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Physiotherapy of patients with CNS damage as a result of a brain tumor

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Abstract

Rehabilitation as a process of return to fitness should take place at every stage of the disease. Stimulation to restore lost motor function should take place all day, including when lying in bed or transferring from one position to another. Placement items are an indispensable component of restoring floatation, as well as the element of nursing the patient. By correct arrangement of the patient we affect the stimulatory nervous system. Thanks to the correct arrangement we prevent bone-joint changes, lymphedema and also stimulate the cerebral cortex.

This article aims to propose the positioning of the patient and his transfers as a passive way of rehabilitation.

Key words: positioning, patient positioning, rehabilitation, care, patient transfer.

INTRODUCTION

In the first minutes, with stabilized vital functions, after a vascular incident, craniocerebral trauma and other injuries within the central nervous system, it is important to implement rehabilitation through postural stimulation. Often this type of rehabilitation lasts until the end of the patient's life to maintain the achieved level of fitness after the incident. In chronically ill patients, rehabilitation should last 24 hours a day by using even positioning and transfers. These activities are usually performed not only by the physiotherapists themselves but also by all medical personnel and the family [1, 2, 3].

Positioning the patient plays an important role not only in rehabilitation, but also in nursing the patient, especially in patients unable to change positions for various reasons [4]. Thanks to the positioning and transfers, we affect not only the convenience and comfort of life, but also stimulate the patient to act by stimulating his nervous system and thus activating him to act [2]. Studies show that even people in comas during passive positions, performed passively with a word instructor, activate the areas of the cerebral cortex, which is necessary for mobility to return [5,3, 6]

REVIEW OF THE LITERATURE

Rehabilitation, as a complex process aimed at restoring the highest efficiency, in highly developed countries is an indispensable element of treatment.

Restoring health to the disabled means a set of activities, in particular organizational, therapeutic, psychological, technical, training, educational and social, aimed at achieving, with the active participation of these people, the highest possible level of their functioning, quality of life and social integration [4, 7] .

Medical rehabilitation is understood as a healing process that allows accelerating the process of natural regeneration and reducing the physical and mental consequences of the disease. Therapeutic rehabilitation must stimulate the entire therapeutic process mainly through physical and mental activity [8]. In the event of permanent loss of some bodily functions,

appropriate psychological conduct must lead to the recognition and acceptance of your "new" body [1, 9].

Compensating and adaptive elements are included in the treatment of severe, especially permanent morphological damage or loss of body functions.

Compensation is a process that triggers the natural replacement possibilities that exist in every living organism. It is the ability to replace by restoring lost functions by a partially damaged organ, or by the complete takeover of this function by another healthy organ.

Compensation may apply to dynamic, static, functional and static-dynamic disorders. The adaptation process is often associated with the phenomenon of compensation.

Adaptation is the ability to adapt a person to social conditions, a morphological condition that must be accepted as fixed. Adaptation therefore allows adaptation to the diminished performance of vital organs following illness or injury. Properly controlled or used adaptation allows to obtain the most optimal result of the final treatment. The most important in the adaptation process is to gain life independence in the broad sense, i.e. in everyday activities as well as in professional, social and family activities [1].

Positioning positions, used as a preliminary rehabilitation process, are designed to stimulate the patient's nervous system. The main purpose of positioning is to perceive, regulate muscle tone, prevent pressure ulcer, and activate the patient. Positioning should give the patient a sense of security, especially in people with perception disorders, pay attention to the positioning on the side at the edge of the bed so that they do not have fear of falling out of bed. Arrangement should be used immediately after stabilization of vital functions and change every 2 hours [1, 10].

Transfer is a change of arrangement from lying to sitting down from sitting down to standing up from sitting down on a bed to sit down on a chair or pram. This is an important element of patient care needed even when performing a toilet in a patient.

The patient is often accused of not helping us when transferring, and even on the contrary disturbing and resisting. However, the question is whether we do it correctly for him? Maybe we are introducing a defensive element for him because we do it in such a way that he does not feel safe [1].

The disease can be divided into three phases:

1. acute
2. subacute,
3. chronic.

In each of these phases, the rehabilitation process is different, but in each of them it is necessary to use positioning and transfers as a supplement to therapy or as basic therapy.

The acute phase is characterized by a life-threatening condition, the main goal is to stabilize body homeostasis, the goal of rehabilitation is to prevent pressure sores, thrombosis, inflammation (mainly the respiratory system), edema, limitation of joint mobility, and perception tracking [1,2,10].

In this phase, the use of positioning positions is crucial, as it is often the only type of therapy that can be used. In the 1950s, the human brain was thought to be unchanging, only changing during development. However, in the 1980s it was proved that there was a possibility of reorganization of central nervous system structures and the concept of brain plasticity Merzenich and Taub arose in studies on monkeys that the brain has the ability to learn and activate new structures. [11]

Motor teaching is a set of processes related to practice, leading to a relatively permanent change in responsiveness. [12,13].

Changes in sensory motor stimulation lead to a change in the activity of the cortical region responsible for sensory motor control, which causes a change in descending stimuli.

Therapy by changing the position or position should take into account the elements of the patient's external and internal world, as well as ways of communication of the patient with the environment.

Very often, we don't tell the patient what we want to do. Therefore, when we try to passively change our position, we encounter resistance on the part of the patient, which is a defensive act [1].

The stimuli we use should be above all acceptable to the patient, safe for him and inspire trust. You should always inform the patient about what we want to do and how, even if he or she is in a coma. We should apply the principles of a positive approach to the patient and family. The patient's position should regulate muscle tone and build a sense of security [2].

During positioning, we should be guided by the following principles:

- when changing position, do not pull the patient only by the hand, the patient's arm should be supported all the time and move it in the proximal and distal part, directing it with the movement of the entire torso,
- do not turn the patient through the affected shoulder, as this can cause subluxation of the shoulder joint,

- the correct positioning of the hips and shoulders is important, which should be extended forward, the lower limb placed in the direction of internal rotation, the shoulder in the direction of external rotation [1].

Characteristics of the patient's position in the supine position [1, 4]:

- the head is directed towards the affected side and raised slightly upwards with the help of a pillow,
- the affected side of the body should be lifted with a cushion or roller,
- shoulder and pelvis are supported to a small extent to achieve a neutral position,
- the palm is pointing downwards,
- the knee should be in a slight flexion without pillows,
- a soft roller should be placed underneath the foot to avoid foot plantar flexion

The position on the back can be modified depending on the range of movements and contractures in the patient.

Characteristics of the patient's position in lying on its side [1, 4]:

- the patient should be placed on both sides, healthy and paralyzed,
- on the affected side, the patient is positioned so that his arm is turned outwards, while the elbow and palm are pointed upwards,

Figure 1. Transition from lying on the back to the lying on the side

- a healthy lower limb rests bent on the wedge, while the paralysis is straightened,
- lying on the unoccupied side, both the upper and lower limb of the affected side rest on the cushion, where the arm should be extended forward with the elbow straight,



- the head is facing the affected side,
- the affected lower limb should be slightly bent at the hip and knee joint.

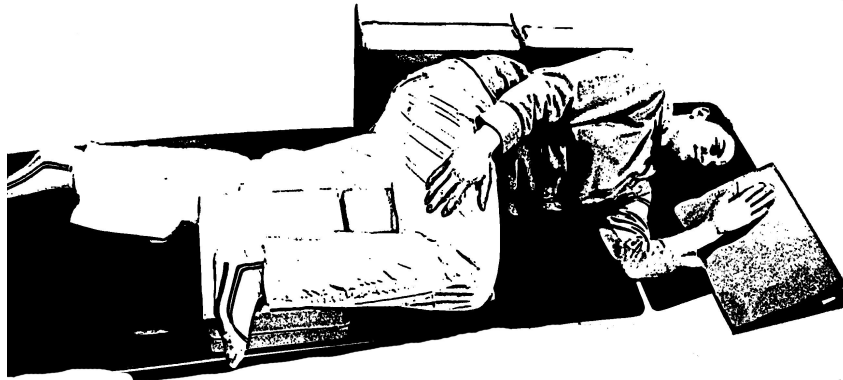
Characteristics of the patient's position in lying on the paralyzed side [1, 4]:

- flat bed,
- torso supported from the dorsal side,
- head and neck supported to avoid pressure on the m-o joint,
- shoulder in light protraction - shoulder,
- shoulders bent and rot rotated,
- elbow in extension or flexion and supination,
- paralyzed leg maximally from the back and straight, loose foot,
- less affected hip and knee 90 degrees bend supported by a pillow.

Figure 2. Positioning on the affected side

Characteristics of the patient's position in lying on the side less infested [1, 4]:

- bed flat,
- torso supported from the abdominal and dorsal side,



- the head is looking at the affected side,
- shoulder blade in pro or retraction,
- hip and knee 90 degrees.

Characteristics of the position of the patient in supine [1, 4]:

- head and pelvis pillow,
- when needed we put pillows under the arm,
- no pillows under the knees.

Characteristics of patient positioning on a wheelchair [1, 4]:

- upright position

- hard pillows at the Th-L transition height
- arms on the table to the elbows,
- feet flat on the floor knees 90 degrees,
- feet extended only while riding on footrests,
- a patient who is unable to sit independently needs support from the abdominal and lateral side and under the shoulder girdle.

Sitting is the transition between lying and walking [1, 4]:

- sitting with legs on the bed (obtained by placing pillows behind the patient's back to stabilize the straight torso, symmetrical weight distribution on both buttocks, as well as by pulling the upper limb forward with simultaneous external rotation in the shoulder joint)

Figure 3. Patient transfer from bed to chair and vice versa

- sitting down with your legs down is a patient balance training. The patient's feet must be in full contact with the ground, and the knee and hip joints are bent at 90 degrees.



Positioning should take place in any position. By passing through all these positions, we change the position of the joints and individual body parts. It is important that the arrangement is comfortable and acceptable to the patient. Only a stable and comfortable position will give the patient a sense of security and it will have a stimulating and not inhibitory effect on the nervous system. The inhibitory effect on the nervous system causes pain. The patient's behavior during changes of position should be monitored, and the position should be changed if the patient reports discomfort, either through words or pain grimaces. The patient may not always be able to lie in the position for 2 hours, so positions can be changed more often. The time specified for 2 hours is the maximum time.

Initially, the patient is placed in a passive manner, and his maintenance of a specific position is secured by using wedges, rollers, cushions [7]. Then the patient is strived to obtain an active pose without using any help.

CONCLUSION

Patient positioning is an important process of rehabilitation and patient care. The arrangement should be convenient for the patient and adapted to his possibilities associated with articular limitations. When changing positions and transfer, communication with the patient is very important. So as to try to stimulate him to help, but also to calm down providing him with comfort and security. Stable position stimulates the cerebral cortex and reduces elevated muscle tone [1, 4]. The patient should be transferred from the bed to the trolley and vice versa in a safe and ergonomic way for the patient and the person performing it, only in this way will we activate the patient during changes of position.

Appropriate positioning positively affects the patient's circulatory system and provides him with various stimuli, thus stimulating the nervous system, helping to regain sensory functions [1, 5].

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