Delirium

- acute confusional state
- acute brain failure
- encephalopathy
- global cognitive impairment
- Hippocrates “phrenitis”

- **Cognition** is derived from Latin and means knowledge by experiencing and perceiving. Cognitive functions include:
    - *orientation, thinking, perception, language, reasoning, and remembering and intellect*,
- **Intellect** means the ability to understand and comprehend.

- Delirium is an acute reversible disturbance of cognition associated with disturbance in the level of consciousness
- It can occur at any age, but it occurs more commonly in patients who are elderly and have a previously compromised mental status

Agitated (out of control)

Hyperalert (vigilant)

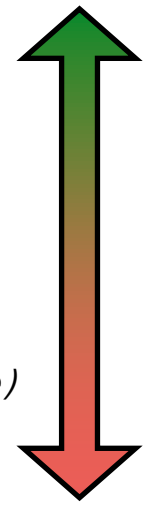
Alert (normal)

Drowsy (lethargic)

Obtunded (difficult to wake)

Stuporous (v .difficult to wake)

Comatose (unable to wake)



Epidemiology and diagnosis of delirium

- Delirium affects 11-16% of medical and surgical patients with
- Children and elderly are more frequently affected
- Highest incidence in ICU

Delirium is common:

- Common in the general population
  - 0.4% of all people
  - 1.0% in individuals over 55(over 10% in those >85)
  - 60% of nursing home residents
- Common in the medical setting
  - 10-30% of elderly in the ER
  - 20% of all medical admissions
  - 4-53% among hip fracture patients
  - 4-28% of elective surgery patients
  - 13-72% of cardiac surgery patients

Causes

- Drug intoxication, withdrawal from alcohol (delirium tremens),barbiturates and sedative-hypnotic following prolonged usage, metabolic disturbances, CNS infections,CNS pathology,hypoxia,endocrinopathies,HT,shock,toxins or drug,heavy metals(lead,mercury) head injury, and nutritional and vitamin deficiency and following generalised seizures, petit mal status, and partial complex seizures

Clinical features

- The symptoms are usually fluctuating with worsening at night.
- 1-disturbance of consciousness(inattention and distractibility).Assessed by asking the patient to name the days of the week in reverse order
- 2-memory impairment:assessed by asking the patient to recall 3 words.
- 3-impaired orientation;disorientation to time,place but rarely to person.
- Overctivity, irritability, and sensitivity to noise, fear, suspiciousness. Visual hallucinations (frightening scenes) and misinterpretation of shapes, patterns, and colours (illusions) are common. Auditory (threatening voices) and tactile hallucinations (crawling insects) may occur. Delusions are often persecutory. Restless patients resent interference and may become aggressive. Some patients are retarded rather than overactive. Patient's mood is labile with a mixer of fear, anxiety, agitation, irritability, and depression

- The diagnosis depends on impairment of consciousness, disorientation, and fluctuation of the clinical picture.
- Clock-drawing test provide a rapid screen for the presence and degree of delirium.
- Minimental state examination is used as screening and diagnostic tool

Clinical case:

44 y/o non-compliant patient:

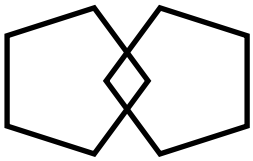
A 44 y/o male is sustained multiple injures after being hit by a car. Three days after surgical admission psychiatry is consulted secondary to his variable refusal of care and an attempted elopement. He is described as intermittently yelling, throwing food, and RISing .He is homeless, has known mental illness and a history of alcoholism. The surgical team is asking if he has capacity to refuse care. When you meet with him he is disoriented to time and circumstance and is often incomprehensible because of mumbling and tangentiality .

Investigation

- complete blood count, plasma electrolytes and urea, serum glucose, liver function tests, and other appropriate tests dictated by the suspected diagnosis

Using the MMSE in delirium

- Scores < 24 have been suggested to be a threshold
- 4 key questions of the MMSE:
  - Year
  - Date
  - Backward spelling ("DLROW(")
  - Figure copying



" I watch death" :

TABLE 2. The differential diagnosis for delirium using the mnemonic "I WATCH DEATH"

INFECTION	Encephalitis, meningitis, syphilis, HIV, sepsis
WITHDRAWAL	Alcohol, barbiturates, sedative-hypnotics
ACUTE METABOLIC	Acidosis, alkalosis, electrolyte disturbance, hepatic failure, renal failure
TRAUMA	Closed-head injury, heat stroke, postoperative, severe burns
CNS PATHOLOGY	Abscess, hemorrhage, hydrocephalus, subdural hematoma, seizures, stroke, infection, tumors, metastases, vasculitis
HYPOXIA	Anemia, carbon monoxide poisoning, hypotension, pulmonary or cardiac, cardiac failure
DEFICIENCIES	Vitamin B12, folate, niacin, thiamin
ENDOCRINOPATHIES	Hyper/hypoadrenocorticism, hyper/hypoglycemia, myxedema, hyperparathyroidism
ACUTE VASCULAR	Hypertensive encephalopathy, stroke, arrhythmia, shock
TOXINS OR DRUGS	Medications, illicit drugs, pesticides, solvents
HEAVY METALS	Lead, manganese, mercury

KEY: CNS—central nervous system; HIV—human immunodeficiency virus

Adapted with permission from *The American Psychiatric Press Textbook of Consultation-Liaison Psychiatry.* Washington, DC: American Psychiatric Press, Inc., 1996.

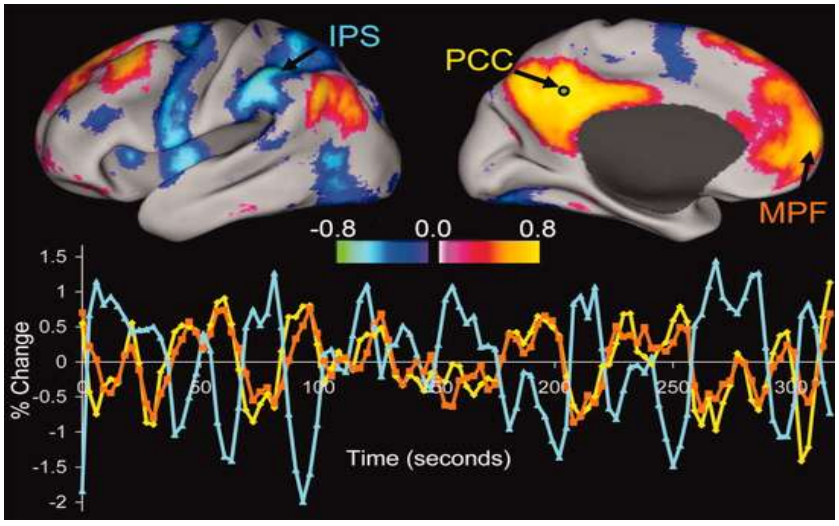
Pathophysiology of delirium:

Several hypotheses:

- Neurotransmitter hypothesis
    - hypocholinergic state
        i. supported by deliriogenic effects of anticholinergic medications and dementia
    - dopamine (and norepinephrine (excess
        i. supported by intoxicating effects of numerous dopaminergic agonists and the beneficial effects of antipsychotics
- Neuroinflammatory hypothesis
    - elevated cortisol, elevated CRP ،elevated procalcitonin
    - alteration of the BBB and microglia activation disrupts brain function
- Hypoxia hypothesis
    - disrupted oxygen supply or neurovascular coupling causing neuronal dysfunction

Functional MRI:

Defining large networks potentially disrupted in delirium



Management

- There are four main aspects to managing delirium:
- Identifying and treating the underlying causes
- Providing environmental and supportive measures
- Prescribing drugs aimed at managing symptoms
- Regular clinical review and follow up.

- Good management of delirium goes beyond mere control of the most florid and obvious symptoms
- Management of delirium is a medical emergency and includes treatment of the cause and ABC, observation in quiet surrounding, supportive and reassuring attitude, and presence of a person familiar to the patient (relative, fried).
- The room should be comfortably lit, colours are plain, and the furniture is simple.
- Frequent reorientation to time and place

Environmental and supportive measures in delirium

- Education of all who interact with patient (doctors, nurses, ancillary staff, friends, family)
- Reality orientation techniques
- Firm clear communication—preferably by same member of staff
- Use of clocks and calendars
- Creating an environment that optimises stimulation (adequate lighting, reducing unnecessary noise, mobilising patient whenever possible)
- Correcting sensory impairments (providing hearing aids, glasses, etc)
- Ensuring adequate warmth and nutrition
- Making environment safe (removing objects with which patient could harm self or others.

Pharmacotherapy

- Haloperidol (serenace IV,IM,oral) is the best 0.5-5 mg as a starting dose and can be increase till the patient is calm ,less in patient with dementia and strock.
- 2-Benzodiazepines:Diazepam,lorazepam or clonazepam
- 3-Intubation,sedation and paralysis using metocurine when other measures fail to control sever agitation .
- 4-Mechanical restrains when all measures fail and the patient still perform dangerous maneuvers

Prognosis

- Prognosis: most patients recover(usually suddenly) without observable sequelae.
- The mortality rate is 20%

Consequences of delirium

- Increased length of stay
- Increased mortality and morbidity

- Perhaps between 25-75%, as high as MI and sepsis

- Prolonged cognitive difficulties
- Institutionalization

Thank you ,,,