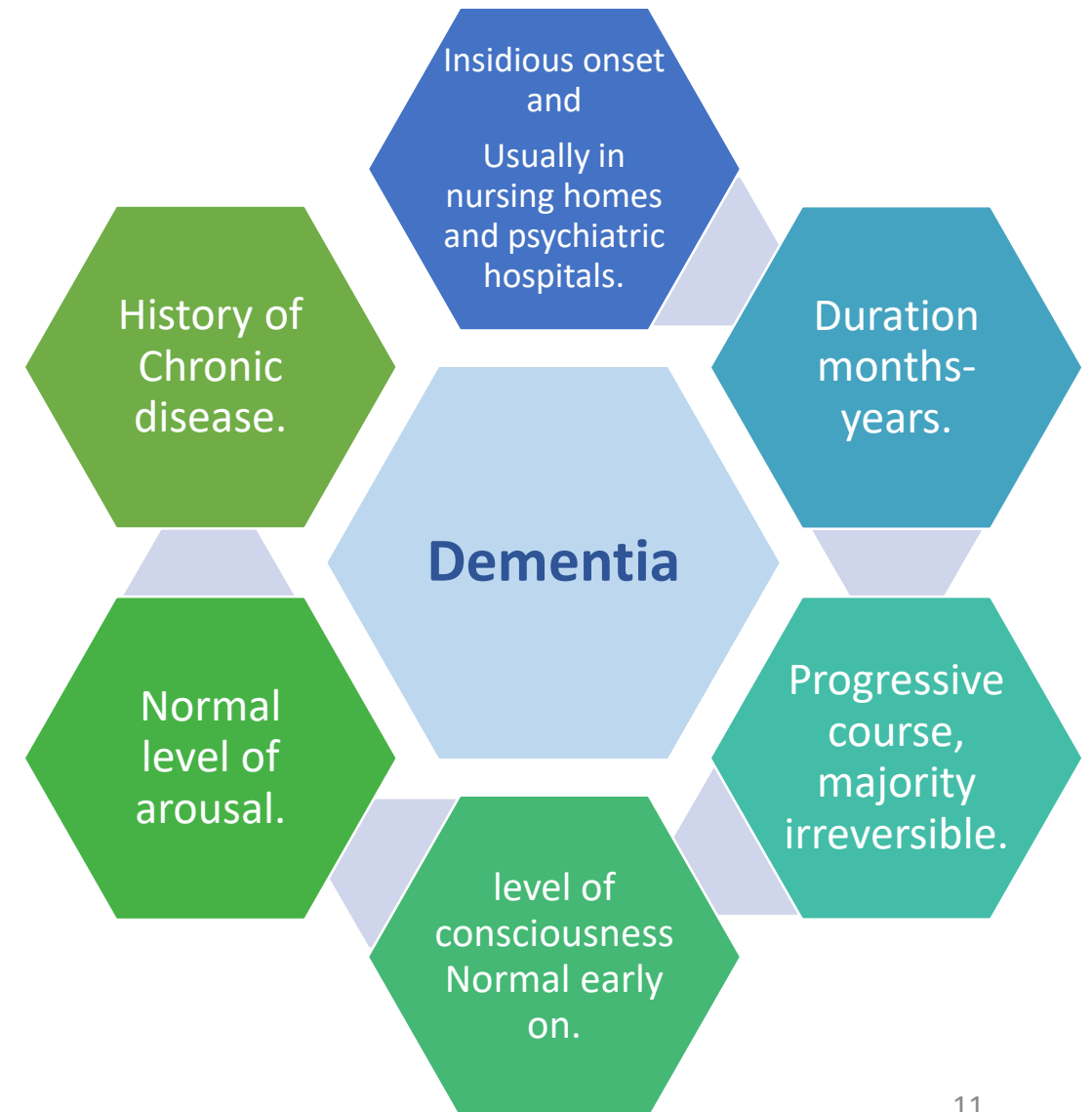
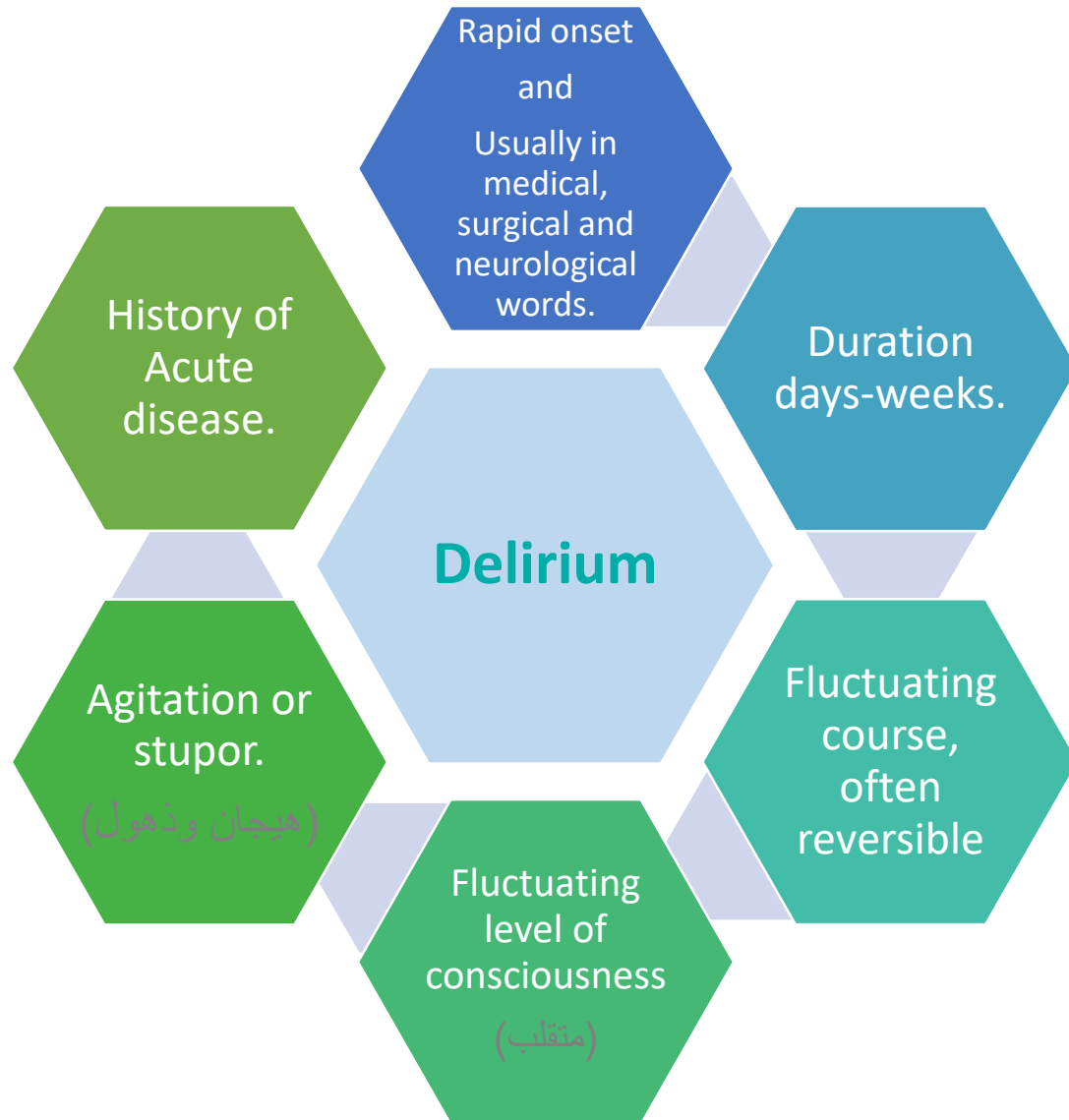
## Course and prognosis

Dementia may be:  
1. progressive  
2. remitting  
3. stable.

In reversible causes of dementia the course depends on how quickly the cause is reversed.

For Dementia of Alzheimer's type the course is likely to be one of slow deterioration.

# How to differentiate between Delirium & Dementia



# Amnestic disorder

**Amnestic disorder (اضطراب مفقد للذاكرة)**: Impaired recent short term and long term memory attributed to a specific organic cause (drug or medical disease) patient is normal in other areas of cognition.

- **Diagnosis** : The development of memory impairment as manifested by impairment in the ability to learn new information or the inability to recall previously learned information.
- The memory impairment cause significant impairment in social or occupational functioning.
- The memory impairment dose not occur during the course of a delirium or dementia.
- The disturbance is due to general medical condition or substance.

## Management

Identify the cause and reverse it if possible

otherwise, institute supportive medical procedures.

## Etiology

Most common form is caused by **thiamine deficiency** associated with **alcohol dependence**.

May also result from head trauma, tumor, surgery, hypoxia, infraction, seizures and herpes simplex encephalitis.

Typically any process that damages certain diencephalic structures (limbic system, hypothalamus, thalamus) and temporal structures (mammillary bodies, fornix, hippocampus) can cause the disorder.

# Summary

Cognition (المعرفة) : Includes memory, language, orientation, judgment, conducting interpersonal relationships, performing actions (praxis), and problem solving.			
Cognitive disorders	Definition	Etiology	management
<b>Delirium</b>	is an impairment of consciousness	<ul style="list-style-type: none"> <li>Major causes include systemic disease, CNS disease, and either intoxication with or Withdrawal from prescribed medications, or drug of abuse.</li> <li>Alcohol withdrawal (delirium tremens).</li> </ul>	<ul style="list-style-type: none"> <li>Delirium is a medical emergency.</li> <li>Identify and treat the underlying cause.</li> </ul>
<b>Dementia</b>	multiple cognitive deficits, including memory loss but consciousness is not impaired.	<ul style="list-style-type: none"> <li>Most common cause is Alzheimer's disease .</li> <li>followed by vascular disease.</li> </ul>	<ul style="list-style-type: none"> <li>Treat reversible causes (vitamin B12).</li> <li>Supportive measures.</li> <li>Provide a good environment.</li> </ul>
<b>Amnestic disorder</b>	Impaired recent short term and long term memory attributed to a specific organic cause (drug or medical disease)	<ul style="list-style-type: none"> <li>Most common form is caused by thiamine deficiency associated with alcohol dependence.</li> </ul>	<ul style="list-style-type: none"> <li>Identify the cause and reverse it if possible.</li> <li>institute supportive medical procedures.</li> </ul>

# MCQs

A  
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8

## 1-Hallucinations are.....?

- A- true perception without the presence of real stimulus
- B- false perception in the presence of real stimulus
- C- true perception in the presence of real stimulus

## 2- 23 years old male suffered a head trauma due to a car accident, he started showing aggressive and inappropriate behavior, what is the site of the damage?

- A- Midbrain
- B- Cervical segments of the spinal cord
- C- Frontal lobe

## 3- A reversible cause of dementia?

- A- Alzheimer's
- B- lewy body
- C- uremia

## 4-What is the most common cause that can predict if the patient is going to relapse after stopping the drug ?

- A-Availability of money
- B-Easy access
- C-Pear pressure

## 5- which of the following is thought to involve dysfunction of reticular formation & Ach transmission?

- A- Dementia
- B- Delirium
- C- Parkinson's

## 6- Damage to which structure can cause amnesic disorder?

- A- Frontal lobe
- B- Pons
- C- Hippocampus

## 7- A young male presented to ER by his friend saying that "there is a bug crawling under my skin" what do you suspect?

- A-Functional Disorder
- B-Organic Brain Disorder
- C-Amnesic Disorder

## 8-Which of the following is a feature of delirium that can help differentiate it from dementia?

- a. Memory loss
- b. Inattention
- c. Fluctuating course
- d. Disorganized thinking

# SAQs

## Case:

You are a medical resident in a medical oncall in the ward of medicine and they call you on a 55 years old male that came for elective cholecystectomy, the patient came over the weekend and with an appointment, after 2 days he started becoming aggressive, shouting, disrupted and attacking the nurses. When you go to see the patient What goes up in your mind ?

**Answer :** delirium 2ndry to alcohol withdrawal (delirium tremens).

Explanation : the significance is that in his age he already developed alcohol dependency .

## Case:

A 60 years old male presented to the ER by his son , with hyperactivity and inappropriate behavior, after medical check up nothing significant was found ( only electrolyte imbalance) . What do you think he has ?

**Answer:** Delirium

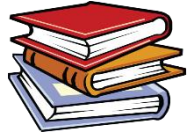
# Thank you for checking our work

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Reference: Male and female slides



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[Dementia 2:45](#)



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