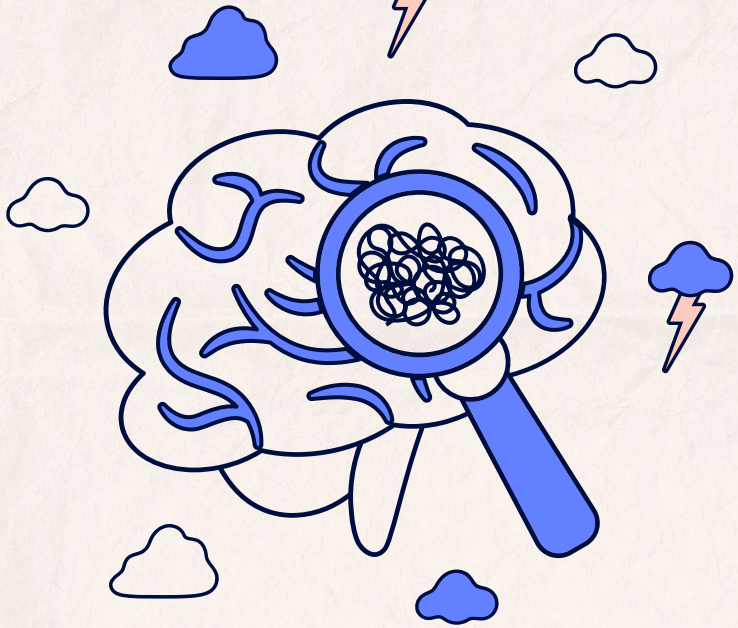
L1:
introduction to neuropsychiatric disorders



Editing file

Color index:
Main Text
Important
Male Slides
Female Slides
Doctor's Notes
Extra Info

Objectives :

- Delirium
- Major neurocognitive disorders including:
- Dementia
- Amnestic syndrome

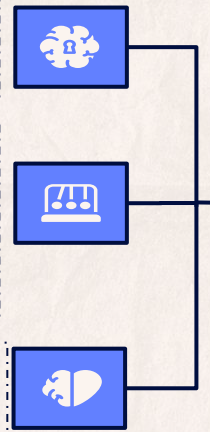
Cognition

Definition: cognition(الوظائف المعرفية للمخ) includes memory , language ,orientation(person/place/time), judgment ,conducting interpersonal relationships, performing actions (praxis → for example we will give the patient at least three orders to perform specific action and observe him), and problem solving.

Social Cognition:
Recognition of emotions, Theory of mind , Insight

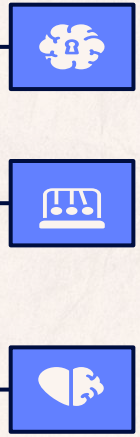
Learning and memory:
Free recall, Cued recall, Recognition memory, Semantic and autobiographical, Long-term memory, Implicit learning

Language:
Object naming, Word finding , Fluency, Grammar and syntax, Receptive language



Neurocognitive Domains

Male slides



Perceptual-motor function:
Visual perception , Visuoconstructional , Reasoning , Perceptual-motor coordination

Executive function :
Planning, Decision-making , Working memory, Responding to feedback, Inhibition, Flexibility

Complex attention:
Sustained attention, Divided attention, Selective attention, Processing speed

Cognitive functions & Cognitive disorders

Cognitive disorders characterized by:

- By significant impairment in functions such as memory, judgment, language, and attention .
- this impairment represent a change from baseline (المقصد هنا انه كيف كان، مثلا قبل كان نشيط والحين صار هادئ).
- Reflect disruption in one or more of the above domains, and are also frequently complicated by behavioral symptoms.
- Represent the complex interface between neurology , medicine , and psychiatry.
- Organic mental disorder or organic brain disorders VS Functional disorders.(It was old name , now we call it cognitive disorder secondary to general medical condition)
- Advances in molecular biology, diagnostic techniques and medication management have significantly improved the ability to recognize and to treat cognitive disorders.
- Not present from a previously attained level of functioning
- Represent a decline from a previously attained level of functioning.

Male slides

Introduction

In the Diagnostic and Statistical manual of mental disorders, fifth edition DSM-5:

Neurocognitive disorders:		
Delirium	• Short-term confusion and changes in cognition • **Acute global cognitive disorder with** disturbed consciousness	
Mild neurocognitive disorders	— —— —— ——— —— ——— ——— ————	
Major neurocognitive disorders	1-Dementias: • Severe impairments in memory, judgment, orientation, and cognition • **Chronic global cognitive** decline **WITHOUT disturbed consciousness.** • Most important difference between dementia and delirium is the state of consciousness.	2-Amnestic disorders : • Major neurocognitive disorder caused by other medical condition. • Marked primarily by memory impairment or specific disorder of short-term memory. **Caused by:** -Medical condition -Toxins or medications -Unknown causes

Delirium

Highly recommended!!

Definition

Acute transient **reversible** global cognitive impairment **with** impaired consciousness due to medical problem.

Many terms are used to describe delirium :

- Acute confusional state
- Acute organic syndrome
- Acute Brain syndrome
- Acute brain failure
- Acute cerebral insufficiency
- Exogenous psychosis
- Metabolic encephalopathy
- ICU psychosis
- Toxic encephalopathy

Epidemiology

-It may occur at **any age** but more in elderly and children.

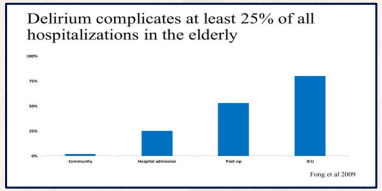
-Community Prevalence:

General	>85 years
1-2%	14%

-10-30% Medically 111 Hospitalized patients:

Post-operative patients	Post-cardiotomy patients	ICU patients
10 to >50%	>90%	70-85%

- **60% in nursing homes** or post-acute care settings
- 80% at end of life
- **Underdiagnosed when patients is hypoactive and somnolent**
- Such cases may be misdiagnosed as depression
- Patients with history of delirium or brain injury are more likely to have an episode of delirium than the general population.



Clinical features

- Acute onset or mental status change with fluctuating course.
- Attention deficits
- Confusion or disorganized thinking.
- Perceptual disturbances(e.g. Visual hallucination)
- Disturbed sleep/wake cycle(sundowning phenomena)
- Altered psychomotor activity.
- Disorientation and memory impairment.
- Behavioral and emotional abnormalities.
- Other cognitive deficits

Usually accompanied by global impairment of cognitive functions, associated with **emotional lability**, hallucination or illusions and inappropriate behavior.

اللي يميز Delirium عن باقي الأمراض ان الهلاوس بصرية وليست سمعية

Male slides

Types of Delirium

Hyperactive
30%

(most clear and least controversial)

- Hyperactive psychomotor activity

- May have mood lability, agitation, refusal to cooperate with medical care

Hypoactive
24%

(most difficult type to identify)

- Hypoactive psychomotor activity.
- May be have sluggishness or lethargy that approaches stupor

- Inappropriately diagnosed and treated as depression

Mixed
46%

(Classic wax and waning pattern)

- Normal psychomotor activity with disturbed attention and awareness

- May have rapidly fluctuating activity level

Male slides

Why is it important to discover Delirium?

It is a very serious medical and psychiatric condition and that is due to high risk of:

- **Death** (due to associated serious medical condition)
- Violence toward medical staff
- Self-harm or suicidal risk
- Impaired judgment
- Psychosis

Delirium is associated with:

- Increased morbidity and mortality
- Increased length of hospital stay
- Increased Rates of admission to long term care facilities
- 20 % of patients discharged post hip # still had evidence of delirium

Male slides

(DSM-5) diagnostic criteria for delirium

A. Disturbance in:

Attention:
(Reduced ability to direct, focus, sustain, and shift attention)
Awareness:
(Reduce orientation to the environment)

B. The disturbance:

Develops **over a short period** (usually hours to days)
Represent a **change in the baseline** attention and awareness.
Tends to **fluctuate in severity** during the course of a day.

C. An additional disturbance in cognition:

Memory deficit, disorientation, language, perceptual disturbance

D. Disturbance in criteria A and C:

- Not due to another preexisting, established or evolving dementia

- Do not occur in the context of a severely reduced level of arousal (e.g. Coma)

E. There is evidence from the history, physical examination, or laboratory findings that the disturbance is caused by a direct physiologic consequence of:

General medical condition
An intoxicating substance
Medication use
More than one cause

Diagnostic criteria for delirium (Simplified)

01 Consciousness is disturbed (e.g. awareness of the environment is impaired but patient not in coma).

02 Cognitive functions are impaired +/- perceptual disturbance (illusions or hallucinations)

03 Acute onset with fluctuating symptoms (within hours during the day) & transient course (few days).

04 Caused by a physical problem (e.g. hypoxia, hypoglycemia, infection..etc.)

Male Slides

diagnosed according to **etiology**:
delirium due to medical condition
substance intoxication delirium (amphetamine)
substance withdrawal delirium.

Key features:
disturbance of consciousness
change in cognition
the development of perceptual disturbance
over a short period of time and tend to fluctuate during the day.

Female Slides

Male slides

Etiology of Delirium

01 Infections (encephalitis, meningitis, HIV, syphilis, sepsis, typhus, malaria)

02 Withdrawal from substance of the abuse (alcohol, sedative-hypnotic, barbiturates)

03 Acute metabolic (acidosis, alkalosis, liver/kidney failure)

04 Trauma (closed head trauma, heatstroke, recent surgery, severe burns)

05 CNS pathology (abscess, tumor, seizures, hydrocephalus, Movement disorders)

06 Hypoxia (anemia, hypoperfusion due to heart/lung failure, CO poisoning)

07 Deficiencies of vitamins (B12, folate, thiamine, niacin)

08 Endocrinopathies (Hyper/Hypoglycemia, Hypo/Hyperadrenocorticism, Hyperparathyroidism)

09 Acute vascular (hypertension, stroke, TIA, arrhythmia)

10 Toxins (medications, illicit drugs, pesticides, solvents)

11 Heavy metal (lead, manganese, mercury)

Female Slides

Etiology of Delirium

Delirium is thought to involve dysfunction of reticular formation (responsible for emotions) and Acetylcholine transmission.

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

Noradrenergic hyperactivity has been associated with alcohol withdrawal delirium.

Life threatening causes of delirium:

1. Wernicke's encephalopathy
2. Alcohol/Benzodiazepine withdrawal
3. Hypoxia
4. Hypoglycemia
5. Hypertensive encephalopathy
6. Intracerebral hemorrhage
7. Meningitis/encephalitis
8. Poisoning

Laboratory tests:

(ex: liver function, electrolytes ,CPC)

-Delirium is a medical emergency, its cause must be identified as quick as possible.

Treatment:

-Identify and treat the underlying cause.

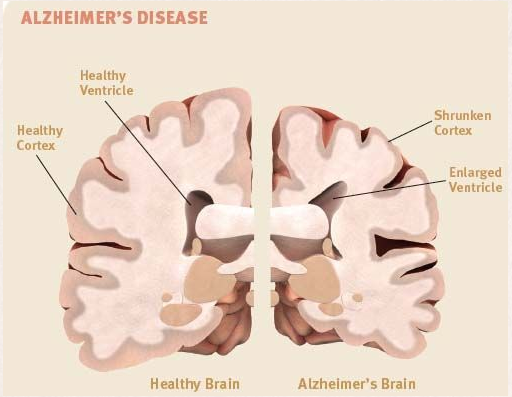
Male slides

Dementia

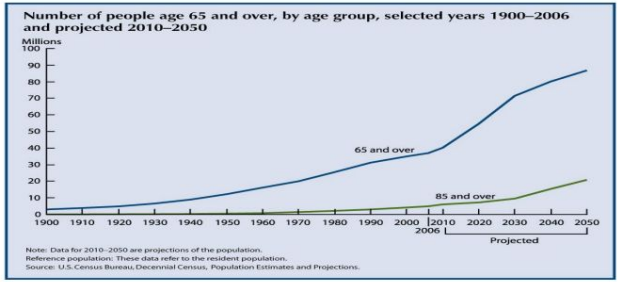
here

Dementia refers to a disease process marked by:

- Progressive cognitive impairment in **clear consciousness.**
  Does NOT refer to low intellectual functioning or mental retardation because these are developmental conditions.
- Cognitive deficits represent a decline from a previous level of functioning.
- Involves multiple neurocognitive domains.
- Cognitive deficits cause significant impairment in social or occupational functioning or both.



People > 65 make up one of the fastest growing segment of population



Female Slides

Dementia

- It is characterized by severe multiple cognitive deficits, including **Memory loss.**
- **Consciousness is not impaired**.
- The major defect involve orientation, memory, perception, intellectual 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.

Deep thinking Question

What is the Major difference between Delirium and Dementia?

A. Delirium is a chronic and progressive condition, while dementia is characterized by sudden onset and fluctuating course.
B. Delirium primarily affects attention and consciousness, while dementia primarily affects motor skills and coordination.
C. Delirium is reversible and usually caused by an underlying medical condition, while dementia is irreversible and caused by degenerative brain disorders.
D. Delirium is more prevalent in younger adults, while dementia is more commonly seen in older adults.

Answer:- C

Epidemiology

01	Affective symptoms, including depression and anxiety are seen in 40 to 50% of demented
02	Delusion and hallucination occur in 30%.
03	**No gender** difference.
04	**Increasing age** is the most important risk factor (It is primarily a disorder of the elderly).
05	The prevalence of moderate to severe dementia: - In the general population is 5% > 65 years - 20 - 40% in > 85 years - 15 - 20% In outpatient general medical practice - 50% in chronic care facilities

Male slides

Dementia Presentation

Early stage

- **In early stage cognitive impairment may not be apparent:**
- **Gradual loss** of social and intellectual skills (first noticed in work setting where high performance is required).
- **Mild** memory impairment. first affected short term
- **Subtle changes in personality**.
- **Changes in affect** (mood) (irritability, anger,...).
- Multiple **somatic complaints** and vague psychiatric symptoms.

Late stage

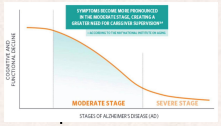
- In the late stages cognitive disturbances emerge:
- **Increasing memory impairment** (esp. recent memory).
- **Attention impairment.**
- **Disorientation** (particularly to time, and when severe to place and person).
- **Language**: vague and imprecise speech with inappropriate repetition of the same thoughts (Perseveration).
- **Impaired judgment**. ↓ problem solving skills
- Potential **aggression** (verbal & physical).
- **Psychotic** features (hallucination & delusions).
- **Emotional lability.**
- **Catastrophic reaction** (marked by agitation secondary to subjective awareness of intellectual deficits under stressful circumstances).

Due to differences between male and female slides we didn't add colors to this slide

Causes of dementia

01

Alzheimer's disease (AD) (50 - 60 %)



➢ Gradual onset and a continuous slow but steady decline from a prior intellectual and functional capacities, especially memory.

➢ **Age of onset**:

• Before age 65 (5%) •After age 65 (95%)

•Live an average of 10 years following diagnosis.

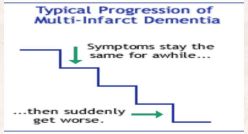
➢ **Risk factors**:

Old age, **female**, low education, first-degree relative with AD, cigarette smoking, depression,mild cognitive impairment, and social

Isolation dementia, delusions, or depression

02

vascular(uncontrolled hypertension) (multi-Infarct) dementia (10 - 20 % of dementias):



➢ Declining **Stepwise deterioration** of intellectual functioning **due to multiple infarcts of varying sizes** or arteriosclerosis in the main

intracranial vessels.

➢ Risk factors for vascular dementia: (Age > 60 - **Male** - Pervious stroke).

Stroke risk factors: (HTN, heart disease/atrial fibrillation, DM, Smoking, obesity, and hypercholesterolemia(vessel thrombosis or hemorrhage)

03

Frontotemporal dementia:

Degeneration of the frontal and temporal lobe and characterized by **inappropriate behavior (hypersexuality), personality changes,**

and loss of impulse control.

04

Lewy Body dementia:

Characterized by **fluctuating in cognition, vivid visual hallucinations, parkinsonian features (tremor, rigidity, gait problems/falls).**

05

Medical conditions (reversible conditions; 15 % of dementias):

➢ A variety of **non-psychiatric, non-neurologic** conditions **can cause cognitive symptoms** which can strongly **resemble dementia**.

➢ Referred as **reversible dementias**, as treating the underlying condition can **effectively restore cognitive function back to its previous state.**

➢ **Common causes of reversible dementia**:

•Drugs (Benzodiazepines, anticonvulsants, anticholinergics…) , alcohol/substance abuse.

•Sensory impairments (Vision, hearing loss).

•Metabolic abnormalities (Poorly treated DM).

•Endocrinological problems (Hypothyroidism).

•Nutritional deficiency (Vitamin B12 deficiency).

•Infections (HIV, neurosyphilis).

• Pick's disease

• Creutzfeldt-Jakob disease(slow-growing transmittable virus)

06

Other type of dementia:

➢ Parkinson's disease (20 - 30 % of patients with Parkinson's disease have dementia).

➢ **Normal-pressure hydrocephalus** (Progressive memory impairment, slowness and marked unsteady gait (+ urine incontinence in the late stage).

➢ Huntington's disease (intellectual impairments with extrapyramidal features).

➢ Creutzfeldt-Jakob's disease (CJD)(جنون البقر).

➢ Traumatic Brain Injury (TBI).

➢ Prion diseases.

➢ **Substance induced**, caused by toxin or medication (e.g., gasoline fumes, atropine)

➢Multiple etiologies

➢**Not otherwise specified** (if cause is unknown).

Female Slides

Course and prognosis

- Dementia may be progressive, remitting, or stable.
- In reversible causes of dementia the course depends on how quickly the cause is reversed.(كل ما اكتشفنا المرض بدري كل ما كان العلاج افضل و النتائج أفضل)
- For Dementia of Alzheimer's type the course is likely to be one of slow deterioration.

Male slides

Delirium vs. Dementia vs. Depression

Features	Delirium	Dementia	Depression
Onset	Acute (hours to days)	Insidious (months to years)	Acute or Insidious (wks to months)
Course	Fluctuating	Progressive	May be chronic
Duration	Hours to weeks	Months to years	Months to years
Consciousness	Altered	Usually clear	Clear
Attention	Impaired	Normal except in severe dementia	May be decreased
Psychomotor changes	Increased or decreased	Often normal	May be slowed in severe cases
Reversibility	Usually	Irreversible	Usually

Dementia

- History of Chronic disease.
- Insidious onset المقصد انه يكون بشكل تدريجي
- Duration months-years.
- Progressive course, majority irreversible.
- level of consciousness Normal early on.
- Normal level of arousal.
- Usually in nursing homes and psychiatric hospitals.

Delirium

- History of Acute disease.
- Rapid onset.
- Duration days-weeks.
- Fluctuating course, often reversible
- Fluctuating level of consciousness.
- Agitation or stupor.(هي المرحلة ما قبل الإغماء)
- In medical, surgical and neurological words.

Dementia Workup

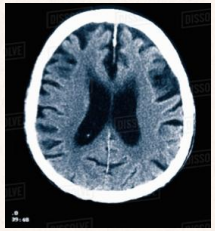
Investigations: Essential workup to detect treatable causes

➔ Blood work (CBC with differential, **TSH**, blood glucose, electrolytes, Ca, Mg, **vitamin B12**, folate, liver and renal function tests).
➔ Other tests (serum HIV).
➔ Neuropsychological testing (MoCA).
➔ Neuroimaging (CT scan and MRI).

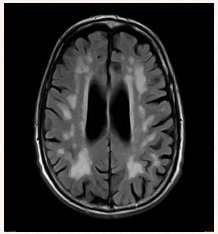
Comprehensive history and physical examination.

Neuroimaging

Alzheimer's dementia:
➔ Cortical atrophy.
➔ Wide sulci & gyri.
➔ Wide ventricles.



Vascular dementia:
➔ Lesions and atrophy of cortical and/or subcortical structures corresponding to infarcts.



Female Slides

Management

01	Potentially reversible causes for the dementia (hypothyroidism, CNS syphilis, subdural hematoma, vit B12 deficiency, uremia, hypoxia).
02	Identify other treatable medical conditions that may worsen the dementia.
03	**Supportive measures**
04	Ensure proper treatment of any underlying medical problems or associated disruptive symptoms
05	Maintain proper nutrition, exercise, and daily activities
06	**Provide an environment with frequent cues for orientation to day, date, place, and time.** (الفكرة انه نزود المريض بمكان لا يتغير فيه اشياء كثيرة ، مثل موقع الساعة على الحائط أو حتى الممرض يلي يزوره كل يوم، لان هذا الشي يساعدهم على استرجاع الذاكرة)
07	As functioning decreases, nursing home placement may be necessary.

Female Slides

Amnestic disorder

Amnestic disorder: 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 (الذاكرة فقط هي المتأثرة مو شيء ثاني)

Diagnosis

01	▪ The development of memory impairment as manifested by impairment in the ability to learn new information or the inability to recall previously learned information
02	▪ The memory impairment cause significant impairment in social or occupational functioning.
03	▪ The memory impairment does not occur during the course of a delirium or dementia.
04	▪ The disturbance is due to general medical condition or substance.

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(غالبا اي شيء يأثر على المخ راح يأثر على باقي الوظائف مثل المدير اللي يسيطر على باقي الاشياء)

Management

Identify the cause and reverse it if possible, otherwise, institute supportive medical procedures.

Team Leaders :

Reema alzughaibi

Marwan almalki

Team Members:

Farah Abukhalaf

Abdullah Sulaiman

Mohammed Alarfaj

Shoug Alkhalifa

Fahad Abdullah

Mansour Alotaibi

Aseel Alshehri

Khalid Alkathiri

Psychiatryteam443@gmail.com