The impact of coping style on quality of life in persons with Parkinson's disease

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Background: We hypothesized that quality of life in persons with Parkinson's disease (PD) is determined not only by the severity of the disease but also by the way the patients cope with the disease (1, 2). We investigated the coping styles used by patients with PD, their quality of life and the relationship between coping styles and quality of life. **Methods:** PD-patients were recruited during a yearly PD-convention of the Flemish Parkinson League. The respondents completed a clinical questionnaire including a self-reported version of the Hoehn & Yahr scale, the Utrecht Coping List and the Parkinson Disease Quality of Life-39 questionnaire (PDQ-39). **Results:** 60 men and 37 women with PD (mean age 66.5 y, mean duration of PD 10.0 y) responded. The mean total score on the PDQ-39 was 42.4 ± 16.9. The reported coping styles (UCL-subscales) were reassuring thoughts (48 %), active coping (46.2 %), palliative coping (41.8 %), seeking social support (35.8 %), avoiding (35.1 %), passive coping (27.4 %) and emotional coping (25.4 %). Multiple regression analysis showed a main effect of the Hoehn & Yahr scale on the PDQ-39 total score. For patients in Hoehn & Yahr stage I and II, the combination of passive coping, active coping and age, explained 66.5 % of the variance of the PDQ-39 total score. For patients in Hoehn & Yahr stage IV, the passive coping style explained 10.1 % of the variance of the PDQ-39. **Conclusions:** Mainly in the first stages of the disease, passive and active coping styles explain a large portion of the variance of the quality of life. In rehabilitation more attention should be given to assess and modify the way patients cope with their disease (3).

Keywords: coping style, quality of life, Parkinson's disease, rehabilitation.

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Učinki vadbe s sistemom Nintendo Wii Fit na ravnotežje pri bolniku s Parkinsonovo boleznijo – poročilo o primeru

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Uvod: Parkinsonova bolezen je počasi napredujoča degenerativna bolezen možganov neznanega vzroka, ki prizadene predvsem telesno gibanje (1). Moteno ravnotežje pri bolnikih s Parkinsonovo boleznijo je lahko posledica spremenjene, naprej nagnjene drže pri stoji, kar zmanjša učinkovitost izvajanja reakcij nadzora drže (2). Uporaba navidezne resničnosti sistema Nintendo Wii Fit pri telesni vadbi poveča motivacijo bolnika ter intenzivnost vadbe za nadzor drže oziroma ravnotežje (3, 4). Namen raziskave je bil ugotoviti, ali lahko štiritedenska vadba s sistemom Nintendo Wii Fit vpliva na izboljšanje ravnotežja in hoje pri bolniku s Parkinsonovo boleznijo. **Metode:** Sodeloval je 73-letni bolnik s Parkinsonovo boleznijo, ki se je začela 10 let pred raziskavo. Program vadbe s sistemom Nintendo Wii Fit je trajal štiri tedne, trikrat na teden, od 35 do 40 minut na dan. Vključeval je šest iger, in sicer korakanje, nagibno mizo, ravnotežni mehurček, drsenje pingvina, zasuk trupa in boksanje v ritmu. Dodatno je preiskovanec vsak dan pred začetkom vadbe izvajal vaje za ohranjanje splošne gibljivosti ter 20 minut tekel na tekočem traku. Pred štiritedensko vadbo in po njej smo v fazi vklopa izvedli Bergovo lestvico za oceno ravnotežja, časovno merjeni test vstani in pojdi ter test hitrosti hoje na 10 metrov z motoričnim delom združene ocenjevalne lestvice za Parkinsonovo bolezen, in sicer za oceno splošne prizadetosti. Razporeditev telesne teže na spodnja uda smo z ravnotežno ploščo Wii merili enkrat na teden. **Rezultati:** Po vadbi so se izboljšali ravnotežje in funkcijska sposobnost (Bergova lestvica za 10 točk, časovno merjeni test vstani in pojdi za 4,5 sekunde, hitrost hoje za 0,3 m/s) ter motorični del združene ocenjevalne lestvice za Parkinsonovo bolezen za 3 točke. Razporeditev telesne teže na bolj okvarjeni strani se je po končanem programu vadbe povečala iz 46,7 % na 51,1 %. **Zaključki:** Štiritedenska vadba na ravnotežni plošči Wii je pri tem bolniku s Parkinsonovo boleznijo vplivala na izboljšanje statičnega in dinamičnega ravnotežja ter funkcijske sposobnosti v fazi vklopa. Glede na rezultate tega poročila o primeru lahko priporočimo uporabo sistema Nintendo Wii Fit pri vadbi za izboljšanje ravnotežja pri nekaterih pacientih s Parkinsonovo boleznijo. Za določitev, kateri pacienti so sposobni te vrste vadbe, in za ugotavljanje dolgoročnih učinkov so potrebne nadaljnje raziskave z naključno izbrano kontrolno skupino.

Ključne besede: Parkinsonova bolezen, ravnotežje, navidezna resničnost, Nintendo Wii Fit.

Effects of training with Nintendo Wii Fit on balance at a patient with Parkinson's Disease – a case report

Background: Parkinson's disease is a progressive degenerative disease of the brain, which causes disorder of physical activity from unknown reasons (1). Disturbed balance at patients with Parkinson's disease can be caused by altered, forward sloping posture in standing position, which reduces the effectiveness of postural control (2). Use of a virtual reality system Nintendo Wii Fit during physical activity increases patient's motivation and intensity of postural control or balance training (3, 4). The purpose of the study was to investigate whether four-week's training with Nintendo Wii Fit system might influence improvement of balance and walking at a patient with Parkinson's disease. **Methods:** A 73-year-old patient with Parkinson's disease, which began 10 years before the study, was included. The training program using Nintendo Wii Fit was performed for 35 to 40 min, three times per week, four weeks, and included six games (Basic step, Table tilt, Balance bubble, Penguin slide, Torso twist, Rhythm boxing). Additionally, the patient performed a 20-minute run and exercises for general flexibility maintenance before each Nintendo Wii Fit training session. Before and after the four weeks' training period, Berg Balance Scale, Timed Up and Go test, and 10-meter walk test were performed to evaluate balance and gait speed and motorpart of Unified Parkinson's disease rating scale to generally evaluate the disorder. Additionally, weight distribution on each foot was measured with Wii balance board once a week. **Results:** After the training period, improvement of balance and functional capability of the patient (Berg Balance Scale: for 10 points, Timed Up and Go test: for 4.5 s; walk speed: for 0.3 m/s), and motor part of Unified Parkinson's disease rating scale (for 3 points) were evident. Weight distribution on the more affected side increased from 46.7 % to 51.1 %. **Conclusion:** The four weeks' training with Wii balance board influenced improvement of static and dynamic balance and functional capability at this patient with Parkinson's disease. According to the results of this single case report we might recommend the use of Nintendo Wii Fit for balance training in some patients with Parkinson's disease. To define certain group of patients who are capable for this type of training and to establish the long-term effects further research with RCT design is needed.

Keywords: Parkinson's disease, balance, virtual reality, Nintendo Wii Fit.

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Vpliv uporabe elastičnih lepilnih trakov na bolečino in obseg gibljivosti ramenskega sklepa pri pacientih po možganski kapi: pilotska študija

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Uvod: Bolečina v rami okvarjenega zgornjega uda je pogosta in razmeroma zgodnja komplikacija pri pacientih po možganski kapi (1). Elastični lepilni trakovi (ELT) se vedno pogosteje uporabljajo pri športnikih in tudi ljudeh z različnimi bolezenskimi stanji. Učinkovitost omenjenega terapevtskega postopka še ni povsem dokazana (2), posebno vprašljiva je uporaba ELT pri nevroloških bolnikih. Namen te pilotske študije je bil ugotoviti, ali uporaba ELT vpliva na zmanjšanje bolečine in povečanje obsega gibljivosti ramenskega sklepa pri pacientih po možganski kapi. **Metode:** Sodelovalo je 12 pacientov s popolno ali delno ohromelim zgornjim udom po možganski kapi, razdeljenih v poskusno (povprečna starost 48 let; 4 moški in 2 ženski) in kontrolno skupino (povprečna starost 66 let; 3 moški in 3 ženske). Stran ohromelosti je bila pri obeh skupinah enako porazdeljena (4 levo, 2 desno). Poskusni skupini smo trikrat v dveh tednih namestili ELT ter pred nameščanjem in po njem vsakokrat z goniometrom izmerili pasivno gibljivost ramenskega sklepa in z vizualno analogno lestvico (VAS) ocenili bolečino. Pri kontrolni skupini smo izvedli enake meritve v istih časovnih intervalih. Dodatno smo pri vseh pacientih s prirejenim testom po Rossu (3) pred prvo meritvijo ocenili motorične funkcije zgornjega uda in senzibiliteto. Pri statistični analizi smo za primerjavo skupin uporabili Mann- Whitneyjev test, za ugotavljanje sprememb med posameznimi meritvami pa Wilcoxonov test (programski paket SPSS, verzija 20.0). **Rezultati:** Pri poskusni skupini se je pasivna gibljivost pri gibu elevacije skozi antefleksijo in pri elevaciji skozi abdukcijo statistično pomembno izboljšala ($p < 0,05$) po drugi in tretji namestitvi ELT. Statistično pomembno zmanjšanje bolečine smo ugotovili pri gibu elevacije skozi abdukcijo, prav tako po drugi in tretji namestitvi ELT. V nobeni izmed preučevanih spremenljivk se poskusna skupina ni pomembno razlikovala od kontrolne skupine ($p > 0,05$). **Zaključki:** Po izsledkih te pilotske študije in dosedanjih izkušnjah se zdi, da lahko terapevtski postopek z ELT pri pacientih po možganski kapi z bolečo ramo prispeva k izboljšanju pasivne gibljivosti in zmanjšanju bolečine. Vsekakor bo ocena učinkovitosti metode, kdaj in v katerih primerih je primerna pri zdravljenju boleče rame po možganski kapi, mogoča šele po izsledkih bolje načrtovane kontrolirane študije na večjem številu preiskovancev skozi daljše časovno obdobje.

Ključne besede: elastični lepilni trakovi, možganska kap, rama, bolečina, gibljivost.

The effect of elastic adhesive tapes on pain and mobility in the shoulder joint in patients after stroke: a pilot study

Background: A painful shoulder of the impaired upper limb is a frequent and relatively early complication in stroke patients (1). Elastic adhesive tapes (EAT) have been increasingly used in athletes and persons with different health conditions. The efficiency of the mentioned therapy has not been proven yet (2); the use of EAT is especially questionable in neurological patients, including patients after stroke. The aim of the pilot study was to evaluate whether the use of EAT decreased the pain and increased the mobility of the shoulder in patients after stroke. **Methods**: The study included 12 patients after stroke with complete or partial paralysis of an upper limb, who were divided into a test group and a control group. The subjects in the test group were applied elastic adhesive tapes three times in two weeks. Before and after the application, passive mobility of the shoulder joint was measured with goniometer and pain was evaluated with the visual analogue scale (VAS). The same measurements were performed in the control group at the same time intervals. Motor functions and sensitivity of the upper limb in all patients were assessed with an adjusted Ross test (3) before the first measurement. In the statistical analysis, the groups were compared with Mann Whitney test and the differences among individual measurements were defined with Wilcoxon test (SPSS version 20.0). **Results**: The average age of the subjects was 48 years in the test and 66 in the control group. There were 4 men and 2 women in the test and 3 men and 3 women in the control group. The side of paralysis was evenly distributed in both groups. In the test group, passive mobility improved with statistical significance ($p<0.05$) in elevation with anteflexion and elevation with abduction after the second and third application of EAT. The pain decreased with statistical significance in elevation with abduction after the send and third application of EAT. In none of the analysed variables, the subjects in the test group differed significantly from the control group subjects ($p>0.05$). **Conclusions**: Based on the pilot study and our experience, it seems that the therapy with EAT in patients with painful shoulder after stroke can improve passive mobility and decrease pain. The evaluation of the efficiency of the method, its suitability for specific cases of treatment of painful shoulder after stroke will have to base on a well-planned, controlled study with a larger number of subjects and of a longer duration.

Keywords: elastic adhesive tapes, stroke, shoulder, pain, mobility.

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Fizioterapija pacienta z nepopolno okvaro vratnega dela hrbtenjače z bolečo ramo – poročilo o primeru

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Uvod: Boleča rama je pri pacientih z okvaro hrbtenjače pogost sekundarni zaplet, ki s svojim vplivom na premičnost, funkcijsko neodvisnost, zdravje in kakovost življenja določa potek, čas in izid rehabilitacije. Razvije se v akutnem stanju po poškodbi, med rehabilitacijo ali nekaj let pozneje, pogosteje pri pacientih s tetraplegijo kot pacientih s paraplegijo (1). Za uspešno obravnavo boleče rame sta nujna interdisciplinarni pristop in poznavanje značilnosti okvare hrbtenjače, dejavnikov tveganja in prognoze. V poročilu je prikazana kompleksna obravnava boleče rame pri pacientu z okvaro hrbtenjače s pristopom manualne terapije. **Metode:** Vključen je bil 71-letni pacient, dva meseca po poškodbi vratnega dela hrbtenice, s posledično tetraparezo in bolečo ramo. Oceno stanja pacienta smo opravili pred začetkom in po petih mesecih rehabilitacije, na podlagi petstopenjske lestvice prizadetosti Ameriškega združenja za paciente po poškodbi hrbtenjače (2), manualnega mišičnega testa, merjenja obsega pasivne gibljivosti zgornjih in spodnjih udov, ocene bolečine z vizualno analogno lestvico, ocene mišičnega tonusa z Ashworthovo lestvico, Bergove lestvice za oceno ravnotežja, lestvice funkcijske neodvisnosti, lestvice neodvisnosti za paciente z okvaro hrbtenjače (3), indeksa hoje za paciente po poškodbi hrbtenjače (4), testa hoje na deset metrov in šestminutnega testa hoje. V fizioterapijo je bil pacient vključen povprečno dve uri na dan in je vključevala sklepno mobilizacijo, mišično energetske manualne tehnike, mobilizacijo živčevja, vadbo trebušnega dihanja, vaje za intersegmentalno stabilizacijo vratne, prsne in ledvene hrbtenice, vaje za stabilizacijo ramenskega sklepa/obroča, kolčnega sklepa, medenice in ledvenega dela, raztezanje mehkih tkiv, funkcijske aktivnosti na blazinah, funkcionalno električno stimulacijo mišic abduktorjev ramenskega sklepa ter ekstenzorjev zapestja in prstov, stoječ položaj ter hojo s pripomočki. **Rezultati:** Po petih mesecih fizioterapevtske obravnave lestvica prizadetosti (stopnja C) ostaja enaka glede na stanje ob sprejemu. Izboljšali sta se mišična moč in pasivna gibljivost vseh sklepov zgornjih in spodnjih udov. Zmanjšala se je bolečina ramenskega sklepa v mirovanju, med gibanjem in ležanjem na boku in trebuhu. Tonus mišic notranjih rotatorjev in mišic adduktorjev ramenskega sklepa, mišic fleksorjev in pronatorjev komolčnega sklepa, mišic fleksorjev zapestja in prstov obeh zgornjih udov se je iz 4 pred rehabilitacijo obojestransko zmanjšal na 3 za desni ud in na 2 za levi ud. Tonus mišic adduktorjev kolčnega sklepa, mišic ekstenzorjev in fleksorjev kolenskega sklepa ter mišic plantarnih fleksorjev stopala se je iz 3 pred rehabilitacijo obojestransko zmanjšal na 2. Vsi funkcijski testi, ravnotežje in hoja so se po petih mesecih fizioterapevtske obravnave izboljšali. **Zaključki:** Glede na izid fizioterapevtske obravnave sklepamo, da tehnike manualne terapije v kombinaciji s funkcijskimi aktivnostmi in nameščanjem pacienta v ustrezne položaje vplivajo na zmanjšanje bolečine v rami pri pacientih z okvaro vratnega dela hrbtenjače. Fizioterapevti se moramo zavedati, da je pri pacientih s tako hudo okvaro in dejavniki tveganja za bolečo ramo nujen interdisciplinarni pristop.

Ključne besede: poškodba hrbtenjače, boleča rama, rehabilitacija.

Physiotherapy of a patient with incomplete spinal cord injury and shoulder pain – a case report

Background: Many patients with incomplete spinal cord injury suffer from shoulder pain - a common secondary complication that influences patient's mobility, functional independence, health, quality of life and determines the duration and outcome of rehabilitation. Shoulder pain occurs either in acute phase after injury, during rehabilitation or few years later, more commonly in patients with tetraplegia than in patients with paraplegia. In order to treat shoulder pain, interdisciplinary approach is recommended and physiotherapist should be familiar with spinal cord injury characteristics, and understand the risk factors and prognosis. The present report shows an example of a complex shoulder pain treatment with use of manual therapy in a patient with spinal cord injury. **Methods:** The included patient was 71 years old, two months after cervical spine injury which resulted in tetra paresis and shoulder pain. The assessment was performed prior to the treatment and after five months of rehabilitation. It included American spinal injury association impairment scale, manual muscle test, measurement of passive range of motion for upper and lower limbs, shoulder pain assessment with Visual analog scale, muscle tone assessment with Ashworth scale, Berg balance scale, Functional independence measure, Spinal cord independence measure, Walking index for spinal cord injury, 10-meter walk test and 6-minute walk test. The patient was involved in physiotherapy 2 hours per day (average), 5 days a week, 5 months. The following procedures were used: joint mobilization; muscle energy techniques; mobilization of the nervous system; exercises for abdominal breathing; exercises for intersegmental stabilization of the cervical, thoracic and lumbar spine; exercises to stabilize the shoulder joint/girdle, hip joint, pelvis and lumbar spine; stretching of soft tissue; functional activities on matt-activities; functional electrical stimulation of abductor muscles of the shoulder and extensor muscles of the wrist and fingers; standing position and walking with aids. **Results**: After five months of physiotherapy the Impairment Scale (level C) remained at the same level as prior the study. Muscular strength and passive range of motion of the joints of the upper and lower limbs improved. The shoulder pain decreased during rest, in side-lying or in prone position as well as during movement. Muscle tone of internal rotators and adductor muscles of the shoulder joint, flexor and pronator muscles of the elbow, flexor muscles of the wrist and fingers, in both upper limbs decreased from stage 4 (prior the study) to stage 3 - in the right and to stage 2 - in the left upper limb. Muscle tone of the hip adductor muscles, knee extensor and flexor muscles, plantar flexor muscles of the foot decreased from stage 3 (before the rehabilitation) to stage 2 - both in the right and left lower limb. All the functional tests, balance and walking improved after five months of physiotherapy. **Conclusions**: Based on the results achieved using intensive physiotherapy we might suggest that the manual therapy techniques in combination with functional activities and appropriate patient positioning have an impact to reduce shoulder pain in patients with cervical spinal cord injury. Physiotherapists need to be aware that in patients with severe impairment and risk factors for shoulder pain, interdisciplinary approach is required. **Keywords:** spinal cord injury, shoulder pain, rehabilitation.

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Fizioterapija bolnika s klopnim meningoencefalitisom – poročilo o primeru

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Uvod: Klopni meningoencefalitis je najpogostejša virusna bolezen osrednjega živčevja v državah centralne Evrope, v delu Skandinavije in tudi v Sloveniji. V Evropi prenaša virus centralnoevropskega meningoencefalitisa vrsta klopov Ixodes ricinus, ki je v Sloveniji najpogostejša vrsta klopov. Inkubacijska doba bolezni je povprečno od 7 do 14 dni. Pri 75 odstotkih okuženih je potek bolezni dvofazen. Prvo obdobje bolezni je posledica viremije in traja od 1 do 8 dni. Znaki so slabo počutje, bolečine v mišicah, glavobol, vročina, možni so lahni prehladni znaki in bolečine v trebuhu, bruhanje in driska. Sledi prosto obdobje, ki traja od 1 do 20 dni. V drugem obdobju bolezni se pojavijo znaki prizadetosti osrednjega živčevja, kot so glavobol, splošna slabost, vročina do 39 °C in bruhanje. Pojavi se otrplost vratu in hrbtnih mišic, bolnik ima lahko tudi psihične motnje. Najpogostejši znaki encefalitisa, ki se pridružijo meningitisu, so zaspanost, tremor rok in jezika, nistagmus in statične motnje. Lahko se pojavijo tudi hujše motnje zavesti, motnje govora in motnje v delovanju živčevja. Zdravljenje je simptomatsko. Pri večini okuženih se razvije lažja oblika bolezni, bolj redki pa so bolniki s parezami in paralizami mišičja (1, 2). Namen prispevka je prikazati fizioterapijo pri bolniku s klopnim meningoencefalitisom. **Metode:** V poročilo o primeru je bil vključen 48-letni bolnik. Glede na fizioterapevtsko preiskavo bolnika, vključujoč oceno mišične zmogljivosti, je bil izveden 14-tedenski program fizioterapije, ki je vseboval metode kinezioterapije (pasivno in aktivno-asistirano gibanje, pristop proprioceptivne nevromuskularne facilitacije, učenje pravilne drže, sedenje, stojo, nameščanje udov v pravilni položaj), respiratorno fizioterapijo in živčno-mišično elektrostimulacijo paretičnih mišic. Program fizioterapije smo izvajali vsak dan, dopoldne, uro do uro in pol. Na koncu smo testiranje ponovili (3). **Rezultati:** Po obdobju obravnave so se izboljšale ocene mišične zmogljivosti in povečal se je obseg aktivne gibljivosti. **Zaključki:** Izbor fizioterapevtskih postopkov se je pri tem bolniku izkazal kot uspešen. V primeru okužbe s klopnim meningoencefalitisom je poleg medikamentozne terapije zelo pomembna fizioterapija. Pristop k bolniku je individualiziran, kar pomeni, da sta izbor postopkov fizioterapije in intenzivnost obravnave specifična glede na bolnikovo počutje in odgovor na terapijo.

Ključne besede: klopni meningoencefalitis, fizioterapija.

Physiotherapy of a patient with tick-borne encephalitis – a case report

Background: Tick-borne encephalitis is the most frequent viral disease affecting the central nervous system in the central Europe, part of Scandinavia, and also in Slovenia. The central European subtype of encephalitis virus is mainly transmitted to humans via infected ticks, *Ixodes ricinus,* which is the most widely spread type of tick in Slovenia. The average incubation period is between 7 and 14 days. In 75 % of cases the disease has a typical biphasic course. The first phase of the disease is the result of viraemia and lasts 1 to 8 days. The clinical signs are: malaise, muscle pain, headache and fever, possibly signs of light cold, abdominal pain, vomiting and diarrhea. This is followed by a period with no signs of the disease for 1 to 20 days. In the second phase, signs of central nervous system involvement appear, such as headache, general weakness, fever up to 39 °C, and vomiting. Neck and back muscle stiffness breaks out, the patient may also have psychological problems. The most common signs of encephalitis, accompanying meningitis are drowsiness, tremor of hands and tongue, nystagmus and postural stability problems. Patient may also experience severe alteration of consciousness, speech disorders and malfunction of the nervous system. Treatment is symptomatic. In considerable number of infections the disease only develops in its milder form, whereas cases with muscular paresis and paralysis are less frequent (1, 2). The purpose of this paper was to demonstrate physiotherapy in a patient with tick-borne encephalitis. **Methods:** A 48-year old patient was included in the case report. In view of the problems experienced by the patient and according to the assessment of his muscle performance, a specific 14-weeks' programme of physiotherapy was set up, which included: kinesiotherapy (passive and active - assisted motion, proprioceptive neuromuscular facilitation approach, learning of the correct posture, seating, standing, positioning of the extremities), respiratory physiotherapy and electrostimulation of muscular paresis. The program of physiotherapy was carried out daily through one or one-and-a-half-hour long morning sessions. At the end the physiotherapeutic testing was repeated (3). **Results:** Improvement of muscle performance and active range of motion was evident after treatment. **Conclusions:** we might conclude that the physiotherapy procedures selected in this patient were effective. In case of infection with tick-borne encephalitis, physiotherapy is very important as a complementary treatment to medicamentous therapy. The approach should be individually based and adjusted to the patient's state of health and response to therapy.

Keywords: tick-borne encephalitis, physiotherapy.

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