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Health education in circulatory system diseases - cerebral strokes

Every year approximately 2.5 milion people in Europe suffer from cerebral stroke, while in Poland this number is about 60 000. Vasculars disordes of the CNS occupy the third position among the causes of death due to cardiovascular system diseases. Considering high epidemiology and mortality associated with cerebral stroke, it is extremely important to provide health education for this category of patients. Health education would prevent a recurrence of the disease, improve the quality of life and decrease mortality (11). The causes of cerebral stroke are hypertension and atheromatous changes of blood vessels, as well as heart diseases (organic heart failure, especially the diseases of the mitral valve and myocardial infarction).

The typical symptoms of cerebral stroke are paresis or hemiplegia, sensation deficiency and disorders of the higher nervous functions, mainly of aphasia type with paresis of the right side of the body, hemi neglect syndrome as well as aprxia with left side paresis. There are two types of strokes: haemorrhagic cerebral stroke (insultus haemorrhagicus) and ischemic cerebral stroke (insultus ischaemicus). The latter constitutes 80% of all strokes. The differentiation between various types of cerebral stroke is possible due to computed tomography (1, 11). The typical risk factors are (9, 11): obesity, low physical activity, lipid metabolism disorders, hypercholesteremia, abnormal lipid metabolism (LDL:HDL index), nicotynism, alcoholism, age.

Cerebral stroke usually affects people over 60, however, it becomes increasingly more frequent among the younger population, as the improper life style as well as untreated organic heart diseases favour the occurence of the disease. While approaching health education it is necessary to diagnose neurological patients' skills to acquire knowledge, as well as their intellectual and motivation potential. The task of a nurse is to develop a model of a conscious and active patient, who would be supported and motivated by his family – family members executing the desired behaviours. In this way, education will result in a change of attitudes (1,2,4).

Early mobilization and preparation of a patient for self-service by the encouragement to active participation in washing, using the toilet, eating, dressing, etc. is of the utmost importance in preventing complications and regaining independence. Elimination or decrease of negative emotions (fear, depression, anger), stress control, the formation of a positive attitude towards the disease as well as towards oneself create a basis for carrying out health education. The main educational tasks concerning patients who have undergone cerebral stroke are, among others, life style, locomotor activity, nutrition, elimination of alcohol and cigarette smoking as well as patients' abilities to cope wit stress. Life style of patients with a history of cerebral stroke should be well organized, without excessive physical and psychological effort which might cause an increase of arterial blood pressure undesirable in vascular diseases of the CNS. Maintaining the locomotor activity, proper diet, discontinuation of cigarette smoking, stress control and the

monitoring of arterial blood pressure are very important. The recommendations cover proper organization of work and leisure, avoiding haste and disorganization as well as keeping regular hours of sleep and wakefulness, also the duration of sleep which should last 7–8 hours daily allowing the regeneration of the body (1,2,3,7,8).

Physical activity. Patients who have underone cerebral stroke are recommended physical outdoor activity in the form of exercise, walking or marching for about 1 hour daily. The dosage of locomotor activity should be adjusted to the abilities of individual patients. The patients should avoid over-fatigue which results in an increase of blood pressure. A systematic physical activity decreases blood pressure, the levels of LDL and HDL, reduces the predisposition to the aggreation of thrombocytes, improves the cardiovascular and respiratory systems, general condition of the body, and prevents such complications as muscular contactures and atrophy, degenerative changes and constipation (10,11).

Nutrition. The essential features of the diet are: the consumption of plant fats, lean mest, fish, large amounts of dairy products, fruit and vegetables, and elimination of animal fats and sweets. Plant fats contain polyunsaturated fatty acids of Omega family, which have an anticoagulant and antiatherosclerotic effect. It is extremely important to eliminate sweets in the form of cakes, pastry, desserts, whole wheat bakery products and farinaceous foods. Obesity is relatively freaquent among patients with cerebral stroke, unfavourably affecting their state of health and predisposing them to complications (5, 13, 14, 15). During the reduction of the body mass the energetic value of food products should be by 500–1000 kcal lower than the requirement. The recommended way of nutrition allows patients to maintain the proper body weight. The Body Mass Index (BMI) is useful in the adequate determination of the body mass (13, 14, 15).

Alcohol and cigarette smoking. Patients with hypertension, which often accompanies strokes, should eliminate or considerably reduce the consumption of alcohol and strong coffee. Cigarette smoking is unquestionably contraindicated. Although it has been found that alcohol may inhibit the aggregation of thrombocytes (the effect being similar to that of aspiryn) and elevates the HDL (the protective effect on blood vessels) the consumption of over 40 ml alcohol daily favours the occurrence of hypertension and leads to cerebral stroke. Tobacco smoking is considered as one of the primary factors which intensify the atheromatous process – smoking increases the level of LDL and decreases HDL in blood serum (6, 7, 8).

Stress. Psychological stress causes excessive secretion of catecholamines from the adrenal glands and leads to arterial hypertension. Moreover, stress also elevates the level of cholesterol, i.e. has an atheromatosis inducing effect. Both hypetension and intensification of the atheromatous process are unfavorable phenomena. In hospital conditions nurses assist patients with stress control by carrying out elemental psychotherapy which consists in the creation of a suitable atmosphere, empathy, respecting patients' rights, and the supporting psychotherapy – information, talk (1,4,13).

Another important issue concerning the management of patients who have undergone cerebral stroke is education of a patient, the methods of coping with the consequences of the disease and self-control. It covers the following scope of problems: regular exercise passive and active-passive, supporting cardiopulmonary parameters, prevention of complications, avoiding risk factors, activation of the affected part of the body in case of hemi neglect syndrome.

The following activities result from self-observation and self-control (7, 12): observation and interpretation of the alarming symptoms, e.g. intensification of paresis, contractures, increased muscle tone, measurement of blood pressure, determination of the BMI index and LDL:HDL index, calculation of energy requirement.

Table 1 presents the number of calories required to perform selected activities. When the body weight exceeds 120% of the normal body mass, losing weight is necessary, especially in people with arterial hypertension, hypertriglyceridemia and carbohydrates metabolism disorders. Central obesity (the rate between circumference of the waist to that of the hips greater than 1 in *males* and 0.9 in *females*) is especially dangerous. Swimming is very useful in the reduction of

Table 1. Number of calories required to perform selected activities

Type of activity	Time required to metabolize 100 kcal while performing selected activities (expressed in min.)
Driving a car, typewriting	120
Washing up, ironing	80
Hoovering, slow walk	30 - 40
Work in the garden, riding a bicycle, slow dance	20 - 25
Wandering, swimming, table tennis	15 - 20
Fitness exercise	12 - 15
Long-distance running, fast bicycle ride, playing football	10

weight (if there are no counterindications), whereas exercises of a violent type are not recommended (pulse control indicated). Obesity is observed relatively often in patients who have suffered cerebral stroke, and results in the deterioration of the health state which has already been considerably disturbed, predisposing to complications which are more frequent than in the case of normal body weight. The tables below present the proposals of recommended and not recommended food products. Summing up the principles of a healthy diet: a) diversified diet containing various nutrients, b) quantitatively adjusted to the maintenance of normal body weight, c) containing proper amounts of starch and cellulose, d) devoid of excess of fat, especially saturated fat, e) diet without excess of glucose, rich in vitamins and mineral salts.

An increase in blood pressure is the primary cause of cerebral stroke. Arterial blood pressure means the strength acting on the wall of an artery which remains under the influence of the blood tension ejected by the heart. In normal conditions the heart pumps blood at the pressure of 120-160 mm Hg. This is systolic pressure, which is equivalent to one heart beat, i.e. contraction. The heart then decontracts, and during this time the pressure stabilizes; this is diastolic pressure which ranges within 70-90 mm Hg. These are the ranges of normotony. During systematic contractions and decontractions of the heart the blood hits the vessels and thanks to their elasticity rebounds against them. However, blood vessels may become sclerotic due to atheromatous changes and hypertension. In hypertension the atheromatous elements circulating in blood, e.g. lipids, hit the walls of the vessels together with the bloodstream with greater force and more easily penetrate into the vessel walls, thereby causing their sclerosis and thickness. A pathological feedback arises - atheromatous changes cause an increase in blood pressure, and hypertension increases atheromatosis of the vessels (3,4).

Course of the procedure:

- It should be explained to the patient and his/her family that there is a need for monitoring blood pressure measurements, which means regular, systematic measurement of blood pressure at regular times and its registration on special charts. It is presumed that the values obtained during home measurement correlate with the state of health of a patient better than those obtained in an outpatient department, because their value is affected by the phenomenon of so-called 'white kit syndrome';
- measurement of blood pressure should always be performed on the same exposed arm, as the difference between the two may be considerable (e.g. due to differences in the structure of arteries);
- the cuff should be placed at the heart level of a sitting patient;
- 30 min. prior to measurement the patient should restrain from drinking coffee and cigarette smoking;

- after a 5 min. wait, two or more measurements may be performed at 2 min. intervals;
- mean value of blood pressure is obtained by averaging the results;
- if there the difference between measurements is greater than 6 mm Hg additional readings are recommended.

The scale of estimation of the level of health education is presented in table 2.

Table 2. Scale of estimation of health education level

Content of question	Correct answers		Incorrect answers	
	n	%	n	%
Knowledge of the role of nutrition in the human body:				
sources of protein and their role				
simple and complex carbohydrates				
mineral salts and vitamins				
salt and its role in hypertension				
types of fats and their role in human body				
effect of cholesterol on health				
contents of cholesterol in food products				
calorific value of foods				
Importance of locomotor activity:				
importance of locomotor activity				
effects of long term immobilization				
necessity to perform rehabilitation exercises				
Effect of certain beverages:				
Effect of certain beverages (strong tea, coffee, alcohol on health,				
Atherogenic effect of cigarette smoke				
Impairment of mechanisms purifying the airways by cigarette smoking				
Effect of coping with stress on health:				
stress-inducing mechanism of hypertension				
atherogenic effect of stress				
changes of mood by stress				
methods of coping with stress				
Type of skill:				
self-control and self-observation:				
measurement of arterial blood pressure				
calculation of BMI				
contractures and muscular atrophy				
respiratory and cardiovascular complications				
Elements of quality of life:				
physical activity				
intellectual activity				
relationships with family members				
self acceptance				

100.0%–75.0 %–patient possesses complete scope of the required knowledge and skills,
74.0%–50.0 %–incomplete scope, 49.0 %–25.0 %–insufficient scope,
24.0 %–0.0 %–lack or significant insufficiency of the scope

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SUMMARY

Cerebral stroke usually affects people over 60, however, it becomes increasingly more frequent among the younger population. Early mobilization and preparation of a patient for self-service by the encouragement to active participation in washing, using the toilet, eating, dressing, etc. is of the utmost importance in preventing complications and regaining independence. The main educational tasks concerning patients who have undergone cerebral stroke are, among others, life style, locomotor activity, nutrition, elimination of alcohol and cigarette smoking as well as patients' abilities to cope with stress. The scale presents the level of health education of patients after stroke.

Edukacja zdrowotna w chorobach układu krążenia – udary mózgu

Udary mózgowe zwykle dotyczą ludzi po ukończeniu 60 lat życia, ale coraz częściej występują one u osób młodych. Wczesna mobilizacja i przygotowanie pacjenta do samoobsługi, poprzez wdrażanie go do czynności życia codziennego, jak mycie, jedzenie, ubieranie itp., jest nieodzownym elementem w zapobieganiu różnym powikłaniom, wynikającym z unieruchomienia. Ponadto w postępowaniu po udarze mózgowym bardzo ważna jest edukacja zdrowotna odnośnie do stylu życia, aktywności ruchowej, odżywiania, unikania alkoholu i palenia papierosów oraz umiejętności radzenia sobie ze stresem. Opracowana skala pozwala na określenie poziomu wiedzy i umiejętności prozdrowotnych, wykazywanych przez pacjenta po udarze mózgowym.