

Hypokinetic syndrome

Hypokinetic syndrome (also **immobilization syndrome**) is a complex of symptoms originating from inactivity. It is a secondary disorder, the cause of which is immobility or reduced activity. It develops as an organism's response to the patient's rest regime, which can be prescribed or unavoidable. It can be a short-term issue, or it can be a long-term to permanent condition. The most common causes of patient immobility include pain, disorders of the skeletal and muscular system, disorders of the nervous system, general weakness, psychological problems or infectious processes. Inability to move or weakness can come from psychological or physical causes and greatly limits the patient. Immobility (inability to move) can be primary, i.e. a direct result of disease or injury (e.g. spinal cord injury), or secondary, which develops secondarily (e.g. condition after myocardial infarction, injury and surgery, etc.).

Faults

1. Psychic
2. Physical

Causes

1. disease,
2. disorders of the nervous, skeletal, muscular system,
3. general weakness (e.g. changes in the state of consciousness),
4. psychological problems (depression),
5. infectious processes,
6. age.

Affected systems

Musculoskeletal system

In a week of rest, the patient can lose up to 1/3 of his active muscle mass, which leads to muscle atrophy, deformities of the limbs and spine. Other phenomena associated with immobilization are osteoporosis (thinning of the bones, starting as early as two weeks after being bedridden), bone demineralization (leaching of calcium from the bones, already on the 2nd-3rd day) or ankylosis of the joints (stiffness of the joints). If possible, we first perform passive and later active rehabilitation for the patient. This consists in performing exercises to maintain range of motion. We also encourage him to be as self-sufficient as possible in basic care. We are still monitoring the ratio of pain to immobility.

Cardiovascular system

The overall performance of the cardiovascular system decreases, the heart rate increases every day by 0.5 beats/min. A sudden change in position can cause a phenomenon called orthostatic hypotension (a drop in blood pressure when sitting or standing after being bedridden for a long time). It is important to monitor blood pressure before, after and during exercise (sitting down, standing up, lying down) so that the response to activity or activity tolerance is evident. Due to the insufficiency of the venous valves, blood stasis occurs, the so-called hydrostatic oedema. In a sitting person, it appears in the sacral area or on the heels, in a person who has his legs out of bed, swelling occurs on the DK. There is a risk of thrombophlebitis, inflammation and thrombosis of superficial veins, risk of embolism. During verticalization, we first let the patient breathe while sitting, we encourage him not to look down and we gradually lift him up. Orthostatic hypotension can cause injury. Due to the insufficiency of venous valves, the risk of thrombus formation increases during rest. An important measure is the support of peripheral blood circulation with an increase in venous return (e.g. elastic trousers, lower limb bandages).

Respiratory system

Breathing gradually becomes shallower. Lobular or total lung collapse may occur. Elderly people can often develop pneumonia due to the accumulation of secretions in the airways. Respiratory rehabilitation is important, i.e. encourage the patient to cough and breathe deeply at regular intervals to support the function of the ciliated epithelium in the airways. This will encourage their cleansing and allow all lung compartments to breathe. We perform mucus suction according to the patient's needs.

Urinary system

Increased diuresis may occur in the first days of immobility. Furthermore, sodium may be excreted excessively (natriuresis). Later, urine stagnates in the renal pelvis. The pH of the urine changes, which is rather more acidic, and crystals and kidney stones can form. If it is an incontinent patient, it is necessary to keep the bed dry. Urinary retention may occur after the indwelling catheter is removed. Then a one-time coiling or reinsertion of the catheter



is necessary. A psychological approach and micturition training are important here. With retention of urine, reflux of urine can occur, i.e. to the backflow of urine into the pelvis and the risk of infection. It is important to monitor diuresis, the nature of urination, the color of urine and possible signs of infection.

Digestive system

Immobility causes an overall imbalance, catabolic processes prevail over anabolic ones. A decrease in serum proteins (hypoproteinemia) leads to a change in oncotic pressure, and thus to the formation of edema. Loss of appetite can also be caused by psychological factors or an unappealing diet. The correct composition of food is necessary, or a diet chosen after consultation with a dietician. Constipation is caused by disorders of the digestive tract. Here again, psychological influences, the correct composition of the diet (enough fruit, vegetables with a high fiber content) and active movement, or we will administer substances to soften and increase the volume of the stool. Dehydration and loss of thirst are manifested by dry mucous membranes and reduced skin turgor, which leads to easier skin injury.

Nervous system

With a lack of movement, problems affecting the CNS can also appear. Deprivation, anxiety states, restlessness and irritability may occur as a result of reduced motor activation. Consequences of inadequate CNS stimuli.

Epidermis, dermis

As a result of the pressures and friction that arise during reduced motor activity, various degrees of damage in the form of pressure sores occur on the surface of the body. Prevention of these damages is sufficient and adequate patient hygiene, especially during longer hospitalization, and positioning. The elasticity of the skin decreases.



Decubitus on the left side

Metabolic disorders

The immobilized patient's muscle mass is broken down and, as a result, more nitrogen is excreted from the body. This state turns into an unbalanced ratio of anabolism - catabolism . If the patient is immobile, eating disorders may occur as a result of reduced energy expenditure and related psychological problems. Anorexic conditions may occur. Hypalbuminotic edemas, caused by a lack of plasma proteins in the blood, can often occur. This lowers the osmotic pressure of the blood and it is further absorbed from the capillaries into the intercellular spaces.

Mental problems and disorders

Patients with a lack of movement can suffer from a wide range of psychological problems. Sleep disorders are among the most common. Furthermore, disorders of motivation and learning ability appear. It is necessary to devote attention to the prevention of the development of these problems so that the physical condition does not deteriorate. The perception of space and time tends to be disturbed, especially during prolonged hospitalization and in elderly patients or in the case of nervous system disorders.

Prevention is sufficient communication with the patient, clarification of physical problems and explanation of treatment, possibility of visits.

Decubitus (bedsores)

Bedsore is the most common skin and tissue damage. It occurs if the tissue is not supplied with nutrients or the waste products of metabolism are not removed and the tissue dies. The mechanisms of formation include insufficient blood flow through the capillaries in the subcutaneous tissue and in the muscles. These layers are very susceptible to lack of oxygen. Shear forces, i.e. layers of muscle and skin moving against each other, are an equally important factor. If the surface of the body is exposed to movement against fabrics or other surfaces, frictional damage occurs. Incontinence and sweating can also cause damage to the skin due to moisture.

Risk factors are related to the degree of mobility. Patients with disorders of the muscular system, neuromuscular disorders, spinal cord and brain disorders are most at risk. People of advanced age, people who have impaired consciousness (eg people in a coma, patients with fractures and other forms of damage to the body that require long-term immobility) are more susceptible.

Infection, skin dehydration or poor nutrition can impair healing.

Links

External links

- <https://zdravi.euro.cz/clanek/sestra-priloha/imobilizacni-syn-drom-383386>

Resources

ŠAMÁNKOVÁ, Marie. *Základy ošetrovatelství pro studující lékařských fakult 1. a 2. díl.* 1. edition. Univerzita Karlova v Praze – Nakladatelství Karolinum, 2003. 274 pp. ISBN 80-246-0477-9.

