Impaired consciousness (pediatrics)

Consciousness is a summary of the basic functions of the brain. The ability to be aware of your surroundings, yourself, the ability to learn and remember. Furthermore, perceive external and internal stimuli, evaluate them and react to them. Disorder of consciousness is accompanied by anatomical disabilities or dysfunction of the ascending reticular formation. Violation of association areas of the cortex, reticulocortical pathways and injury in the thalamus region. It can also be caused by neurotransmitter disorders and metabolic imbalances.

Disorders of consciousness

- **Qualitative** (impairment of cognitive and affective functions without disturbance of vigilance)
- **Quantitative** (vigilance and motor impairment, somnolence, sopor, coma), or their combination. Qualitative disorders are less common in children.[1]

Qualitative

These disorders do not affect the level of alertness, but the **content of consciousness** (the level of alertness is often preserved in these disorders). Qualitative disorders are characterized by disorders of orientation, thinking and behavior. We divide them into three groups

- *Crazed consciousness*

It is typical for deranged consciousness that the sufferer perceives the external reality as **distorted *both in form and meaning. Such a person may be disoriented, have distorted information about himself.*** *Hallucinations* are often present. This includes confusion (amence), or a more severe disorder called delirium. Delirium is characterized by increased restlessness, activity and hallucinations.

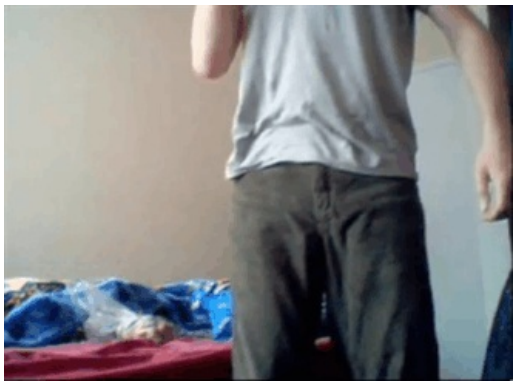
- *Gloomy states* (obnubilation)

Gloomy states usually have a sudden beginning and end. They start from clear consciousness and return to it again. The sufferer has **no memories** of this condition (so-called amnesia). Although the external behavior may not be noticeable to the observer, the basic intentions and tendencies of the affected person are significantly changed. They occur in epilepsy, head trauma, burns, starvation, some psychoses and personality disorders.

- *Sleep disorders*

There are many sleep disorders. Their exact determination usually requires consultation with an expert.

Causes of qualitative disorders of consciousness


Man Falling unconscious.

CNS impairment

- Trauma (coma);
- Tumors;
- Infections (encephalitis, meningitis);
- Hypoxia (hypoxic-ischemic encephalopathy).

Metabolic imbalance

- Ionic disorders (Na, Ca, Mg);
- Liver disorders (hereditary metabolic disorders, hyperammonemia, hepatic failure);
- Renal disorders (acute renal failure with uremia);
- Disorders of glucose metabolism (hypoglycemia, hyperglycemia, diabetic ketoacidosis).

Endocrinopathy

- Thyreopathy;
- Disorders of the pituitary gland (Cushing's syndrome).

Intoxication

- Carbon monoxide;
- Drugs (benzodiazepines, barbiturates, antihistamines, tricyclic antidepressants, neuroleptics, hypnotics, digoxin, beta-blockers;
- Addictive substances (alcohol, cocaine).

Critical states

- Sepsis, polytrauma (organic psychosyndrome).[1]

Quantitative

These disorders affect alertness. In terms of intensity, we distinguish between

- Syncope (fainting)

It is a short-term, sudden unconsciousness that occurs as a result of a *lack of oxygenated blood in the brain*. It can arise from both biological and psychogenic causes (e.g.: exhaustion, pain, fright, but also the sight of blood).

- *Sleepwalkers*

Somnolence resembles a state of *increased sleepiness*. However, the affected person responds to external stimuli and can be "awakened" (if left alone, falls asleep). Typical manifestations include slowed thinking, aimless behavior, lack of interest, slow reactions. Can occur in intoxications, in the early stages of narcosis , or after head injuries.

- *Sopor*

Sopor is slightly stronger than somnolence. The disabled person is unable to make contact. He is unable to answer questions intelligibly. Breath and pulse have a slowed frequency, blood pressure decreases. It occurs in some intoxications, after head injuries.

- *Coma*

It is a condition that occurs during anesthesia. Physiological reflexes die out, pulse, breathing rate and blood pressure decrease. The affected person cannot be brought to **consciousness** in any way (doesn't react to pain, pupils don't react to light). In addition to narcosis, it occurs after head injuries, cerebrovascular accidents, electric shock and in some somatic diseases (diabetic coma, uremic coma).

Causes of quantitative disorders of consciousness

Supra- and infratentorial lesions

- Bleeding (subdural, epidural, subarachnoid);
- Trauma (concussion, contusion, bleeding);
- Vascular (thrombosis, embolism, vasospasm, AV malformation);
- Expansive processes (tumor, hydrocephalus);
- Infection (meningitis, encephalitis, brain abscess);
- Convulsions (epilepsy).

Diffuse cortical lesions

- Hypoglycemia (hypermetabolic states – hyperpyrexia, prolonged convulsions; lack of energy substrate);
- Hypoxia (suffocation, cardiopulmonary resuscitation, carbon monoxide intoxication, circulatory causes);
- Disruption of the internal environment (ion imbalance, acid-base balance disorders, diabetes mellitus, uremia);
- Metabolic causes (hereditary disorder of the metabolism of amino acids, carbohydrates, fats, mitochondrial encephalopathy);
- Endocrine causes (thyreopathy, adrenal insufficiency, hypoparathyroidism);
- Intoxication (alcohol, drugs, plants, chemicals);
- Multiorgan failure (sepsis, shock states, post-asphyxia states).

Psychogenic causes

- Hysteria, vagotonia, panic disorder.[1]

References

Related Articles

- Consciousness and its disorders
- Disordered consciousness and convulsions (pediatrics)

1. LEBL, J – JANDA, J – POHUNEK, P. *Clinical Pediatrics.* 1. edition. Galen, 2012. 698 pp. pp. 111-113. ISBN 978-80-7262-772-1.