

Unconscious

Disorders of consciousness

- **Qualitative** (amnesia, disorientation, delirium),
- **quantitative** (apathy, somnolence, sopor, semicoma, subcoma, coma, deep coma and death),
 - **somnolence** - a milder form of disturbance of consciousness, the patient must be aroused by irritation, address, touch and then is fully oriented,
 - **sopor** - a more severe form of disturbance of consciousness where the patient can only be brought back to short-term consciousness by severe painful irritation,
 - **obnubilation** - the sufferer is awake but unaware of their actions (e.g. in hypoglycaemia).
- in a patient with impaired consciousness, we actively look for symptoms that may lead to urgent surgical indication,
- the state of consciousness depends on the activity of the ARAS (activating reticular ascending system) - located in the rostral pontine, mesencephalon and thalamus,
- consciousness has two components - content (quality) and degree of alertness (vigilance).

 For more information see *Consciousness and its disorders*.

Glasgow Coma Scale - GCS

- Assessment of level of consciousness regardless of the underlying neurological findings,
- it is the sum of three values for - eye opening, motor response and verbal response,
- the minimum is GCS 3 and the maximum is 15,
- eye opening is a total of 4 points (spontaneous, on address, on pain, not at all),
- verbal response is 5 points,
- motor response is 6 points (there is an important decerebrate - 2p, and decorticate - 3p),
 - with a GCS < 7, we're talking coma,
 - GCS < 8, intubation is appropriate,
 - GCS < 13, we hospitalize.

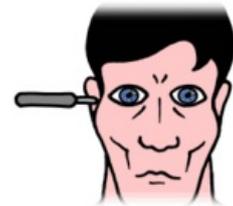
 For more information see *Glasgow Depth of Unconsciousness Scale*.

Other unconscious investigations

- **Lateralization'**,
 - actively looking for signs of asymmetry - motor and pupillary,
- *eyeball movements''*,
 - sometimes we find wandering eyeball movements, indicative of preserved oculomotor function, a good sign,
- *pupils''*,
 - note size (recorded in mm), symmetry and response to illumination,
 - anisocoria - indicative of n. III oppression at the margin of the tentorium,
 - symmetrical miosis - if there is a decortication reaction to pain, it is indicative of central herniation,
 - symmetric mydriasis without photoreaction - very advanced deterioration of trunk function,
- **Oculocephalic reflexes'** - unconscious patient's head is turned (only when the spine is not injured!) and if the trunk is intact, the unconscious person fixes the gaze in one position,
- **motor examination'**,
 - monitor tone, reflexes, symmetry of spontaneous movements in response to pain,
- *respiratory disturbances''*.

OKULOVESTIBULÁRNÍ REFLEX u pacienta při vědomí

aplikace 20ml vody o 0° C do zevního zvukovodu
(v poloze na zádech s hlavou flektovanou o 30°)



aplikace studené vody u nemocných s kmenovou
lézí provokuje při vědomí nystagmus
s rychlou složkou na stranu opačnou aplikaci

Oculovestibular reflex in consciousness -
ANIMATION

Differential diagnosis

The list of causes is indicative !

Simply (for use over the patient) the Dozen causes of unconsciousness

neurogenic causes'

- apoplexy, CSF, meningitis, encephalitis, brain tumors, epilepsy, SAK, thrombosis, embolism, air embolism, brain abscess, narcolepsy, cerebral coma, contusion.
 - clinical picture - signs of lateralization, areactive pupils, anisocoria, extraocular motor or other brainstem

reflexes are absent or asymmetrical, absent gaze, strabismus, signs of trauma are evident.

primarily psychogenic causes' - psychogenic stupor - hysteria, deep hypnosis,

- abnormal neurological signs are absent, normal pupils, oculocephalic reflexes are absent, normal oculo-vestibular reflexes, eyes tightly closed, patient's hands do not fall on the face if dropped directly over it, history of psychiatric illness.

exogenous causes'

- **poisoning,**
 - ethanol, hypnotics, addictive substances, general anesthetics, mushrooms (*Amanita phalloides*), CO, ...
- **infections,**
 - meningitis, tetanus, botulism, anthrax gas, rabies, ...
- **physical cause,**
 - hypothermia, hyperthermia, electrocution, burn, cold, drowning,

endogenous causes (metabolic)'

- **toxic,**
 - hepatic, uraemia, pseudouraeemia, eclampsia,
- **endocrine,**
 - diabetic coma (hyperglycemia),
 - nausea, vomiting, dehydration, acetone in breath, polyuria, rapid deep breathing, tachycardia,
 - hypoglycaemia,
 - sweating, tremor, hunger, weakness, headache, superficial respiration, tachycardia, elevated BP, moist skin, sudden onset,
 - hyperosmolar - thirst, weakness, dehydration, hallucinations, delirium, convulsions,
 - lacticidemic coma, thyrotoxic crisis, hypothyroid coma, pituitary coma, adrenal insufficiency coma (Addison), hypocalcemic coma (tetany), hypercalcemic coma.

cardiovascular causes

- coronary artery disease - cardiogenic shock.
- arrhythmias - atrial fibrillation with risk of thromboembolism.
- Grade III AV block - Morgagni-Adams-Stokes syndrome.
- ventricular tachycardia.
 - sick-sinus syndrome,
 - circulatory syncope - orthostatic collapse, carotid sinus syndrome (vagovagal reflex), aortic arch syndrome, subclavian "steal syndrome", vertebrobasilar insufficiency, dissecting aortic aneurysm, sinus tumour and valvular thrombus.
 - Congenital heart defects,
 - acute cardiac tamponade,
 - hemorrhagic shock
 - hypertensive crisis,

respiratory disorders.

- hypoxia, anoxia, hypocapnia (from hyperventilation), hypercapnia, pulmonary disease.

disturbances of water and electrolyte balance,

- dis-equilibration sy (hyponatremia - water intoxication), severe dehydration - increase in blood viscosity, drop in blood pressure, hypochloremia, hypokalemia, hyperkalemia.

Care of the unconscious person

- Place the casualty in a stable position,
- after every 30 minutes in the stable position, it is recommended to turn the casualty onto the other side,
- assess circulation and respiration regularly; if necessary, initiate Basic Emergency CPR immediately

References

Related articles

- Consciousness assessment
- Glasgow Depth of Unconsciousness Scale
- Apalic syndrome
- Consciousness and its disorders

External links

- <http://mefanet.lfp.cuni.cz/clanky.php?aid=215>

References used

- BENES, Jiří. *Materiály orl* [online]. ©2007. [cit. 2009]. <http://jirben2.chytrak.cz/materialy/orl_jb.doc>.
- BYDŽOVSKÝ, Jan. *First Aid*. 2. edition. GRADA, 2001. pp. 18-19. ISBN 80-247-0099-9.