OSTEOPOROSIS - PREVENTING AND CURING
Osteoporosa - zapobieganie i leczenie

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Abstract

Osteoporosis is increasing problems still in the world. This illness regarding the big part of the population, they think that she touches.

A real prevention lowers the risk of the appearance of osteoporosis. Actually led multidisciplinary the prevention to a considerable degree curbs and delays the appearance of negative symptoms and the deformation. In the prevention of osteoporosis motor streamlining plays the greater role. On account of the fact that osteoporosis gives irreversible changes a prevention is an effective way of the fight against osteoporosis.

The program of the treatment must individually be drawn up based on the clinical, densitometric and radiological test.

A deceleration of the atrophy of the bone tissue is an aim of the prevention through the attempt to eliminate factors which hasten the disappearance for her. Keeping top bone mass is an important aim of the prevention, best so long as it is possible.

Streszczenie

Osteoporosa jest ciągle narastającym problemem na świecie. Choroba ta dotyczy dużej części populacji, uważa się.

Ryzko występowania osteoporozy zmniejsza właściwa profilaktyka. Właściwie prowadzona wielodyscyplinarna prewencja w znacznym stopniu ogranicza i opóźnia wystąpienie negatywnych objawów i deformacji. Dużą rolę w profilaktyce osteoporozy odgrywa usprawnianie ruchowe. Ze względu na to iż osteoporosa daje nieodwracalne zmiany efektywnym sposobem walki z osteoporozą jest profilaktyka.

Program leczenia musi być indywidualnie opracowany na podstawie analizy klinicznej, densytometrycznej i radiologicznej.

Celem prewencji jest zwolnienie tempa zaniku tkanki kostnej poprzez próbę wyeliminowania czynników, które przyspieszają jej zanik. Ważnym celem profilaktyki jest utrzymanie szczycowej masy kostnej, najlepiej tak długo jak to jest możliwe.

Osteoporosis is increasing problems still in the world. This illness regarding the big part of the population, they think that she touches, over the 25% of women and the 10% of men after 60 of year of age. [1]
As first Volkman described osteoporosis in 1882 and described her as "illness from the non-usage". In 1940 osteoporosis was named by Fuller Albright as illness, in which he is "too little bone in the bone". [1, 11]

It is estimated, that these numbers from the year for the year increase. According to WHO statistics from 30.06.2004 in Poland, by the population of 11 m of 600 thousand persons after 50 years old, it is estimate, that can be touched with osteoporosis about 2,2 mln of women and about 1 mln of men. Because of complications after fractures osteoporotic amongst elderly people annually a 20% of women and a 30% of men die, and the 50% out of this group of sick persons which will survive is disabled. Visualizing the problem of osteoporosis with special taking into account the prevention and treatments are a purpose of work. It is allocated the great honor of the presentation for the role of the physical activity which according to conducted tests, favorably sails out to the prevention as well as has his place in the treatment of osteoporosis. It isn't impossible to talk about osteoporosis as about illness afflicting only a bone structure. Symptoms and the course of this disease have one's unfortunately negative reflection in other structures of our organism. So osteoporosis is an interdisciplinary problem to which we should pay special attention. In our presentation we will try to move this problem closer. [1, 5]

**Definition of osteoporosis**

WHO defines osteoporosis as the metabolic disease being characterized by a mineral density for her reduced and disorders of microarchitecture which they lead to the increased susceptibility to breakdowns. [2]

Stating lowered bone mass requires additional diagnostics in order to exclude other diseases. Osteoporosis as a result leads the bone and the increased susceptibility to breakdowns for weakening the mechanical strength bones.

In the epidemiological presentation WHO defined osteoporosis in 1994, as BMD (bone mass density) below - 2,5 of standard deviation (SD - standard deviation), towards average BMD for, healthy and adult juveniles of the same sex through the indicator T-score.

Correct value T-score above - 1.0 SD and below +1,0 SD.

Value between – 2,5 SD and – 1.0 SD announce the reduced bone density. [2]

**Evaluation criteria of the state of the bone tissue**

1. Advanced osteoporosis - BMD below 2.5 SD from the average norm for adults
   
   SCORE T - smaller from -2,5, presence of fractures
2. Osteoporosis - SCORE T - smaller from -2,5 without the presence of fractures

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3. Osteopenia - SCORE T - scope from 1.0 to – 2,5
4. Correct bone mass - SCORE T - bigger from 1,0. [3, 5]

In the today a prevention of osteoporosis which prevents unfavorable results which cause not only sick persons, but also their home environment the problem, as well as the society as a whole is very important.

![Wrong structure of the bone tissue in osteoporosis](http://kobietamag.pl/artykul/osteoporoza-podstepna-choroba-ktorej-trzeba-zapobiegac/ [access 05.05.2012]).

Osteoporosis for a lot of years remains unnoticeable, since runs painlessly causing depletion of bone mass morover not giving symptoms on the part of the system of the motor organ. Therefore osteoporosis is named quiet and devious 'with illness.

**Structure of the bone tissue**

The structure of the bone and the cycle of reconstructing them. A bone which is a connective tissue as well as a cartilaginous tissue result in the integrity of the skeleton. It is possible to divide the bone to the cortical, i.e. outside honor or the compact bone and in the trabecular honor. The cortical honor constitutes c 70-80 % of total mass of the skeleton. Osteons constitute the basic building unit of the bone. The cancellous bone constitutes the 20% of the weight of the bone tissue and is built from building individuals. Cancellous bone area of c 10 m 2 and it is c three times bigger than the cortical bone. The bone has optimum mechanical property and minimal mass, since for her the structure is based on the three-dimensional net of the internal scaffolding and on the outside coat which is starchy. [8]

The bone is built of mineral substances, organic compounds, cellphones and water the organic motherland constitutes from 20% of bone mass. [3]

The motherland contains bone corpuscles i.e. osteocytes and proteins are set collagenous. The bone is a living tissue which is liable incessantly to processes of the restoration which run it across at the participation of osteoblasts, bone corpuscles and osteoclasts.
Cycle of regenerating the bone tissue.

Activation - osteoclasts (osteoclasts) bones pulled to determined places in internal surfaces stay. This process is stimulated e.g. by the injury or long-term immobilizing; appears in regular intervals. Resorption - the whole process lasts from 6 up to 12 days, relies on the schedule of small chosen areas of the bone in order to mold holes in them. Reversion - lasts from 7 up to 10 days, the process consists in filling holes incurred up with the so-called cement line by uninucleated reverse cellphones. Link - reverse cellphones emit signals to osteoblasts. Reconstruction - process of reconstructing and possible creating the bone starting from the production of layers of the motherland. Mineralization - accumulating calcium and other minerals in the new bone. [4]

As this way as in every living tissue this way and in bones they occur two most important for of the one woven construction processes and of disintegration. So that the process runs smoothly appropriate amounts of white and minerals are needed. These processes are controlled by types of cellphones. Osteoblasts - (gr. Blastos indicates the embryo) they appear where a build process of the new bone proceeds. In the course of being formed bones gradually transform osteoblasts into osteocytes been called with bone corpuscles which abilities to propagate don't have. The construction process of the bone stays in this moment finished. Osteoclasts - (gr. Clasis means to break) osteoclasts cause destroying and resorptions of bone mass. For this process stoped a thyrocalcitonin influences. [8]

These two types of cellphones cooperate with themselves and cause permanent construction processes and of resorption of the skeleton.

Fig. 2. Structure of the bone tissue. www.jangar.pl / oferta/edukacja-przyrodniczo-ekologiczna-badania-i-monitoring-srodowiska/biologia-czlowieka [access 05.05.2012].
Bone corpuscles - an inspection of the mineralization of the bone and the process is their main task of resorption of the bone tissue.

Osteoporosis

Epidemiology

How it appears from epidemiological data to osteoporosis 75 million persons are sick in the USA, Japan and Europe. As everybody knows from statistical data „quiet murderer of the bone” hurts the every third woman in the older century. [7] In Poland an exactly known frequency of appearing isn’t. It is estimate, that touched with this illness there are c 25 % women and 13 - 29 % men. Osteoporosis is cause 1,3 mln of fractures annually; including 500 thousand Fractures of the spine, 250 thousand fractures of a thighbone, 240 thousand fractures of the forearm. [7] According to calculations by the substantial amount of elderly people and leading the unhealthy lifestyle and feeding number of cases of fractures of persons with osteoporosis still will increase.

Etiopathogenesis

Osteoporosis is illness being characterized by a total fall in bone mass. It is one of most offtentimes appearing metabolic diseases of the bone, in comparing the population of the equal-age group, at sick persons to osteoporosis the skeleton contained the paucity mineralized of bone tissue. For osteoporosis an absent-mindedness of processes is osteoblast and osteoclast characteristic. A connection of illness with the menopause is characteristic. Tests show, that after 40 women as well as men lose the year of age bone tissue with the speed 0.3 % annually, however at men this speed of loss of the bone tissue continues,, and at women after the menopause increases 10 time all the way to 35 for the year. [8]

Classification
Fig. 3. Classification of osteoporosis. [3]

**Classification (criterion of the location)**

Local osteoporosis - usually runs along with inflammatory processes. The reach will depend on the underlying disease and intensity generalized osteoporosis - regarding the entire skeleton, acts as the result of systemic metabolic disorders.

**Clinical criterion of identity (etiologic criteria)**

Primaeval osteoporosis - the cause of this illness until the end isn't found. Lowering bone mass below a standard stamps it, which the cause is unknown for. An old age is the greatest risk factors. Changes which they steal in the bone tissue are one and with main symptom of pathological changes in the bone tissue and disorders of the homeostasis of calcium.

Recurring osteoporosis - this kind of osteoporosis is a consequence of different diseases among others of rheumatoid diseases, cancers, hyperthyroidism, parathyroid glands, diabetes of the type and, of gastrointestinal disease, kidneys, immobilizing, the long-term use of medicines e.g. heparins, anticonvulsant.

Involutional osteoporosis - this figure of osteoporosis acts most oftentimes as senile and postmenopausal osteoporosis. [5]

**Risk factors [1]**
Many factors which they can take to the increased susceptibility to osteoporosis exist.

Risk factor
Advanced century

Genetic - women - the white race - family History of osteoporosis

Anthropometric - short height - small body weight - frail build

Hormone - premature spontaneous menopause - premature induced surgically menopause

Dietetic - low supply of calcium in the diet - poor diet into the vitamin D - the excessive consumption salts - acid-ash diet - undernourishment

Lifestyle - low activity motor - exaggerated eating the coffee - exaggerated eating alcohol - little exposition to the sun - long-term immobilizing

Medicines reducing the metabolism of the bone tissue - glucocorticosteroids - heparin in excess - preparations of the thyroid gland - tetracyclines - anticonvulsant medicines

Illnesses - endocrinological (hyperthyroidism, of parathyroid glands, - gastroenterologic (of disturbing the intestinal absorption) - nephrologic (dysfunction of kidneys, dialysis) - of the bone and the bone marrow

Grounds
In the fourth decade of the life physiological loss of the bone tissue takes place

Women in the large degree than men are exposed to osteoporosis. It is caused with smaller top bone mass and her loss after the menopause

Oestrogens which are an inhibitor play an important role

resorptions of the bone tissue

Insufficient absorbing calcium causes a low

concentration of the vitamin D in the alimentary canal

what can lead to the appearance of recurring hyperthyroidism and of suppressing processes of creating the bone tissue.

Thanks to the physical activity cytokines cause the process of stimulating creating the bone tissue. In the course of effort powers grinding down and tensing which have a positive effect on bones work on bones. Long-term immobilizing makes axial burdening the skeleton impossible

These medicines demonstrate the negative influence on the activity of individuals of the bone reconstruction - hinder the process bonemade and simultaneously stimulate resorptions

Clinical symptoms

Osteoporosis unfolds secretly and at first gives no perception of pain. The first symptoms a sick person reports which are chronic pains of the back which intensify while standing and a sitting position cause discomfort. These complaints usually yield by rest. At spinal symptoms often located pains in the abdominal cavity determined as spilt can accompany, dyspeptic symptoms and sometimes problems also appear with emptying.

We can also rank among other organic symptoms:
of disturbing the digestive function; loss of the apatite, constipations, flatulences
frequent infections broncho - pulmonary

Just enough of progress of osteoporosis are noticeable:
- intensifying backaches, not-yielding in the recumbency
deepening the pectoral kyphosis and a sharp pain of the pectoral and lumbar stretch of the spine
- pains of the cervical installment and deepening the cervical lordosis
- overloading ligaments and muscles
- limiting the mobility of the spine. [1]

Physical signs:
- lowering the head ahead
disturbing the conduct of the body
- compression fractures of vertebrae and pain accompanying it
deepening the pectoral kyphosis (so-called widow hump) - weakening the glutei and the belly with his bulge
- limiting active movements of the spine
- the restriction or the lack of the mobility of the chest
- fir-tree arranging plicas thoraco-lumbar
- increased muscle tension paravertebral. [1]

Kinds of fractures osteoporotic:
double concave fractures of hard cores (piscine vertebrae) - reaches them most oftentimes in the lumbar spine are caused invagination oneself of intervertebral shield to trunk. [1]
wedge-shaped fractures - they come into existence during the flexural mechanism; most oftentimes act in the pectoral installment and thoraco-lumbar. Sometimes he can reach to the pressure of the highlighted fragment of the hard core on the spinal cord.
flat vertebra - he comes into existence if reaches for total crushing the spinal hard core.
of breaking the base of more distant forearm bones
of the fracture closer to the tip of a thighbone. [5]

Periods of osteoporosis

The I period - early Osteoporosis – Osteopenia
The sick person feels multilocal pains near the spine and within upper limbs and bottom. In the time at the sick person it is possible to observe appearing of pain lowering the mood and sometimes even depressions. During the test it is possible to state: the attitude of the body remains disturbed, muscles are paravertebral in the greater tension, active movements of the spine are full-scale, but painful. Inspecting the X-ray generator doesn't demonstrate changes, however the tomodensitometry states the osteopenia.

**The II period - advanced Osteoporosis**

The sick person complains about pains of the spine which increase during moves. While examining at the sick person we notice: - increasing the cervical and lumbar lordosis as well as the pectoral kyphosis, lowering rib arches and relaxing the lining of the stomach, fir the ones arranging skin pleats on the back. Radiological examining the pectoral installment shows reduced savour out of hard cores of vertebras, and sometimes lowering the height of spinal hard cores. The tomodensitometry shows osteoporosis.

**The III period - late Osteoporosis**

The patient reports constant backaches which increase during moves. To observe it is possible the change of the posture of the body and reducing the growth. The patient has difficulty with establishing contact with people. Fractures stayed in the medical history of upper limbs or bottom. Figure of the sick person: strengthened kyphosis in the pectoral installment, the correction for her causes an intense pain; lowering the head ahead along with the observed increased cervical lordosis; lowering rib arches; weakness muscles of belly, gluteal, of upper limbs and bottom; The patient oftentimes stands on lower limbs bent in knee joints and hip. [3, 5]
Fig. 4. Figure of persons in individual periods of osteoporosis http://zdroweinspiracje.blogspot.com/2010/11/osteoporoza.html [access 05.05.2012].

**Diagnostics**

1. **X-ray test**

   Changes of the shape, a thinning of cortical layer, a rarefaction depict structures and the changed image of bone beams. It is lets for detecting the fracture. He shows only about 30-40 % of loss of bone mass. [1, 9]

2. **Clinical densitometry**

   This test determines the bone mineral density, as well as the risk assessment of fractures. This test takes place in two places: in part lumbar in area L1 - for L4 and a base closer to a thighbone. They recommend applying this method in both these places.

3. **Automatic morphometry of the spine (VFA)**

   This method was based on DXA method.

4. **Clinical pathology**

   It is lets exclude the cause of recurring osteoporosis and identify coexisting clinical problems. In diagnostics they should be marked: level of calcium in blood and urine, level of phosphates and the alkaline phosphatase, level of TSH, free thyroid hormones and oestrogens. [1, 3, 9]

**Prevention**

In order to minimize the risk of the appearance of osteoporosis and are recommended to further progress:

- appropriate supply of calcium in the diet - the daily consumption for adults of calcium is 1000 mg, in the postmenopausal period, for women this 1500 mg is,. this dose also embraces persons in the advanced century. As regards the reaching young stock a dose of 1200 mg is applied. Also applying the appropriate expenses rich in the protein source is good. To include in the diet also belongs appropriate amount of the milk in different his forms and his preserves. If the sick person to osteoporosis doesn't tolerate the milk for different reasons one should supplement his diet into calcium giving oral preparations containing salts of calcium.

- physical activity - the sufficiency of the move constitutes the basis of the prevention of osteoporosis. The physical activity conditions getting and keeping appropriate top bone mass. The
movement is important, since helps build calcium in into bones, processes of the resorption and reconstructions of the bone recover their mental balance. Moreover well-developed muscles ensure the stability of the skeleton, muscles relieve the spine, the sick person recovers the physical fitness what the smaller risk of the fall carries. Exercises should this way be put together so that they start many muscle groups. During effort strained mechanically bones increase the process bonemade. The physical activity influences the process of the reconstruction of the bone, causes the increase in bone mass as well as stimulates the secretion of hormones calcitropic of growth hormone. [9] One should remember that we should start the prevention of osteoporosis already in the childhood. What amount of our bone tissue will be built to the end of the fourth decade of our life outweighs. The continuous move stimulates osteoblasts in bones which are responsible for building the bone new tissue.

- supply of the vitamin D - appropriately the selected dose of this vitamin reduces loss of the bone density effectively. The preventive dose amounts 400-800 jm. a day. The supply of the vitamin D is important for elderly people which don't go out. In order to convert provitamin into vitamin it will be sufficient to spend in the fresh air 10 for 20 faces per day, even in somber days.
- oestrogen therapy - in the postmenopausal period one should supplement the everyday diet with substitutes with applying oestrogens. When contraindications against therapy appear estrogen a thyrocalcitonin or biophosphates are applicable.
- reducing drinking alcohol, caffeines and giving the burning up - exaggerated eating alcohol increases the phenomenon appearing of osteoporosis both at men and at women. In this way a risk of the femoral neck fracture grows. The ethyl alcohol disadvantages in the body transformation of the vitamin D what in consequence results in reducing absorbing calcium from intestines and him exaggerated expelling with urine. Also smoking cigarettes is unfavorable since intoxicants included in them work directly on osteoblasts. [6, 7]

**Physiotherapy in the prevention of osteoporosis**

Purpose which stays put it is above all a prevention. It is aimed: enduring pain, keeping the good posture of the body, reconstructing normal muscle power, keeping the correct scope of movements, increasing the everyday motor activity. [9]

**Treatment**

The I period - early osteoporosis
Treatment with painkillers, nonsteroidal anti-inflammatory medicines

Kinesiotherapy:
- exercises regulating the muscle tension - of training in lightening
- learning of the good posture - exercises antykiphotic

Therapy of group classes is also indicated e.g. in the bedpan, as well as appropriately selected individual exercises.
Long walks are recommended about 30 min. per day

Physiotherapy:
- electricity diadynamic
- anode electrotherapy
- magnetic field
- TENS
- cryotherapy (if not has contraindications)

The II period - early osteoporosis

In order to cure in this period preventing further deformations, as well as reducing is of pain complaints. The sick person performs isometric exercises of muscles of the torso, works above the good posture of the body, exercises correcting the kyphosis incurred, general-keep-fit exercises improving the fitness of muscles. Practicing exercises are performed individually or in the group. A duration is a minimum of 20 minutes per day.
Also applies:
- electrotherapy
- magnetic field
- TENS
- heat treatment
- massages of muscles - manual, underwater, aquawibron

There is absolutely an orthopedic supply sometimes in the form of bullets, walking frames, walking sticks effectively limbs lighten which burden, as well as prevent falls. Neck supports prevent vertigo and reduce pains from overloading muscles.

The III period - advanced osteoporosis (late)

The rehabilitation in this period very much is limited on account of existing deformations.
The rehabilitation in this period includes:
- respiratory exercises
- loosening exercises
- isometric exercises of upper limbs and bottom

Torso applying the orthopedic supply as the next fulcrum for the safe migration of the sick person is necessary.

Everyday walks are recommended c hours. Physiotherapy is applicable with the great restriction. To particularly painful places an electrotherapy, a magnetic field or a heat treatment are applicable. [2, 7, 10, 11]

Treatment

It isn't possible to heal primaeval osteoporosis, but effectively conducted therapy can brake or temporarily slow the unfavorable course down.

Drug treatment - balancing processes is setting her of the resorption and the reconstruction of the bone, as well as amending balance of calcium in bones. In the treatment applies:
- Oestrogens
- Medicines antyresorptic
- Osteogenic medicines (vitamin D, sodium fluoride)

In this form of the treatment effects are noticeable, although one should remember that pharmacology mitigates symptoms of illness and the unknown doesn't remove causes which are.

- Oestrogen therapy - oestrogens prevent osteoporosis, and if already reached her they lower the risk of fractures and also for the task illnesses have hindering the process.
- Fluorine compound and of calcium - calcium provides with building materials for creating bone substance. Delivered fluorine with calcium causes that bones are more immune to the negative effect of osteoclasts.
- Vitamin D - additional therapy. She is particularly important, since is needed for absorbing calcium from intestines and for building in it into bones. Appropriate wholesome expenses and the sufficient time of spending a lot of time out of doors will satisfy the daily demand for this vitamin.
- Analgesics - a fight against pain is one of main purposes of therapy. Pain is also sometimes a positive symptom in initial phases of osteoporosis. After diagnosing illness painkillers relieve negative feelings and help conduct therapy. [2, 3, 10, 11]

Treatment - physical therapy and the move
Physiotherapy and pharmacological treatment mutually complement each other. Regular exercises help in the fight against pain, chattels do the improvement good in joints and contribute to the increase in bone mass. Persons burdened with osteoporosis should remember that alone we should not draw the therapy program up.

Streamlining treatment

The regular movement supports building in calcium into the bone tissue. Additionally during the move they are stimulated important in the build process of the new tissue osteoblasts. Baumgarten gives, we can expect effects of exercises after c 6 months of exercises, however this period isn't specified. Some tests give, that increase in bone mass about 2 - 5 % turns up at time 3 - of 4 years of systematic exercises. One should however remember about depletion of bone mass at not practicing persons which takes out into the 6% annually. The motor rehabilitation helps to stop this process and contributes to the increase in bone mass. [10, 11]

Preventing further loss of bone mass is an Aim of the rehabilitation, preventing falls as well as reducing pain complaints.

The training should be individual for every patient. As a rule he consists of passive and practicing exercises. Passive exercises are applied with patients with great restrictions and have starting the patient for the task. Next for the patient practicing exercises which appropriately are fitted are selected to the condition and a patient's condition. Additionally every sick person under makes windows of the psychotherapist exercises which later alone he will carry out at home. One should remember that in therapy a regularity counts. One should also remember that performing exercises cannot cause pain, for if will appear we should stop the exercise and notify the doctor of it. It is worthwhile supplementing the gymnastics with sport. Well if for recreations we can donate c 30 mines per day 3 up to 4 times every week. In the prevention it should direct itself attention to avoiding burdens, of improper moves which are disadvantageous to the spine.

• Applying the warmth and waters

These methods have a combating for the task, relieving pain. Warmth and water stimulate the blood supply and the local metabolism what in consequence building in causes oneself of calcium in the bone. Warmly a painful tension has the task relaxing muscles and liquidating them. Water therapy according to Kneipp water finds the big application in the treatment of osteoporosis. Warm water relieves the pain, corrects the metabolism and the regeneration process of tissues.

Recommended treatments with the use of water:
- pouring the back with water and their compresses
- pouring aching places with water
- partial and total baths
  Local applying the warmth:
- therapeutic mud
- facer

Ingredients included in them favorably have an influence on a metabolism, tissue regeneration by partial getting oneself of nutrients and mineral through the skin.
- hot compresses of mineral volcanic mud - in order to loosen and to warm muscles bodies are applied in determined parties
  • Magnetic therapy
she is applied simultaneously with thermal therapy. The magnetic field positively works on cellphones and nerves, corrects the regeneration of the bone into this way and relaxes muscles.
  • Percutaneous stimulation of nerves
It is one of methods of relieving pain. In general well she is tolerated by patients.
  • Massage
In therapy oftentimes massage combines with the kinesiotherapy. Massage is performed ahead of the gymnast and a preparation, heating up and avoiding the disturbance of pain during exercises have the task. Leveling the perception of pain originating in the spine is setting the massage therapist. Massage of the periosteum implemented by Voglera in 19288 year, technician of this massage contributes to faster regeneration process and strengthening the bone.
  • Orthopedic supply
Nothing will replace our muscle corselette. Muscles which are trained and strong take over the part of his supporting functions from the skeleton. In therapy at this target correct needling is valid for osteoporoses muscles of back. [2, 3, 10]

Assistance in relieving the spine:

a) Corselettes and stretchy bands - they constitute passive lightening and don't affect an increase in muscle mass. Applying them can contribute to gradual disappearing muscles of back. Corselettes are only applicable when muscles are weakened and cannot fulfill functions of an owl. It is important so that the patient while wearing the corselette doesn't forget like this for gymnastics important for strengthening muscles.
b) Jevetta corselette - is worn by the patient through c 4 - 6 weeks. He is applied after breaking vertebrae in the acute and chronic period illnesses. A protection of the spine against sudden moves of bending the torso is his basic function, combats the deepening kyphosis, relieves
pain. In the time the patient should perform wearing the corselette isometric exercises of muscles of the torso and buttocks.

c) Plaster casts - are established in case of the rupture of vertebrae, or there is such threat. The not treated fracture of the spine can cause spinal cord injuries well a paralysis is connected with it. Carrying a plaster cast doesn't limit the patient physically.

d) Assistance for walking - walking frames, bullets, woods

They help sick persons hold the balance, help make problems in moving. [9, 10]

Education in a well-balanced diet

The treatment of osteoporosis doesn't require the special diet, however appropriate the trophism will matter greatly. The diet in osteoporosis requires proper eating habits from the patient of the enforcement, and isn't only a momentary form of escape from regular feeding. Relevant expenses must ensure the appropriate amount of elements which are needed for correct construction for the bone. Unfortunately each of us eats the market lot of phosphorus what results in upsetting the balance between proportion of calcium and phosphorus. New eating habits which we lead into expenses are an abundance of lettuce, fruits, the cereal crop and potatoes. Because they deliver a lot enough to the energy and will satisfy the demand for such important proteins. One should remember, that every he must appropriately be added variety, only then we will provide the organism with all needed nutrients. In the diet of persons with osteoporosis we pay attention for sufficient eating the milk and his preserves which are essential to build of bone substance. The sick person should pay attention to what he drinks. The mineral waters rich in calcium, natural fruit juices, milk drinks are recommended. One should limit frequent eating alcohol which adversely affects the bone tissue. [4]

Conclusions

A real prevention lowers the risk of the appearance of osteoporosis. Actually led multidisciplinary the prevention to a considerable degree curbs and delays the appearance of negative symptoms and the deformation. In the prevention of osteoporosis motor streamlining plays the greater role. On account of the fact that osteoporosis gives irreversible changes a prevention is an effective way of the fight against osteoporosis.

The program of the treatment must individually be drawn up based on the clinical, densitometric and radiological test.
A deceleration of the atrophy of the bone tissue is an aim of the prevention through the attempt to eliminate factors which hasten the disappearance for her. Keeping top bone mass is an important aim of the prevention, best so long as it is possible

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