EVIDENCE BASED REHABILITATION IN KNEE ARTHROSIS

Z DOKAZI PODPRTA REHABILITACIJA PRI ARTROZI KOLENA

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Abstract

Osteoarthritis (OA) of the knee is one of the five leading causes of disability among elderly men and women. The risk for disability from OA of the knee is as great as that from cardiovascular disease. It usually occurs in knees that have experienced trauma, infection, or injury. The incidence of knee OA is high throughout the world. At ≥ 25 years of age, there were about 21 million cases of OA in 1995 and 27 million in 2008. The incidence of symptomatic knee OA is 1% per year, with a radiographic incidence of 2% per year. The exact causes of OA are unknown, but there are a number of known risk factors, such as aging, heredity, weight, repetitive overuse, and crystal deposits. Knee OA is common in individuals who play intense physical sports, such as football. Previous injury to the knee is a strong indicator for development of OA in the future. There are many treatment algorythms in OA; the most commonly used one is OARSI guideline. The goals of 2008 OARSI treatment guideline are: reducing joint pain and stiffness, maintaining and improving joint mobility, reducing physical disability and handicap, improving health-related quality of life, limiting the progression of joint damage, and educating patients about the nature of the disorder and its management. The general recommendation is that optimal treatment is provided by combining non-pharmacological and pharmacological treatment. The most recent guideline was reported by ACR in 2010. It includes pharmacological and non-pharmacological recommendations, which are similar to the OARSI recommendations. Treatment of knee OA should be planned according to treatment guidelines, but it should not be forgotten to individualize the treatment for the patient. For evidence based rehabilitation, more studies about physical agents are necessary.

Key words:

osteoarthritis, knee, risk factors, rehabilitation, recommendations

Izvleček

Osteoartroza (OA) kolena je eden od petih najpogostejših vzrokov omejitev pri dejavnostih starejših moških in žensk. Tveganje za omejitve pri osebah zaradi OA kolena je tako veliko kot za omejitve zaradi srčno-žilnih bolezni. OA se pogosto razvije po poškodbi ali vnetju kolenskega sklepa. Incidenca je povsod po svetu visoka. Pri osebah starih 25 ali več let je bilo leta 1995 21 milijonov, leta 2008 pa 27 milijonov novih primerov OA. Incidenca simptomatske OA kolena je1%, rentgensko potrjene pa 2%. Natančen razlog OA ni znan, obstajajo pa številni dejavniki tveganja, kot so staranje, dednost, telesna teža, ponavljajoče se preobremenitve in odlaganje kristalov v sklep. OA kolena je pogosta pri posameznikih, ki se ukvarjajo z intenzivnimi športi, kot npr. z nogometom. Predhodna poškodba kolena je močan napovedni dejavnik za razvoj OA v prihodnosti. Obstajajo številni algoritmi zdravljenja OA. Najpogosteje se uporabljajo smernice OARSI iz leta 2008, ki vključujejo: zmanjšanje bolečine in okorelosti, vzdrževanje in izboljšanje gibljivosti sklepa, zmanjšanje omejitev pri dejavnostih in sodelovanju, izboljšanje z zdravjem povezane kakovosti življenja, omejitev napredovanja okvare sklepa in izobraževanje pacientov o naravi bolezni in njenem obvladovanju. Splošno priporočilo je, da optimalno zdravljenje zagotavlja kombinacija nefarmakoloških in farmakoloških ukrepov. Zadnje smernice je objavilo ACR v letu 2010. Vključujejo farmakološka in nefarmakološka priporočila, ki so podobna priporočilom OARSI. Zdravljenje OA kolena je potrebno načrtovati skladno s smernicami, vendar mora biti individualno prilagojeno posameznemu pacientu. Potrebne so nadaljnje raziskave o učinkovitosti posameznih fizikalnih agensov.

Ključne besede:

osteoartoza, koleno, dejavniki tveganja, rehabilitacija, priporočila

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INTRODUCTION

Osteoarthritis (OA) of the knee is one of the five leading causes of disability among elderly men and women. The risk for disability from OA of the knee is as great as that from cardiovascular disease. It usually occurs in knees that have experienced trauma, infection, or injury. The articular cartilage acts as a protective cushion between bones. OA develops as the cartilage begins to deteriorate or is lost. As the articular cartilage is lost, the joint space between the bones narrows. As the disease progresses, the cartilage thins, becoming grooved and fragmented. The surrounding bones react by becoming thicker. They start to grow outward and form spurs. The synovium (a membrane that produces a thick fluid that helps nourish the cartilage and keep it slippery) becomes inflamed and thickened. It may produce extra fluid, often known as "effusion in the knee," that causes additional swelling. Over a period of years, the joint slowly changes. In severe cases, when the articular cartilage is gone, the thickened bone ends rub against each other and wear away. This results in a deformity of the joint. Normal activity becomes painful and difficult.

Knee OA is common throughout the world. At ≥ 25 years of age, there were about 21 million cases of OA in 1995 and 27 million in 2008. The estimated cost of OA is 254 billions of dollars/year. Nowadays, OA affects more than 46 million (60.8% women) people; it also affects ADLs of about 19 million of those people (63% women). The incidence of symptomatic knee OA is 1% per year, with a radiographic incidence of 2% per year. The rate of radiographic progression has been estimated at about 4% per year.

The exact causes of OA are unknown. However, there are a number of factors that are commonly associated with the onset of the disease:

- Aging – OA is not a part of aging but the predisposing factors are increased with aging;
- Previous injuries – Previous trauma to a particular joint increases the risk of OA forming there;
- Heredity – Some individuals have a defective gene responsible for cartilage production which increases their susceptibility to OA;
- Weight – As OA commonly occurs in the weight bearing joints, like the knee and hip, excessive loading on these joints may lead to faster progression of the disease;
- Repetitive overuse – This may be as a result of excessive exercising or repeated strain on a joint over a number long period of time;
- Crystal deposits – Some crystal deposits, such as uric acid crystals in gout, may accumulate in joints and cause cartilage degeneration and wearing.

Knee OA is common in individuals who play intense physical sports, such as football. Previous injury to the knee is a strong indicator for development of OA in the future. In recent studies, it has been shown that diet is also important for OA. Framingham study showed the protective features of vitamins C, D, E and beta-carotene and the role of diet was also shown in twin studies.

DIAGNOSTICS

Radiology and symptomatlogy of OA are usually incompatible. In general, there are two groups of patients: in one group, cartilage degeneration and a mild synovial inflammation occur together so the process is fast; the other group is slow-progressing. In patients who have pain we can see synovial hyperthropy, synovial effusion, bone marrow edema and capsullar fibrosis in MRI.

Diagnostic criteria (2009 EULAR) – To diagnose OA in knee, the following criteria are assessed:

- Continuous knee pain
- Limited morning stiffness
- Functional limitation
- Crepitation
- Limitation in range of motion
- Bony enlargement
- If all of these 6 findings are positive in a knee, it is OA with 99% certainty.

RECOMMENDATIONS

There are a lot of treatment algorythms in OA; the most commonly used one is the OARSI guideline. The goals of 2008 OARSI treatment guideline are: reducing joint pain and stiffness, maintaining and improving joint mobility, reducing physical disability and handicap, improving health-related quality of life, limiting the progression of joint damage, and educating patients about the nature of the disorder and its management. According to the OARSI guideline, there are 25 recommendations for treatment of OA. The general recommendation is that optimal treatment is provided by combining non-pharmacological and pharmacological treatment. There are also 11 non-pharmacological, 8 pharmacological and 5 surgical recommendations.

- **Combination of non-pharmacological and pharmacological treatments**: Evidence level is IV. It is a powerful recommendation in 12 guidelines, but it is an expert view and there are no RCTs.
- **Information and education**: Evidence level for education is Ia. It includes education about issues like life style changes, exercise, activity control, loosing weight. It is preferred to be in the control of patient. It is supported by 2 meta analyses.
- **Telephone contact**: Evidence level is Ia. There is no meta analysis about phone contact. Only 1 RCT with 439 patients was found in the literature.

- **Physical therapy consultation**: Evidence level is IV. It includes recommendations of excersises, crutches and walker to relief pain and increase functional level. There are 3 RCTs.
- **Regular aerobic, strengthening and ROM excersises**: Evidence level Ia. In 13 RCTs, regular aerobic walking excersises and quadriceps strengthening at home were found to be effective in knee OA.
- **Weight control**: Evidence level is Ia. There are a meta analysis of 4 RCTs and 2 RCTs about weight control. Loosing 6 kg is significantly reflected in pain and functional disability scores.
- **Walking aids**: Evidence level is IV. There is no RCT but we know that pain decreases with using stick or crutch in contralateral hand. Usage of braces in knee OA with mild-moderate varus or valgus instability is also important. In patients with knee OA who use knee braces, there is improvement of WOMAC scores. In a RCT, valgus brace was found to be more effective than neopren knee brace in 6 months. Evidence level is Ia.
- **Insoles**: Evidence level is Ia. Appropirate shoes should be recommended to all patients. Usage of lateral wedge in OA of medial tibiofemoral compartment provides symptomatic relief and decrease lateral pressure in knee. There is no controlled data about shoes.
- **Thermal modalities**: Evidence level is Ia. Heat and cryotherapy are used commonly but evidence is very limited. Two RCTs are about ice massage and short wave diathermy.
- **TENS**: Evidence level according to Cochrane systematic assessment and two systematic review is Ia. TENS for 2-4 weeks results in significant decrease in pain.
- **Acupuncture**: Evidence level is Ia. In a systematic review, pain significantly decreased in placebo controlled 393 knee OA patient.

The most recent guideline was reported by ACR in 2010. It includes pharmacological and non-pharmacological recommendations. They are similar with OARSI recommendations.

CONCLUSION

Treatment of knee OA should be planned according to treatment guidelines but it should not be forgotten to individualize the treatment for the patient. For evidence based rehabilitation, more studies about physical agents are necessary.

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