

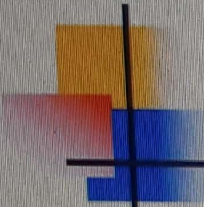
Evaluation of a patient in coma

Click to add subtitle



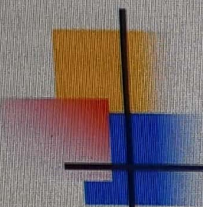
outline

- Define levels of consciousness
- Outline the causes of coma
- Examination and localising value
- Approach to the management
- Case vignette



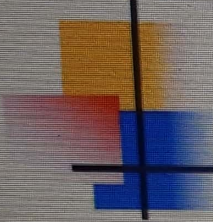
Case vignete

- a 25 year old female who has been previously well fails to turn up to work. Her telephone remains unanswered her colleague are concerned and broke the door to find her unconscious . She is brought to the hospital
- What history
- What Specific examination
- Focused investigation
- Outline your management



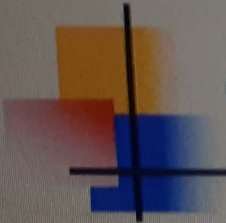
Mental function

- Awareness of self and surrounding
- Accurate perception of what is experienced(orientation)
- Ability to process input data to generate meaningful information(judgment and reasoning)
- Ability to store and retrieve information(memory)



Levels of consciousness

- Arousal (wakefulness)
- Awareness(responsiveness)
- Awake aroused and aware



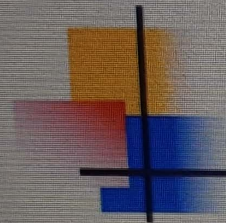
Confusional state / delirium

- Disoriented
- Irritable
- Poor attention span



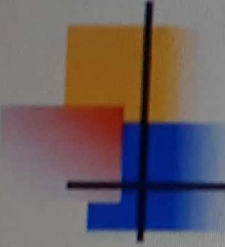
Stuporous

- Aroused with difficulty
- Impaired awareness
- Drowsy



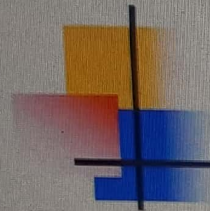
Comatose

- Unarousable and unaware and unresponsive



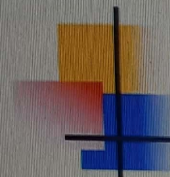
Coma

- State of profound unconsciousness from which one cannot be aroused



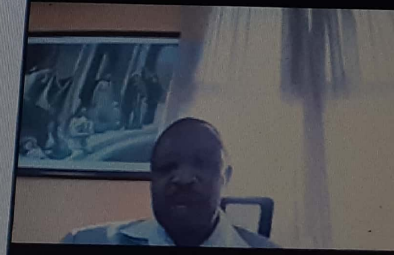
Clinical features

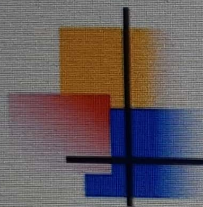
- Unconscious patients not open eyes
- Sustain pursuit movements
- Do not follow commands or demonstrate intentional movements



Glasgow coma scale

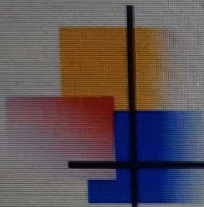
- Eye opening
 - Spontaneous 4
 - To speech 3
 - To pain 2
 - None 1





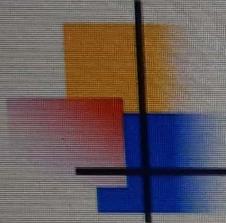
Glasgow coma scale

- Best verbal response
 - Oriented 5
 - Confused 4
 - Inappropriate 3
 - Incomprehensible 2
 - None 1



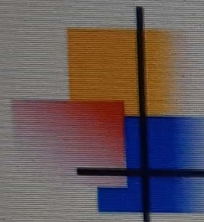
Glasgow coma scale

- Best motor response
 - Obeying commands 6
 - Localising 5
 - Withdrawal 4
 - Flexing 3
 - Extending 2
 - None 1



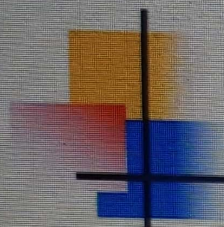
Basic mechanism of coma

- Supratentorial
- Infratentorial
- Diffuse metabolic
- Multifactorial



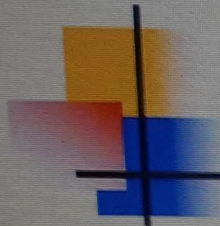
Toxic metabolic

- Diffuse cortical dysfunction
 - Hypoglycemia
 - Hypoxia
 - Depressed neuronal function(GABA, Opiates)
 - Ethanol
 - Post- ictal state
 - Drugs



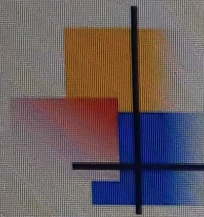
Organ disease

- Hepatic
- Renal failure
- Respiratory failure



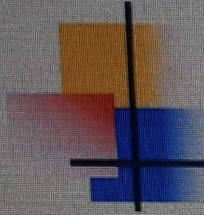
Supratentorial

- Expanding mass lesion
 - Trauma
 - Haematoma
 - Abscess
 - Malignancy



Herniation

- Uncal
- Central
- Tonsillar herniation



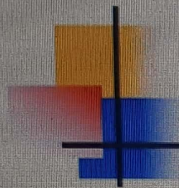
Brain stem compression

- Infratentorial
 - Mass lesion or CVA
 - Brainstem RAS
 - Vascular basilar artery
 - Pontine infarct
- Upward herniation
- Downward herniation



Midbrain

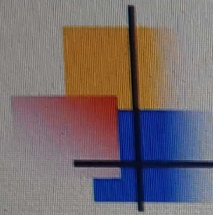
- Decorticate response to pain
- Fixed midsized pupils
- Abnormal oculoccephalic responses
- Decerebrate response to pain



Lower brain stem

- Fixed mid sized pupils abnormal oculocephalic responses
- No responses of the upper limbs to pain
- Examination
- Pupils
- Reflex eye movements
 - Posturing





Respiratory

- Shallow breathing
 - alcohol
 - barbiturates
 - Opiates
- Kussmaul breathing
 - diabetic acidosis
 - renal failure
- Cheyne –stokes



Respiratory

- Central neurogenic hyperventilation
- Apneustic breathing (pons)
- Cluster breathing
- Ataxic breathing irregular rate and rhythm
- Medullary



Eye movements

- Skew brainstem
- Conjugate deviation
- Unilateral destructive conjugate deviation towards ` the side of the lesion
- Opposite for irritative lesion

Oculomotor Nerve Compression

Dilated, nonreactive (fixed) pupil due to either cerebral edema or uncal herniation at the ipsilateral side of the dilated pupil.

Bilateral Diencephalic Damage

Small, reactive pupils indicative of bilateral, sympathetic pathway injury at the thalamus and hypothalamus. This can be present in metabolic coma.

Horner's Syndrome

Small, reactive pupil (miosis) at the affected side with lid ptosis. Patient will also exhibit anhidrosis on the forehead on the same side. It can be caused by trauma to the neck, carotid artery dissection, or a lesion at the lateral medulla or ventrolateral cervical spinal cord.

Pontine Damage

Small, nonreactive pupils. This can be due to pontine damage due to ischemia or hemorrhage. Bilateral pinpoint pupils could also be representative of opiate overdose.

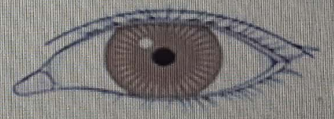
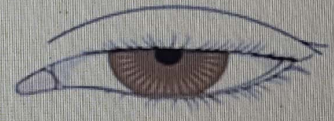
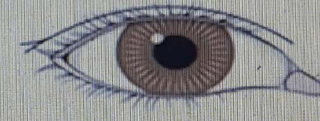
Bilateral Dilated Unreactive Pupils

Pupils are dilated and fixed secondary to severe anoxia and indicative of severe brain injury and imminent death.

Right



Left



pupils

- Oval midposition
 - Normal pupils metabolic
- Pinpoint
 - Narcotics
 - Phenothiazines
 - Pontine
 - Organophosphate

Lower brain stem

- Fixed mid sized pupils abnormal
- oculoccephalic responses
- No response of the upper limbs to pain
- Exaggerated
- Pupils
- Reflex eye movements
- Posturing

Respiratory

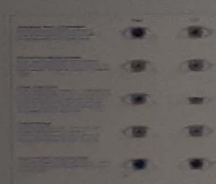
- Shallow breathing
- ataxic
- tachypnoea
- Cheyne
- Normal breathing
- Shallow apnoea
- New Sign
- Cheyne-Stokes

Respiratory

- Central neurogenic hyperventilation
- Apnoeic breathing (pans)
- Cluster breathing
- Ataxic breathing irregular rate and rhythm
- Medullary

Eye movements

- Slew transien
- Conjugate deviation
- Unilateral deviated conjugate deviation towards the side of the lesion
- Opposite for irritative lesion



Pupils

- Oval midposition
- Normal pupils metabolic
- Pinpoint
- Anisocoria
- Parasympathetic
- Sympathetic
- Organophosphate

Click to add notes

Notes



Respiratory

- Central nervous hyperventilation
- Apneustic breathing (open)
- Cluster breathing
- Ataxic breathing (irregular rate and rhythm)
- Bradypnea

Eye movements

- Saccadic
- Conjugate deviation
- Unilateral (destructive) conjugate deviation
- Towards the side of the lesion
- Opposite for vestibular lesion



Pupils

- Direct (afferent)
- Indirect (efferent)
- Anisocoria
- Miosis
- Mydriasis
- Anisocoria

Pupils

- Bilateral dilated
- Deep coma
- Atropine

Atropine

- Atropine

Pupils

- Bilateral dilated
- Deep coma
- Atropine



26

Respiratory

- Central neurogenic hyperventilation
- Apnoeic breathing (seiz)
- Cluster breathing
- Ataxic breathing irregular rate and rhythm
- Medullary

Eye movements

- Skew: brainstem
- Conjugate deviation
- Unilateral devictive, conjugate deviation towards the side of the lesion
- Opposite for irritative lesion

27



28

pupils

- Chial midbrain lesion
- Normal pupal deviation
- Dilated
- Anisocoria
- Phenothiazines
- Pilocarpine
- Organophosphates

29

Pupils

- Bilateral dilated
- Fixed, cornea
- Anisocoria

30

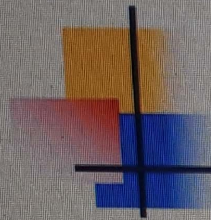
Nystagmus

- phenytoin

Nystagmus

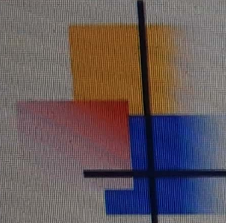
■ phenytoin

Click to add notes



Clues

- Mouth salivation
 - Organophosphates
- Pallor
 - hemorrhage
- Edema
 - renal failure
- Pigmentation
 - Addison disease



Clues

- Smell
 - Ethanol
 - Acetone breath
- Jaundice
 - Liver
 - Malaria
 - sepsis
- Old injuries injuries /burns epileptic thug

A

Alcohol
Acidosis (metabolic disorders)
Ammonia (hepatic encephalopathy)
Arrhythmias (any cardiac cause)

E

Endocrine
Electrolytes
Encephalopathy

I

Infection

O

Oxygen
Overdose
Opiates

U

Uremia

T

Trauma
Temperature (hyper/hypothermia)
Thiamine (Wernicke-Korsakoff)

I

Insulin (hypo/hyperglycemia)

P

Poisoning (all medications)
Psychiatric

S

Stroke
Seizure (or postictal state)
Syncope
Space occupying lesions
Shunt (VP) malfunction



Management

- ABC
- IV access
- Dextrose Thiamine

31

Quies

- Mouth salivation
- Organomegaly
- Fatigue
- Anorexia
- Edema
- Headache
- Paresthesia
- Abdominal pain

32

Quies

- Stool
- Urine
- Anorexia
- Jaundice
- Fever
- Headache
- Paresthesia
- Abdominal pain

33

AEIOU

- Anorexia
- Edema
- Jaundice
- Fever
- Headache
- Paresthesia
- Abdominal pain

34

Management

- ABC
- IV access
- Dextrose Thiamine

35

History

- Where found
- How long the symptoms
- Family drug history
- Previous illness
- Social history

36

Management

- ABC
- IV access
- Dextrose Thiamine

Click to add notes



History

- Where found
- What was the surrounding
- Empty drug packets
- Injection sites
- Road side

Click to add title

- A 20 year old female brought by relative having been found unconscious
- History
- Physical examination
- investigation

Toxicology

- Opiates
- Amphetamines
- Barbiturates
- Benzodiazepines
- Heroin

Laboratory

- Hemogram
- Anemia
- White cell count
- Malaria parasites
- Lumbar puncture

Infections

- Sepsis
- Encephalitis
- Meningitis
- Malaria

Radiological investigations

- CT scan brain
- Cervical spine
- Management according to the cause

History

- A 20 year old female brought by relative having been found unconscious
- History
- Physical examination
- investigation

Click to add notes