



psychiatry
435

Introduction to Neuropsychiatric Disorders

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- ❖ Please make sure to check the [Editing File](#) .
 - ❖ **Color index:** RED important, PURPLE notes and GREY:extra.
 - ❖ Resources: Girl's and boy's 435 slides ,and first aid usmle step 1
 - ❖ For any suggestions, questions or corrections please contact us (psychiatry435@gmail.com).

Objectives:

- Understand the meaning of cognitive disorder.
- Understand the definition, features, etiology, epidemiology, course and management of delirium.
- Understand the definition, features, etiology, epidemiology, course and management of dementia.
- Understand the definition, features, etiology, epidemiology, course and management of amnesic disorders.
- Can differentiate between Delirium & Dementia.

❖ Definition :

- **Cognition**¹ : Includes memory, language, orientation², judgment, conducting interpersonal relationships, Performing actions and problem solving .
- **Executive functions**: are a set of cognitive processes.
- **Cognitive disorders**: are Characterized by significant impairment in function such as memory, judgment, language, and attention , this impairment represent a change from **baseline**³⁴.
 - cognitive disorders Reflect disruption in one or more of the above domains⁵ and are also frequently complicated by behavioral symptoms⁶ , and **become psychotic** .
- **Psychosis**⁷ : is a syndrome which is an impaired in relationship with reality , people who are psychotic have either hallucination or delusions⁸.
 - hallucination has lots of types : **visual (most common)** , **auditory** and olfactory.
 - cognitive disorders represent the complex interface between :
 - 1- Neurology**
 - 2- medicine**⁹ : organic mental or organic brain disorders ,Ex : dementia or visual hallucination or olfactory hallucination¹⁰.
 - 3- psychiatry**¹¹ : functional psychotic disorders , Ex : auditory hallucination
 - Advances in molecular biology, diagnostic techniques, and medication management have significantly improved the ability to recognize and to treat cognitive disorders.

¹ المعرفة وهي ما يميز الانسان عن الحيوان

² Orientation had three types: to place ,to person and to time.

³ this is **not** apply on **Mental retardation** which is a condition diagnosed **before** age 18 and having low IQ. **But after 18 for example if he had a brain injury and he loses his Cognitive abilities this called (dementia).** الخرف

⁴ That means that person have all of these abilities but he lost it.

⁵ specially the memory

⁶ اضطرابات سلوكية

⁷ الذهان

⁸ الضلالات : يصير متأكد ان مثلاً المباحث تراقبه.

⁹ **Induced by medical problems** ، مسببات عضوية بحثة مثلاً SLE يكون معه اكتئاب.

¹⁰ This not always applicable

¹¹ مسببات نفسية بحثة مثلاً الانفصام

❖ Types of cognition disorders :

❖ Delirium :

- **Acute confusional state , reversible¹² .**
- Delirium Is an **impairment of consciousness** (short-term confusion and changes in cognition).
- Usually accompanied by global¹³ impairment of cognitive functions, associated with emotional lability, hallucinations or illusions and inappropriate behavior¹⁴.

● Epidemiology:

- common among hospitalized patient , about 10% of all hospitalized¹⁵ patient .
- **very young and elderly are more susceptible to delirium.**
- post surgical procedures ¹⁶ .
- patient with history of delirium or **brain injury** are more likely to have an episodes of delirium than general population.

● Etiology:

- Major causes include **systemic disease¹⁷** , CNS disease¹⁸ , and either intoxication with or **Withdrawal¹⁹** from prescribed medications²⁰ , or drug of abuse²¹ .
- Delirium is thought to involve dysfunction of reticular formation and acetylcholine transmission .
- Noradrenergic hyperactivity has been associated with **alcohol withdrawal delirium²²²³** .

● Diagnosis:

- it is diagnosed according to etiology: delirium due **to medical condition²⁴** , **substance intoxication delirium** , **substance withdrawal delirium**.
- **key features : disturbance in consciousness** , change in cognition , or the development of perceptual disturbance ^{يهلوس} , over a short period of time and tend to fluctuate during day.

¹² If it's not treated it may cause death because of the underlying medical condition.

¹³ effect more than one function (ex : memory and problem solving)

¹⁴ Ex: remove his IV

¹⁵ its medical condition (organic) , visual hallucination obviously , (يهلوس جته حتمى وقام يهذرف) ,

¹⁶ post cardiac or orthopedic surgery + brain abscess

¹⁷ examples : DKA , SLE , MS

¹⁸ Epilepsy

²⁰ Anticholinergic drugs

¹⁹ مادة كان يستعملها ثم توقف عن استخدامها ونتيجة لذلك تظهر أعراض انسحابية

²¹ illegal مثل المورفين او هروين

²² the most common condition that happen after 48-72 hours from stopping drinking alcohol is delirium tremens (a psychotic condition involve tremors, hallucinations, anxiety).

²³ A syndrome coming with DT(delirium tremens) called Wernicke-Korsakoff syndrome which is caused by vitamin B1 deficiency and associated destruction of mammillary body , " كيس أصفر كبير " that's why they give alcoholics B1 thiamine

²⁴ Most common cause in Males: pneumonia /female:UTI (cystitis). It could happen after surgery also.

● Management:

- **laboratory tests** : Delirium is a medical emergency, its cause must be identified as quick as possible.
- **treatment**: **first step** is identifying and treat the **underlying medical cause**²⁵ .

❖ Dementia²⁶:

- It is characterized by severe multiple cognitive deficits, including **memory loss**²⁷ .
- a condition that diagnosed **after age of 18** , like traumatic brain injury or stroke in brain near memory center.
- The defects represent a change from **baseline** and interfere with functioning.
- **Consciousness is NOT impaired**.
- **The major defect** involve orientation, memory, perception, judgment, cognition, intellectual functioning and reasoning.
- Atrophy of the brain , flattened sulci.
- **delirium** may come with **dementia** “ double disease “²⁸
- Marked changes in personality²⁹ , **affect**³⁰ , and may be associated with behavioral problems.
- happen in **prefrontal** cortex.
- Dementias are commonly accompanied by hallucinations³¹ (20-30%), and delusions (30-40%).
- Symptoms of depression and anxiety are present in (40-50%) of patients with dementia.

● Epidemiology:

- A syndrome of the elderly, 5% of Americans over the age of 65 have severe dementia, and 15% have mild dementia.
- **Increasing age**³² is the **most important risk factor**.
- **15%** of dementia cases are **reversible**. **majority irreversible**.
- sometime it can be early onset dementia (below age of 65) , it's more progressive and severe than at age of 65.

● Etiology:

- **Most common cause**³³ is **Alzheimer's disease** (50-60%) followed by vascular disease³⁴ .

²⁵ It's could be multifactorial

²⁶ It's a syndrome.

²⁷ Long term memory is intact unless he become stage 2.

²⁸ an old man has dementia , and recently he got infection (pneumonia) so he will have delirium on top of dementia, female (UTI).

²⁹ تتغير طبياعه شخص حبيب بصير عدواني مثلا.

³⁰ his psychological state right now , mask face or depressed, dis inhibited.

³¹ **visual hallucination** because its medical condition.

³² At age of 65 1:8 , at 70 1:6 , at 80 1:5 , at 90 1:3.

³³ These days **Lewy body** is as common as alzheimer's disease.

³⁴ vascular dementia which is stroke in the brain , so the dementia will be static , more explanation : the person who got an stroke and had cognitive impairment , anything that he saw at that moment won't be loss this is what we mean in term of static , EXCEPT developing of Alzheimer disease .

- Other common causes³⁵ include head trauma , alcohol , movement disorders (such as Huntington's disease and parkinsonism³⁶) and HIV³⁷infection.

- **Diagnosis:**

The six subcategories are:

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 ³⁸ , 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.

- **Course and prognosis:**

- Dementia may be progressive³⁹, remitting, or stable⁴⁰.
- 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**.

- **Management⁴¹:**

- 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.⁴²

³⁵ If it's not treated it may cause death because of the underlying medical condition.

³⁶ All of these examples are subcortical. The cortical cause like Alzheimer's.

³⁷ subcortical dementia in hypothalamus .

³⁹ In neurodegenerative disease.

⁴⁰ Vascular cause.

⁴¹ There is no treatment, we treat the symptoms to slow the progression.

³⁸ جنون البقر

⁴² لازم يشغل مخه يفكر بقرأ.

- Provide an environment with frequent cues for orientation to day, date, place, and time.
- As functioning decreases, nursing home placement may be necessary.

★ How to differentiate between Delirium & Dementia?

Dementia	Delirium
History of Chronic disease.	History of Acute disease.
Insidious ⁴³ onset.	Rapid onset.
Duration months-years	Duration days-weeks .
Progressive course, majority irreversible	Fluctuating course, often reversible
Level of consciousness Normal ⁴⁴ early on.	Fluctuating level of consciousness
Normal level of arousal	Agitation or stupor.
Usually in nursing homes and psychiatric hospitals.	In medical, surgical and neurological words.

❖ Amnestic disorder:

- **Only memory impaired** .
- **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.
- Is marked by **memory impairment** and forgetfulness.
- **The three subcategories are:**
 - ★ Caused by medical condition (hypoxia).
 - ★ Caused by toxin or medication (e.g., marijuana, diazepam).
 - ★ Not otherwise specified.

● Etiology:

- **Most common** form is caused by **thiamine deficiency associated with alcohol dependence**.
- May also result from head trauma, tumor, surgery, hypoxia, infarction, seizures and herpes simplex encephalitis.

⁴³ proceeding in a gradual, subtle way, but with very harmful effects.

⁴⁴ Unless stage 3.

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

- **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 does 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.

More explanation :

Psychosis	Distorted perception of reality characterized by delusions, hallucinations, and/or disorganized thinking. Can occur in patients with medical illness, psychiatric illness, or both.
Hallucinations	<p>Perceptions in the absence of external stimuli (eg, seeing a light that is not actually present). Contrast with illusions, misperceptions of real external stimuli. Types include:</p> <ul style="list-style-type: none"> ▪ Visual—more commonly a feature of medical illness (eg, drug intoxication) than psychiatric illness. ▪ Auditory—more commonly a feature of psychiatric illness (eg, schizophrenia) than medical illness. ▪ Olfactory—often occur as an aura of temporal lobe epilepsy (eg, burning rubber) and in brain tumors. ▪ Gustatory—rare, but seen in epilepsy. ▪ Tactile—common in alcohol withdrawal and stimulant use (eg, cocaine, amphetamines), delusional parasitosis, “cocaine crawlies.” ▪ Hypnagogic—occurs while going to sleep. Sometimes seen in narcolepsy. ▪ Hypnopompic—occurs while waking from sleep (“pompous upon awakening”). Sometimes seen in narcolepsy.
Amnesias	
Retrograde amnesia	Inability to remember things that occurred before a CNS insult.
Anterograde amnesia	Inability to remember things that occurred after a CNS insult (↓ acquisition of new memory).
Korsakoff syndrome	Amnesia (anterograde > retrograde) caused by vitamin B ₁ deficiency and associated destruction of mammillary bodies. Seen in alcoholics as a late neuropsychiatric manifestation of Wernicke encephalopathy. Confabulations are characteristic.
Dissociative amnesia	Inability to recall important personal information, usually subsequent to severe trauma or stress. May be accompanied by dissociative fugue (abrupt travel or wandering during a period of dissociative amnesia, associated with traumatic circumstances).

Dementia

↓ in intellectual function without affecting level of consciousness. Characterized by memory deficits, apraxia, aphasia, agnosia, loss of abstract thought, behavioral/personality changes, impaired judgment. A patient with dementia can develop delirium (eg, patient with Alzheimer disease who develops pneumonia is at ↑ risk for delirium).

Irreversible causes: Alzheimer disease, Lewy body dementia, Huntington disease, Pick disease, cerebral infarct, Creutzfeldt-Jakob disease, chronic substance abuse (due to neurotoxicity of drugs).

Reversible causes: hypothyroidism, depression, vitamin B₁₂ deficiency, normal pressure hydrocephalus, neurosyphilis.

↑ incidence with age. EEG usually normal.

“Dementia” is characterized by **memory** loss. Usually **irreversible**.

In elderly patients, depression and hypothyroidism may present like dementia (pseudodementia). Screen for depression and measure TSH, B₁₂ levels.

Delirium

“Waxing and waning” level of consciousness with acute onset; rapid ↓ in attention span and level of arousal. Characterized by disorganized thinking, hallucinations (often visual), illusions, misperceptions, disturbance in sleep-wake cycle, cognitive dysfunction.

Usually 2° to other illness (eg, CNS disease, infection, trauma, substance abuse/withdrawal, metabolic/electrolyte disturbances, hemorrhage, urinary/fecal retention).

Most common presentation of altered mental status in inpatient setting. Commonly, diffuse slowing EEG.

Treatment is aimed at identifying and addressing underlying condition. Haloperidol may be used as needed. Use benzodiazepines for alcohol withdrawal.

Delirium = changes in **sensorium**.

May be caused by medications (eg, anticholinergics), especially in the elderly.

Reversible.

T-A-DA approach (Tolerate, Anticipate, Don't Agitate) helpful for management.

**Thank you for checking our team
Good luck.**

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