







# Introduction to Neuropsychiatric Disorders

Editing File



**Click here for the  
summary!**

-  Important
-  Dr's notes
-  Only in male slides
-  Only in female slides
-  Extra information
-  Reference from Dr.

# Objectives:

- **Know the cognitive functions & the neurocognitive disorders.**
- **Understand delirium and know how to detect it.**
- **Understand dementia and know how to detect it.**
- **Know other neurocognitive disorders (amnesic syndrome/ TBI).**

# Introduction

## Cognition Definition

It is the mental action or process of acquiring knowledge and understanding through thought, experience, and senses.\*

**Cognitive Processes:** The way of thinking and conclusion formating.

## Cognition Function

It encompasses many aspects of intellectual functions and processes:

- |    |               |    |             |    |                     |    |                          |
|----|---------------|----|-------------|----|---------------------|----|--------------------------|
| 01 | Attention     | 03 | Orientation | 05 | Executive function  | 07 | Impulse                  |
| 02 | Concentration | 04 | Memory      | 06 | Language processing | 08 | Control Processing Speed |

## Cognitive/Neurocognitive Disorders

Characterized by cognitive deficits:

- Represent a decline from a previously attained level of functioning
- Were **not present** from birth or very early in life
- Present in many mental/neurological disorders

### Categories of Neurocognitive Disorders

1. Delirium - **Acute** global cognitive disorder **with** disturbed consciousness
2. Mild Neurocognitive Disorders
3. Major Neurocognitive Disorders:
  - a. Dementia - Chronic global cognitive decline **without** disturbed consciousness
  - b. Amnesic syndrome - Marked primarily by memory impairment or specific disorder of short-term memory caused by a medical condition, toxins, medications, or an unknown cause.

## Cognitive Therapy

A type of psychotherapy that is concerned with **detection** and **correction** of wrong thoughts and thinking process (negative cognition). **It is not a treatment of cognitive disorders.**

## How to Assess Cognitive Functions (males slides)



Tests determine a patient's mental state by testing:

- |  |   |
|--|---|
| • Attention: ex. spell a word backward | • Orientation: Time, place, and person      |
| • Concentration: ex. serial 7 test     | • Memory: registration-short-term-long-term |

## Case

75 year old male smoker with long standing history of HTN, DM type 2, hypercholesterolemia, history of BPH and UTI and mild urinary retention. Presented to the ER with 3 days history of low-grade fever, lethargy, and dysuria. He also started to have poor sleep for three days and therefore, his daughter give him unknown medication that she bought from the pharmacy. On the same of ER presentation, he started to have high grade fever and he started to be **confused**. His daughter stated, that he was **talking nonsense** and it seems that he was **seeing unseen images**. There was history of **fluctuating consciousness** and he was **disoriented to place, person, and time**. There were **periods where her father was less confused and less disoriented**. and it seems that he went back to his normal self. **And there were periods of complete confusion and disorientation**. Few hour later, after hospital admission, He started to be **aggressive and agitated**, Pulled out his IV lines and Insisted to be discharge from hospital because **he was thinking that nursing staff want to kill him**.

## Definition

It's an **acute**, global, cognitive disorder associated with **impaired/disturbed consciousness due to another medical problem**. It is a severe and reversible condition that results in short term confusion and changes in cognition.

Patient may be dangerous to himself or others. Thus, delirium is one of the **serious medical emergencies**. \* It is usually associated with disturbances in:



**Perception**  
(hallucinations or illusions)



**Thinking**  
(delusions)



**Affect Mood**  
(perplexity or irritability)



**Behavior**  
(agitation or aggression)

## Epidemiology

### Peak Age

It may occur at any age but **more in elderly and children**.  
Why? due to atrophy in elderly and under development of the brain in children. Both of their brains are sensitive.

### Sex\*



Male = Female

## Prevalence



### Community Prevalence



### Hospitalized Patients (50%)(10%)

General	Above 85	End of life	Post-operative	Post Burn	Post-Cardiotomy	ICU
1 - 2%	14%	80%	10- >50%	20%	>90%	(75-85%) (30%)



### Post-acute care setting or Nursing homes

60%

- Delirium complicates **at least 25%** of all hospitalizations in the elderly

# Delirium “الذهيان”

## Clinical Features \*

- ★ **Acute** onset of mental status change
- ★ **Fluctuating course** يكون طبيعي وفجأة بعد خمس دقائق يكون بصير confused
- **Disorientation** and memory impairment
- Attention deficits
- Confusion or disorganized thinking
- Perceptual disturbances
- Disturbed sleep/wake cycle (Sundowning phenomena)  
Sleeps at morning and wakes at night
- Altered psychomotor activity
- Behavioral and emotional abnormalities
- Other cognitive deficits



[Click here to watch a real patient with delirium!](#)

## Types

Delirium is commonly described based on the type of alteration that is seen:

<b>Hyperactive (30%)</b>	Most clear and the least controversial in diagnosis	Hyperactive (increased) psychomotor activity	May have mood lability, <b>agitation</b> , refusal to cooperate with medical care. *
<b>Hypoactive (24%)</b>	Most difficult type to identify	Hypoactive (decreased) psychomotor activity	Classically, these patients present with <b>symptoms that resemble depression</b> (lethargy, slowness, decreased level of alertness, and decreased speech production). Therefore, a large percentage of these patients are <b>inappropriately diagnosed as depressed</b> . The difference between hypoactive and depression is the loss of <b>cognitive</b> functions in hypoactive but not in depression.
<b>Mixed (46%)</b>	Classic wax and waning pattern	Normal psychomotor levels with <b>disturbed attention and awareness</b>	Rapid fluctuations of activity levels. * Commonly seen in surgical wards (agitated at times, with alternating episodes of hypoactivity). *

# Delirium “الهديان”



## Etiology

- **Infections** - Systemic (ex. septicemia), Specific (ex. encephalitis)
- **Withdrawal from substance of the abuse** - Alcohol, sedative-hypnotic, barbiturates
- **Acute Metabolic Disorder** - (Electrolyte imbalance\*)(Acidosis, Alkalosis, Liver/Kidney failure)
- **Trauma** - Closed head trauma, heatstroke, recent surgery, severe burns
- **CNS pathology** - Abscess, tumor, seizures, hydrocephalus
- **Hypoxia** - Anemia, hypoperfusion due to heart or lung failure, CO poisoning
- **Deficiencies of vitamins** - B12, folate, **thiamine**, niacin
- **Endocrinopathies** - Hyper/Hypoglycemia, Hypo/Hyperadrenocorticism, Hyperparathyroidism
- **Acute vascular** - Hypertension, stroke, TIA, arrhythmia
- **Toxins** - Medications, illicit drugs, pesticides, solvents
- **Heavy metal** - Lead, manganese, mercury



### Mnemonic- I WATCH DEATH

Infection, **W**ithdrawal, **A**cute metabolic disorder, **T**rauma, **C**NS pathology, **H**ypoxia, **D**eficiencies, **E**ndocrine, **A**cute vascular, **T**oxins/drugs, and **H**eady metals are the major causes of delirium.

## The Importance of Discovering Delirium

Delirium is a very serious medical and psychiatric condition. The patients have a **high risk** of:

01

Death  
(due to associated serious medical condition)

02

Violence toward medical staff

03

Self-harm or **suicidal** risk

04

**Impaired judgment and Psychosis**

### Delirium is associated with:

- ↑ Morbidity and **mortality** (30%)
- ↑ Length of hospital stay
- ↑ Rates of admission to long term care facilities
- 20 % of patients discharged post hip # still had evidence of delirium

## The Reason Delirious Patients Become Suicidal or Aggressive



- Due to **severe disturbance** in the patient's perception, mood, judgment, thinking, and behavior
- Patient **may** act on hallucinations, illusions or delusional thoughts as if they were genuine dangers (ex., blood extraction by a nurse might be perceived as an attack)

**Risk Factors**  
to develop delirium

- ★ **>60 years** (Dr: with high age or any predisposing factor, it becomes easier to develop delirium even with a small trigger and vice versa)
- ★ **Polypharmacy** (it's the use of multiple medications by a patient at the same time)
  - Medications :
    - More than 3 drugs, psychoactive meds, Anticholinergic meds and 5HT Meds
    - Examples: Opioid, Corticosteroids, Benzodiazepines, NSAIDS Chemo Meds
- Underlying brain pathology such as stroke, tumor, vasculitis, trauma, or dementia
- Major medical illness.
- Recent major surgery.
- Dehydration
- Substance abuse/dependence
- Metabolic abnormalities
- Male sex
- Visual/hearing impairment
- Depression
- Functional dependence
- Hip fracture

**Diagnostic Criteria (DSM-5)****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 ü 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

**Investigation**

## Proper assessment of mental functions:

- Mini-Mental state exam (MMSE)(common) The score of delirious patient changes every time because of the fluctuating. But demented patient it's constant. (Both low) #438
- MoCA Montreal cognitive assessment ( for satisfaction test)

There is no **specific** diagnostic investigation for delirium.

**First line investigations:**

- CBC, WBCs
- **Electrolytes**, Blood glucose
- Liver/Renal function tests.
- Urinalysis
- Blood cultures
- Thyroid function
- ECG
- Chest x-rays

**Second line investigations:**

- Drug screen
- Cardiac enzymes
- Blood gas (ABG)
- Serum folate and B12
- EEG
- CSF examinations
- Brain CT or MRI

## Treatment

### Non-Pharmacological Interventions

- **Ensure patient's/staff safety FIRST**
- Detect the cause (s) & treat it properly, (prober history, physical and mental examination, investigation)\*
- Symptomatic measures involving attention to fluid and electrolyte balance, nutritional status, and early treatment of **infections**
- Proper communication and support are critical with these patients. **Frequently reorient, reassure and explain procedures clearly to the patient.**
- Environmental interventions:
  - Reduce unfamiliarity by providing a calendar, a clock, family pictures, and personal objects
  - Maintain a moderate sensory balance in the patient by avoiding sensory overstimulation, **understimulation** or deprivation
  - Minimize staff changes, limit noise and the number of visits, a nightlight, **keep him in well lit-room** and where necessary, eyeglasses and hearing aids

### Pharmacological Interventions

- **All the patient's medications should be reviewed.** Any unnecessary drugs should be discontinued, especially anticholinergic
- If some medication needed, the patient should receive the lowest possible dose
- Drugs such as phenobarbital or **benzodiazepine** should be avoided (**limit or give with extreme caution**).
  - Why? They can also cause delirium; their effects may **increase** disorientation, drowsiness, ataxia, and **possible falls**, head trauma and fractures
- Pharmacological therapy for agitation or aggressive behaviour. **We can control mental and physical disturbance with antidopaminergics.**
  - Haloperidol (1mg/5 mg) oral/IV/IM
  - Quetiapine 25mg
  - Olanzapine 5 mg oral/IM 2- 3 **times/day** (or other type of atypical antipsychotics)
- IM administration may be preferable for some patients with delirium who are poorly compliant with oral medications or who are too sedated to safely swallow tablets.



### Summarized Treatment

**Correct the underlying medical disorder. Rule out anticholinergic drugs use. Phenobarbital, benzodiazepines (can cause delirium; be cautious with their use as they cause an increased risk of falls).**



# Delirium “الهلديان”



## Differential Diagnosis

- **Dementia:** Occasionally, delirium occurs in a patient with dementia, a condition known as beclouded dementia. However, a dual diagnoses can only be made when there is a definite history of pre-existing dementia.
- **Substance abuse** - Alcohol, inhalants, sedatives, and opioids
- **Amnestic syndrome**
- **Acute functional psychosis /Major psychiatric illness** (Brief psychosis, Mania, Exacerbation of Schizophrenia): Patients usually experience no change in their level of consciousness or in their orientation. The hallucination and delusions are more constant and better organized than those of patients with delirium. **We differentiate by taking history.**
- **Severe depression:** Patients with hypoactive symptoms of delirium may appear somewhat similar to severely depressed patients, but can be distinguished on the basis of EEG (normal in depression, **slow wave in delirium**)
- **Other neurocognitive disorders may coexist**, ex. stroke.\*

## Course

- The duration of the condition is usually short :7-10 days (days to weeks)
- Symptoms of delirium usually **persist** as long as the causally relevant factors are present.
- Treatment of underlying cause usually leads to rapid resolving of delirium. Some residual deficit may persist.
- If not treated, may progress rapidly into dementia or **death** (associated with high mortality rate).

## Prognosis

- Delirium may spontaneously resolve (usually in middle age) or progress rapidly into death. Because of the serious nature of the associated medical conditions.
- The longer the patient has been delirious and the older the patient → the longer it takes for delirium to resolve.
- Some patients may develop depression symptoms or post traumatic stress disorder (PTSD)

## Management

- Rule out other possible Differential diagnoses
- Treat underlying medical causes → Investigations → Medical management
- Treat delirium symptomatology (Non-pharmacological interventions or Pharmacological interventions)

## Case

73 years old lady, she was diagnosed for many years to have DM, HTN, Hypercholesterolemia, and Osteoporosis. Her family noticed in the last year that she start to be **more isolated** and **not socially engaging**. She started to be more **forgetful** and **repeating the same questions** over and over. More recently she started to **misplaces things like her keys** and **her personal items**. Also, there were few occasions where **she left refrigerator open**. more recently patient’s family discovered that patient is either **not taking her oral medications** or **taking her medications** wrongly. In addition, she started to be **more irritable and sometimes aggressive** towards her family. She has **poor insight about her current situation**. Throughout patient’s history, There is **no history of loss of consciousness**. And there is **no motor abnormality**. There is no history of abnormal perception or unusual thinking; however, more recently patient started to be more suspicious.

## Definition

It’s a **chronic**, global, **progressive cognitive impairment in clear consciousness** (not disturbed)(**rule out delirium**). 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 and cause significant **impairment in social or occupational functioning** or both. It involves multiple cognitive domains. It is associated to severe impairment in:



## Epidemiology

### Peak Age

It is primarily a disorder of the elderly. **Increasing age** is the most important risk factor. If the patient is less than 65 years, it is called **presenile dementia**.

### Sex



Male = Female  
No gender difference

## Clinical Features

### 1) Early stage cognitive impairment may not be apparent:

- **The essential feature is gradual loss of social and intellectual skills** (first noticed in work setting where high performance is required)\*
- Shrinkage of social interaction with other\*
- **Mild** memory impairment (**short term memory first**)
- Subtle changes in personality
- Changes in affect/mood (irritability, anger, **depression**, anxiety)
- Multiple somatic complaints and vague psychiatric symptoms

# Dementia “الخرف”

## Clinical Features - Cont.

### 2) Late stages cognitive disturbances emerge:

- Increasing memory impairment, especially **recent memory**
- Attention impairment
- Disorientation particularly to time, and when severe to place and person (can't identify relatives\*)
- Language: vague and imprecise speech with inappropriate repetition of the same thoughts (perseveration)
- Impaired judgment
- 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)
- In advanced stages (long-term memory is affected)

Characterized by progressive and usually irreversible impairment of cognitive function and memory. Unlike delirium, the level of consciousness does not vary throughout the day, and the signs and symptoms of dementia generally appear progressively.

## Investigations\*

01

### Comprehensive history and physical examination



02

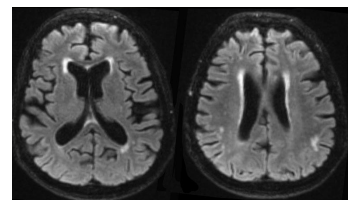
### Blood work

- CBC with differential, TSH, blood glucose, **electrolytes**, Ca, Mg, **vitamin b12**, folate, liver and renal function tests
- Other tests: serum HIV
- Neuropsychological testing (MoCA)

03

### Neuroimaging

- CT scan and MRI



## Differential Diagnosis\*

- **Normal aging:** Age-related cognitive decline (the course is not progressively deteriorating), no loss of social or occupational functioning.
- **Depression in the elderly (Pseudo-dementia):** Cognitive disturbance is relatively of rapid onset and preceded by depressive features. The differentiation is sometimes difficult as demented patients may also become depressed as they begin to comprehend their progressive cognitive impairment. EEG and CT scan are normal in pseudo-dementia.
- **Delirium:** The onset is rapid and consciousness is impaired. Some demented patients may develop delirium. **Diagnosis of dementia cannot be made before delirium clears.**

There is no cure for dementia unless it is caused by a treatable medical condition (eg, vitamin B12 deficiency).

## 1) Supportive Measures:

- Ensure patient safety
- Provide good physical care, good meals & hygiene
- Encourage family involvement
- Support the care givers, they are prone to depression

## 2) Specific Measures:

Identify and correct any treatable or controllable condition such as:

- Hypothyroidism
- Vitamin B12 deficiency
- Hypertension
- Diabetes

## 3) Symptomatic Treatment:

- Agitation or aggression by antipsychotic
- Insomnia
- Depression by antidepressants

## 4) Cognitive (Memory)-Enhancing Medications (mainly for Alzheimer’s dementia):

1. **Cholinesterase inhibitors:** Rivastigmine- Galantamine- Donepezil  
We give them to patients due to the depletion of acetylcholine which caused dementia. Medications only slow the progression of the disease.
2. **Memantine** (NMDA receptor antagonist): Protects neurons from neurodegenerative process induced by glutamate excitotoxicity

**5) Medications.** Be aware of possible mental side effects of such medications like confusion, over-sedation, or risk of falling down.

**If agitated, aggressive, or insomniac:** Give a small dose of antidopaminergic drug (ex. olanzapine 5mg, risperidone 2mg, or quetiapine 25mg).

**If depressed:** Give a small dose of antidepressant (ex. escitalopram 5 mg or sertraline 25mg).

Depends on the cause. Usually progressive deterioration. Some patients become double incontinence. (Bladder and bowel incontinence occurs at the same time)

Some causes of Dementia:

### Alzheimer’s Dementia

- Shows a **progressive slow (downhill) deterioration**
- The patient may become incontinent of urine and/or stool

### Vascular Dementia

- Shows **stepwise deterioration.**
- Stationary course after a massive stroke that is then followed by a good control of the risk factors ex.: HTN, DM, etc.

Treatment & Management

Course & Prognosis

# Dementia “الخراف”

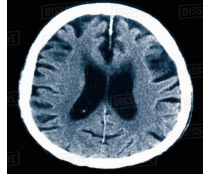


Amboss

## Causes

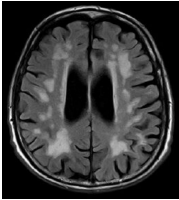
### Alzheimer's Disease Most common (50-60%)

- Gradual onset and a continuous **slow** but **steady decline** in prior intellectual and functional capacities, **especially memory**.
- Due to **degenerative process affecting the whole cortex, especially cholinergic neurons**.
- Age of onset: Before age 65 (5%)(less likely), After age 65 (95%)(more likely).
- 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.
- **Neuroimaging**  
Cortical atrophy, wide sulci & gyri wide ventricles



### Vascular (Multi-infarct) Dementia

- Declining Stepwise deterioration of intellectual functioning due to multiple infarcts of varying sizes or arteriosclerosis in the main intracranial vessels. **It usually occurs in patients with hypertension or diabetes**.
- **Risk factors** for vascular dementia: Age older than 60, male, previous stroke
- Stroke risk factors: HTN, heart disease or atrial fibrillation, DM, Smoking, obesity, and hypercholesterolemia.
- **Neuroimaging**  
Lesions and atrophy of cortical and/or subcortical structures corresponding to infarcts.



### Medical Conditions (Reversible conditions; 15% of dementias)

- **Not all types of dementia start with memory impairment.** Treating the underlying condition can effectively restore cognitive function back to its previous state.
- **Common causes of reversible dementia:**
  - **Medical conditions like Parkinson's Disease**
  - Drugs (benzodiazepines, anticonvulsants, anticholinergics), alcohol or substance abuse
  - Sensory impairments (vision, hearing loss)
- Common causes cont.:
  - Metabolic abnormalities: (poorly treated DM, **severe B12 deficiency, hypothyroidism**)
  - **Endocrinological problems: hypothyroidism**
  - **Nutritional deficiency: Vitamin B12 deficiency**
  - Infections (HIV, neurosyphilis)

### Lewy Body Dementia

- Characterized by **fluctuation in cognition**, visual hallucinations, **parkinsonian** features: Tremor, rigidity, gait problem or falls.

### Fronto- temporal Dementia

- Frontotemporal dementia is the degeneration of the frontal and temporal lobe. It is characterized by: inappropriate behavior (hypersexuality), personality changes, and loss of impulse control.

### Other

- **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 extra pyramidal features.
- Creutz-feldt-jakob's disease
- Traumatic Brain Injury (TBI)
- Prion disease



# Dementia vs. Delirium

Feature	Dementia	Delirium
<b>Onset</b>	Slow or Gradual Except for vascular dementia	Rapid
<b>Duration</b>	Months to years	Hours to weeks
<b>Level of Consciousness</b>	Intact, Normal (does not change throughout the day)	Impaired, Fluctuates (varies throughout the day)
<b>Attention</b>	Preserved	Fluctuates
<b>Awareness</b>	Unchanged	Reduced
<b>Medical Status</b>	Irreversible	Usually reversible, after correction of underlying medical disorder
<b>Memory</b>	Gradual decline over a longer period of time	Dramatic decline in a short period of time
<b>Hallucinations</b>	Less common	Visual hallucinations common
<b>Course</b>	Chronic/Deteriorating/ Progressive	Transient/clears within 7-10 days

# Amnestic Syndrome

“فقدان الذاكرة”

It's old terminology is Wernicke–Korsakoff 's syndrome

## Case

A 48 years old male. Has long standing history of:

- Hypertension
- Diabetes Mellitus Type 2
- Hypercholesterolemia

Presented with **significant cognitive and behavioural problems**. He had **difficulty with learning new information** and **making appropriate plans**. Personal/social history: **smoke tobacco and consume alcohol** on an almost daily basis for many years.

## Definition

A major neurocognitive disorder marker primarily by **impairment in short term memory**. There is retention of **new information** in the temporal lobe function (hippocampal pathology) due to a specific organic cause, in the absence of generalized **intellectual impairment**. **Doctors are able to diagnose it by giving information to the patient then ask him/her about it after 5 minutes.**

### Characterized by:

- Impairment in the ability to create new memories (Anterograde amnesia)
- It leads to social and occupational dysfunctioning
- The patient may show confabulation (Filing memory gaps with incorrectly retrieved information) (Retrograde amnesia)
- The insight is partially impaired
- In contrast to **delirium**, **the immediate memory is usually intact**. Digit span test “frontal lobe function” is normal
- In contrast to **dementia**, **the remote memory is intact**. Remote memory is the ability to remember things and events from many years earlier.

## Etiology

- Toxins or Drugs
- Unknown causes
- **Head injury lesions:** Hippocampus, posterior hypothalamus, and nearby midline structures
- **Thiamine (B1) Deficiency, Most common cause**
  - Thiamine is essential for the enzyme transketolase, which essential for glucose metabolism.
  - **Associated with alcohol abuse**, poor nutrition (ex. starvation), gastric carcinoma, persistent vomiting (ex. typhoid fever), hemodialysis
  - **Not committing to diet after bariatric surgery**

# Amnestic Syndrome

“فقدان الذاكرة”

It's old terminology is Wernicke–Korsakoff 's syndrome

## Wernicke–Korsakoff 's Syndrome

It is an amnestic syndrome caused by **thiamine deficiency**, most commonly associated with **poor nutritional habits** of people with **chronic alcohol use**.



### Wernicke encephalopathy (Acute syndrome):

1. Impaired consciousness (confusion)
2. Ataxia
3. Memory impairment
4. Ophthalmoplegia
5. It's an **emergency** and requires immediate high-dose of IV Thiamine therapy

مهمة ويحبون يسألون فيها Dr: ★

### Korsakoff's Syndrome or Korsakoff's Psychosis (Chronic syndrome):

1. Peripheral neuropathy
2. Irritability and personality changes (Altered temper)
3. Apathy
4. Profound **anterograde amnesia** and inability to form new memories
5. Confabulate (e.g. make up information when asked questions) (Retrograde Amnesia)



### Mnemonic

Wernicke's **COAT**: Confusion, Oculomotor dysfunction, Ataxia, and Thiamine administration  
Korsakoff's **CART**: Confabulation, Anterograde and Retrograde amnesia, and altered Temper

Treatment	Prognosis
<ul style="list-style-type: none"> <li>● Identify and reverse the cause if possible</li> <li>● Thiamine supply (if due to thiamine deficiency)</li> <li>● Supportive medical measures fluids &amp; nutrition (no specific treatment).</li> </ul>	<ul style="list-style-type: none"> <li>● If it is due to thiamine deficiency and thiamine is provided promptly</li> <li>● Prognosis is good; Otherwise, the course is usually chronic and may be progressive.</li> <li>● Psychiatric symptoms &amp; seizures may arise as a result of underlying brain tissue injury.</li> </ul>

Although often grouped together as a single syndrome (Wernicke-Korsakoff syndrome), the two conditions are distinct entities with different presentations, and, while both are due to severe chronic thiamine deficiency, **Wernicke encephalopathy is reversible whereas Korsakoff syndrome is not.**



# Traumatic Brain Injury (TBI)

## Case

A 19-year-old male involved in a **road traffic accident**. He **lost his consciousness** for 5 days and remained 3 weeks in the hospital. After discharge, his parents noticed that he became:

- Impulsive,
- Disinhibited,
- Sometimes aggressive,
- More recently they noticed that he started to be more **depressed** and sometimes feeling so **anxious**.

## Definition

An insult to the brain from an external mechanical force, possibly leading to permanent or temporary impairment of cognitive, physical, and psychosocial functions, with an associated diminished or altered state of consciousness.

### Areas of function affected:

- 1-Cognitive
- 2-Sensory/perceptual
- 3-Seizures
- 4-Other physical changes
- 5-Social-emotional

## Acute consequences

- Impaired consciousness in varying duration (hours, days, weeks, or months) long duration suggests poor prognosis.
- Delirium (after severe head trauma).
- Memory defects : on recovery of consciousness, defects of memory are usually present.

### Anterograde (post-traumatic) amnesia:

- Amnesia for events in the time between the trauma and the resumption of normal continuous memory. It is a good prognostic factor: probably full recovery when anterograde amnesia was less than 12 hours.

### Retrograde amnesia:

- Amnesia for events in the time between the trauma and the last clearly recalled memory before the injury. It is not a good predictor of outcome.

# Traumatic Brain Injury (TBI)

## Chronic consequences

### Lasting cognitive impairment:

- when the injury has caused a prolonged post traumatic amnesia (of more than 24 hours).
- Cognitive impairment was particularly associated with parietal and temporal damage, especially on the left side.
- Recovery of function may be very slow and may continue over the years.

### Emotional disturbances:

- Depressive, anxiety and phobic features are common, and associated with somatic complaints such as headache, fatigue and, dizziness.

### Personality changes:

- There may be irritability, reduced control of aggressive impulses, sexual disinhibition and some coarsening of behaviour, particularly after frontal lobe injury.

### Psychotic features:

- Psychotic features related to depression (non-dominant frontal damage).
- Paranoid psychosis (temporal lobe damage).

### Social consequences:

- Many patients and their relatives experience severe distress of head injury, and have to make substantial changes in their way of life

### Medico-legal aspects:

- Compensation issue is more likely to contribute to disability if patient feels someone else is at fault, financial compensation is possible, low social status and in industrial injury.

Factors affecting the outcome of head trauma	Treatment
<ul style="list-style-type: none"><li>• Duration of loss of consciousness.</li><li>• Duration of anterograde (Post-traumatic) amnesia.</li><li>• Amount and location of brain damage.</li><li>• Premorbid personality and past psychiatric history.</li><li>• Development of seizures.</li><li>• Medico-legal factors e.g. compensation.</li></ul>	<ul style="list-style-type: none"><li>• A plan for long-term treatment should be made as early as possible after head trauma.</li><li>• Aggression and impulsivity can be treated with anticonvulsants or antipsychotics.</li><li>• Treatment should include physical and psychological rehabilitation to which the clinical psychologist can sometimes contribute behavioral and cognitive techniques.</li><li>• Problems of litigation and compensation should be settled as early as possible.</li><li>• Continuing psychosocial help should be provided to patient and carers, by a special team.</li></ul>

# MCQs :

**1- Which of the following is a characteristic of delirium?**

A) Memory loss	B) Gradual onset	C) Consciousness fluctuation	D) after by physical trauma
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**2- What is the most common type of delirium?**

A) Hypoactive	B) Hyperactive	C) Mixed	D) Chronic
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**3- Which of the following is NOT a cause of reversible dementia?**

A) Drugs	B) Traumatic brain injury	C) Hypothyroidism	D) HIV
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**4- Loss of short term memory due to a head injury that affects hippocampus and posterior hypothalamus, with intact remote memory is known as:**

A) Alzheimer's disease	B) Delirium	C) HIV associated dementia	D) Amnestic syndrome
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**5- The most common cause of dementia is:**

A) Alzheimer's disease	B) Vascular diseases	C) Parkinson's disease	D) Trauma
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**6- A 54 years old male came to the clinic with ataxia, impaired consciousness, memory impairment, ophthalmoplegia. What is your diagnosis?**

A) Vascular dementia	B) korsakoff's syndrome	C) wernicke encephalopathy	D) delirium
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# **G** **d Luck!**

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