

Organic Mental Disorders

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1

Organic Mental Disorders

- In DSM (Diagnostic and Statistical Manual of Mental Disorders), OMD includes
- Delirium, dementia and amnesic and other cognitive disorders
- Mental disorders due to general medical conditions
- Substance-related disorders

2

Axes

- 1: Clinical disorders
- 2: Personality disorders
- 3: General medical conditions
- 4: Psychosocial and environmental problems
- 5: Global assessment of functioning

3

Axis I

- Delirium, dementia, etc.
- Substance related disorders
- Schizophrenia
- Mood disorders
- Anxiety disorders
- Etc.

4

Axis II

- Paranoid personality disorder
- Obsessive-compulsive disorder
- Mental retardation
- Etc.

5

Axis III

- Infectious and parasitic disorders
- Neoplasms
- Diseases of the nervous system and sense organs
- Etc.

6

Axis IV

- Educational problems
- Housing problems
- Occupational problems
- Etc.

7

Axis V

- Global Assessment of Functioning (GAF) scale
- 0 - 100

8

Delirium (a.k.a Acute Confusional State)

- Disturbance of consciousness and a change in cognition that develop over a short period of time.
- Causes
 - General medical condition
 - Substance-induced (drug, medication or toxin) ~
 - Multiple etiologies
 - NOS (not otherwise specified)

9

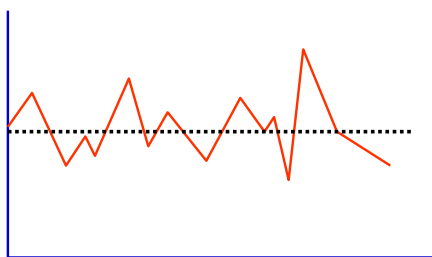
- Not accounted for by pre-existing dementia
- Developing over a hours or days
- Fluctuating during the course of the day
- History, physical examination or lab tests show direct physiological consequence of general medical condition, substance intoxication or withdrawal, use of medication, toxin exposure, or combination of factors.

10

Criteria for Delirium due to GMC

- A. Disturbance of consciousness (i.e., reduced clarity of awareness) with reduced ability to focus, sustain or shift attention
- B. Change in cognition (e.g., memory, language) or development of perceptual disturbance not accountable for by preexisting, established or evolving dementia
- C. Disturbance develops over a short period of time (hours to days) and tends to fluctuate during the course of the day
- D. Evidence from history, physical examination or lab tests that it is caused by general medical condition

11



12

Criteria for Substance-induced Delirium

- A. Disturbance of consciousness (i.e., reduced clarity of awareness) with reduced ability to focus, sustain or shift attention
- B. Change in cognition (e.g., memory, language) or development of perceptual disturbance not accountable for by preexisting, established or evolving dementia
- C. Disturbance develops over a short period of time (hours to days) and tends to fluctuate during the course of the day
- D. Evidence from history, physical examination or lab tests of
 - 1) Criteria A and B developed during substance intoxication
 - 2) Medication use is etiologically related to the disturbance

13

Substances Causing Delirium

- Alcohol
- Amphetamine
- Cannabis
- Cocaine
- Hallucinogen
- Inhalant
- Opioid
- Phencyclidine
- Sedative, hypnotic or anxiolytic
- Other

14

Criteria for Substance Withdrawal Delirium

- A. Disturbance of consciousness (i.e., reduced clarity of awareness) with reduced ability to focus, sustain or shift attention
- B. Change in cognition (e.g., memory, language) or development of perceptual disturbance not accountable for by preexisting, established or evolving dementia
- C. Disturbance develops over a short period of time (hours to days) and tends to fluctuate during the course of the day
- D. Evidence from history, physical examination or lab tests that Criteria A and B developed during or shortly after substance withdrawal

15

Delirium

- AKA: acute confusional state
- Characteristics: awake but not normally aware
- Approach to the patient follows the same method as for patient with coma

16

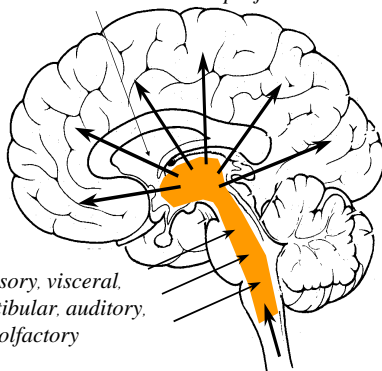
Disturbance of Consciousness

- *Impaired consciousness*
- *Consciousness disturbance*
- *Confusion, drowsiness, stupor, semi-coma, coma*
- *Acute confusional state*
- *Delirium (from systemic illness with fever)*

17

Ascending Reticular Activating System

Thalamocortical projection



INPUTS
somatosensory, visceral,
visual, vestibular, auditory,
gustatory, olfactory

Consciousness

2 components of consciousness

- *Wakefulness* (degree of arousal, evident by spontaneous eye opening in response to stimuli, especially deep pain)
- *Awareness* (ability to perceive of changes in environment, evident by orientation to time, space or person)

19

Consciousness

Normal consciousness is maintained by

- Brainstem reticular activating system
- Plus
- Cerebral hemispheres (one or two normal)

20

Pathophysiology

Causes

- Structural pathology
- Metabolic derangement
 - Substrates: blood flow, glucose, oxygen, carbon dioxide, etc.
 - Neuronal membrane dysfunctions: electrolytes, drugs, chemicals, toxins, acid-base, fever

21

Blood flow, glucose, oxygen

- *Cerebral blood flow*
 - Normal = 55 ml/100 gm/minute
 - Autoregulation at 50-160 torr of systemic BP
 - At 25 ml, EEG is slow
 - At 15 ml, EEG stops
 - At 10 ml, irreversible brain damage
- *Oxygen consumption = 3.5 ml/100 gm/minute*
- *Glucose consumption = 5 mg/100 gm/minute (storage is 2 minutes)*

22

Metabolic Derangement

- *Hypo/hyponatremia, hyperosmolarity, hypercapnia, hypercarbia, encephalopathy (renal, hepatic), drugs, toxins*
- *Consciousness disturbance caused by*
 - Energy supply, potential change, synaptic function, morphological change
 - Not mutually exclusive

23

CSF

- *Normal pressure: 15 cm water*
- *Volume 150 ml, production = 500 ml/day*
- *Total brain volume = 1,200-1,500 ml*
- *Volume accommodation without significant pressure change = 1 v%*
- *Focal pressure change affects the whole intracranial pressure*

24

Impaired Consciousness

- Impaired consciousness (not awake)
 - Drowsiness
 - Stupor
 - Semi-coma
 - Coma
 - Glasgow Coma Score
- Impaired awareness (awake not aware)
 - Confusion
 - Disorientation

25

Fig. 2
Glasgow Coma Scale for Head Injury

Glasgow Coma Scale.	
Eye opening	
Spontaneous	4
To loud voice	3
To pain	2
None	1
Verbal response	
Oriented	5
Confused, disoriented	4
Inappropriate words	3
Incomprehensible sounds	2
None	1
Best motor response	
Obeys	6
Localizes	5
Withdraws (flexion)	4
Abnormal flexion posturing	3
Extension posturing	2
None	1

MED 406 March 2003

26

Etiologies

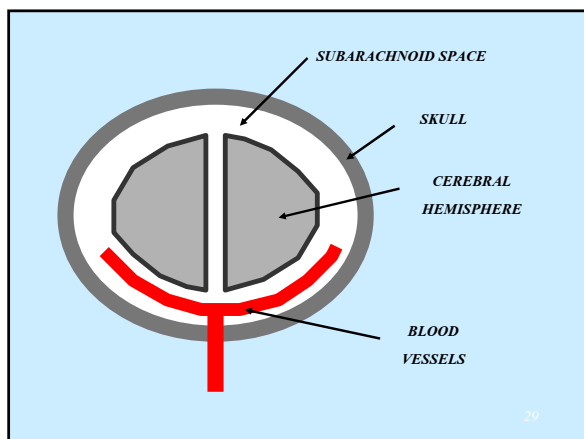
- Vascular: subarachnoid hemorrhage, intracerebral hemorrhage, cerebral ischemia
- Infectious/inflammatory: meningitis, encephalitis, brain abscess
- Neoplastic: tumor (1ry or 2ry), bleeding tumor
- Degenerative: central pontine myelinolysis
- Intoxicative: alcohol, barbiturate, toxic chemicals

27

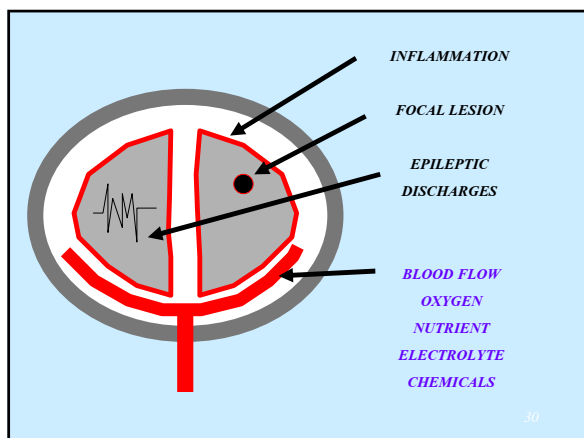
Etiologies

- Congenital/hereditary: adrenoleukodystrophy
- Autoimmune: Lupus vasculitis
- Traumatic: concussion, hematoma
- Endocrinopathy/epileptic: seizures, DM
- Nutritional: Wernicke's encephalopathy
- Hematologic disorder: B12 deficiency
- Idiopathic:
- Metabolic: hypoxia, acidosis, alkalosis

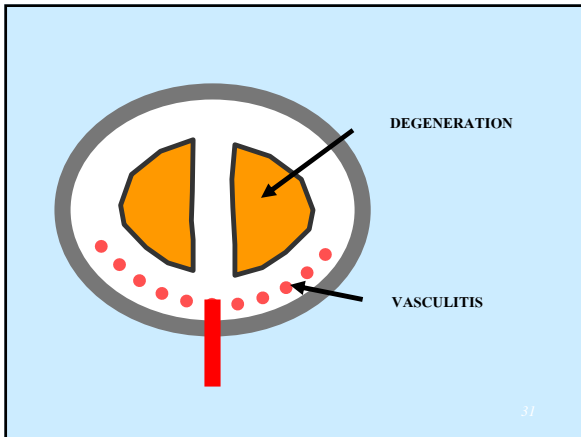
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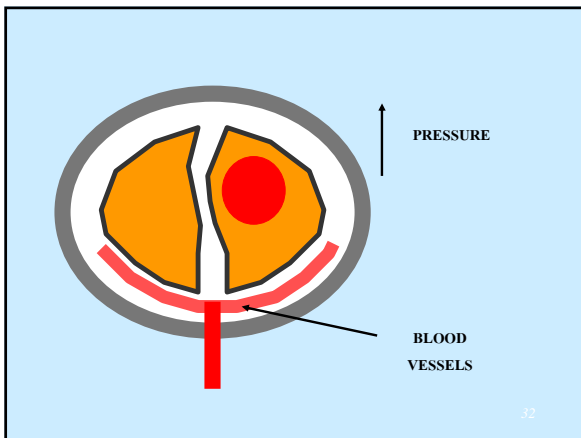


29



30





Comatose Patient

- *Where is the lesion?*
- *What is the lesion?*

- *Patients with normal consciousness allow complete physical examination possible*
- *Comatose patients do not.*

- *Cortical functions*
- *Cranial functions*
- *(Spinal) Motor functions*
- *(Spinal) Sensory functions*
- *(Spinal) Reflex function*
- *Coordination*
- *Gait and Posture*
- *Signs of meningeal irritation*
- *Funduscopy examination*

34

Comatose Patients

- *CPOMR (consciousness, pupils, ocular movements, motor, respiration)*
- *Sensation, reflexes, tone*
- *Meningeal irritation*
- *Funduscopy examination*

35

3 groups of patients

1. *With focal signs of cerebral hemisphere and/or brainstem lesion*
2. *With signs of meningeal irritation*
3. *With no focal lesion or meningeal irritation*

They are not mutually exclusive.

36

1. *With focal signs of cerebral hemisphere and/or brainstem lesion*
 - *Indicating focal pathology as a cause*
 - *Needs imaging study*

37

2. *With signs of meningeal irritation*
 - *Indicating inflammation of brain covering*
 - *Needs cerebrospinal fluid study:*
 - *With or without imaging study*

38

3. *With no focal lesion or meningeal irritation*
 - *Systemic disorders:*
 - *Blood pressure, oxygen, carbon dioxide*
 - *Toxic substances*
 - *Other metabolic derangement*
 - *Postictal state, non-convulsive seizures*
 - *Needs to be investigated accordingly*

39

- *Once diagnosis is obtained, treat accordingly.*

40

References

- *The Diagnosis of Stupor and Coma. Third Edition. Fred Plum and Jerome B. Posner. Oxford University Press, 2000.*
- *American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders. 4th Edition. Washington, DC, American Psychiatric Association, 1994.*

41
