Učinki vadbe hoje z različnimi fizioterapevtskimi postopki, vključno s sistemom Lokomat, pri pacientki z dedno spastično paraparezo – poročilo o primeru

Tatjana Krizmanič, dipl. fiziot., asist. mag. **Klemen Grabljevec**, dr. med., spec. fiz. in rehab. med., **Marta Gorišek Humar**, dipl. fiziot., znan. sod. dr. **Andrej Olenšek**, univ. dipl. inž. el.

Univerzitetni rehabilitacijski inštitut Republike Slovenije – Soča, Ljubljana, Slovenija

Korespondenca/Correspondence: Tatjana Krizmanič; e-pošta: tatjana.krizmanic@ir-rs.si

Uvod: Poškodbe in obolenja živčnega sistema pogosto vplivajo na pacientovo sposobnost hoje. Eden glavnih ciljev rehabilitacije nevroloških pacientov je ponovno učenje hoje. Cilj fizioterapije je izboljšati funkcijo hoje z različnimi fizioterapevtskimi postopki (1). Vadba temelji na motoričnem učenju, učinki pa so odvisni od specifičnosti naloge, intenzivnosti vadbe in trajanja. V prispevku so predstavljeni učinki vadbe hoje z različnimi fizioterapevtskimi postopki, vključujoč vadbo hoje s sistemom Lokomat, na funkcijo hoje pri pacientki z dedno spastično paraparezo. **Metode dela:** 53-letna pacientka z diagnozo dedne spastične parapareze je bila sprejeta na programe rehabilitacije. Pred dvema letoma je prišlo pri pacientki do poslabšanja hoje v smislu vedno manj zanesljive hoje, zanašanja, težje je hodila po klancu in stopnicah navzdol. Brez dodatne opore je lahko hodila od 50 do 100 metrov. Namen fizioterapije je bil izboljšati funkcijo hoje (doseči varnejšo hojo in izboljšati vzorec hoje). Vadba hoje je obsegala 15 obravnav, in sicer po 30 minut z različnimi fizioterapevtskimi postopki, ki so vključevali hojo po različnih podlagah (mehke blazine, hrapava tla), v različnih smereh in z različno hitrostjo ter hojo po stopnicah in 30 minut vadbe hoje na sistemu Lokomat (2). Pred začetkom in po obravnavah je bila ocenjena z Bergovo lestvico za oceno ravnotežja, testom hitrosti hoje na 10 metrov, časovno merjenim testom vstani in pojdi in 6-minutnim testom hoje. Narejena je bila tudi kineziološka analiza hoje (3). **Rezultati:** Pri pacientki so se po obdobju vadbe izboljšali ravnotežje na Bergovi lestvici (s 53 na 56 točk), čas pri časovno merjenem testu vstani in pojdi (z 21 na 10 sekund), hitrost hoje (z 21 na 9 sekund) in vzdržljivost pri hoji (129 m več). Kineziološka analiza hoje je potrdila, da sta se po obdobju vadbe občutno povečala hitrost hoje (za 0,20 m/s) in dolžina koraka (z levo nogo je bil korak daljši za 0,11 m, z desno za 0,09 m). Povečalo se je tudi število korakov (s 86 korakov/min na 93 korakov/min). Dolžina dvojne opore se je zmanjšala za 0,22 sekunde, enojne opore pa povečala za 0,07 sekunde. Hoja je bila še vedno toga, z zmanjšanimi obsegi gibljivosti v vseh sklepih. **Zaključki:** Vadba hoje z različnimi fizioterapevtskimi postopki, vključno s sistemom Lokomat, je pri pacientki z dedno spastično paraparezo pripomogla k izboljšanju hitrosti in vzdržljivosti pri hoji ter k varnejšemu spreminjanju smeri hoje. V terapevtskem in bolnišničnem okolju je pacientka varneje hodila, sama pa ni opazila vidnejših sprememb v sposobnosti hoje.

Ključne besede: dedna spastična parapareza, hoja, nevrofizioterapija, Lokomat.

Effect of gait training with conventional physiotherapy and Lokomat system in a patient with hereditary spastic paraparesis – a case report

Background: Injuries and diseases of the nervous system often affect the patient's ability for walking. One of the main goals of rehabilitation in neurological patients is relearning of walking. The aim of physiotherapy is to improve walking with different physiotherapeutic interventions. A treatment is based on motor learning, task-oriented training, intensive and repetitive training (1). The article presents the effectiveness of robotic assisted gait training – Lokomat (2) with conventional physiotherapy on the gait function in a patient with hereditary spastic paraparesis. **Methods:** A 53-year-old patient with hereditary spastic paraparesis was included in the rehabilitation programs. Two years ago her walking worsened. She had difficulties with maintaining her balance, walking downhill and down the stairs. She was able to walk from 50 to 100 meters without support. The purpose of the gait training was to improve the gait function (walking pattern and to achieve safer walk). The patient was included in fifteen treatment sessions. Treatment session included 30 minutes of conventional physiotherapy (gait training on different surface, walking in different directions and velocity) and 30 minutes of robot-assisted gait training (Lokomat). The patient was evaluated before and after the fifteen treatment sessions. Primary outcomes were Berg balance scale, gait velocity with 10-meter walk test, timed up and go and 6-minute walk test. The kinesiologic gait analysis was also made. **Results:** The balance improved from 53 to 56 points measured with Berg balance scale. The 10- meter walk test improved from 21 seconds to 9 seconds. Up and go test improved from 21 seconds to 10 seconds and the patient was able to walk 129 meters farther than before the treatment. Kinesiologic gait analysis after the therapeutic treatment showed significant increase of walking speed by 0.20 m/s and the length of the step: left foot for 0.11 m, right foot for 0.09 m. The number of steps also increased after the therapeutic treatment: from 86 steps/min to 93 steps/min. The length of the double support was reduced by 0.22 seconds, single support increased by 0.07 seconds. The range of motion was still limited in all joints and the gait was still rigid. **Conclusions:** Five weeks of robot-assisted gait training with Lokomat and conventional physiotherapy improves gait speed, walking distance, the changing of walking direction is safer. The patient reported no visible changes in the gait function.

Keywords: hereditary spastic paraparesis, walking, neurophysiotherapy, Lokomat.

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