

ABSTRAK

PENGARUH *POWER-ASSISTED FUNCTIONAL ELECTRICAL STIMULATION* TERHADAP *DROP FOOT* GAIT PASCA STROKE

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Latar belakang : Terdapat deviasi gait pada *drop foot* gait pasca *stroke* yang dapat menimbulkan kompensasi gait yang tidak efisien. Penelitian ini bertujuan untuk mengetahui pengaruh *Power-Assisted Functional Electrical Stimulation* (PAFES) pada *drop foot* gait pasca *stroke*.

Metode : Desain penelitian adalah kuasi eksperimental. Jumlah sampel adalah 12 orang yang akan mendapatkan intervensi ($n=12$). Semua subyek penelitian akan mendapatkan terpai PAFES pada otot tibialis anterior pada sisi yang lemah. Subyek diminta berjalan di linasan gait analisis dan mendapatkan latihan fungsional selama 30 menit. Analisa gait dilakukan tiga kali yaitu saat berjalan : PAFES dimatikan, PAFES dinyalakan, dan PAFES dimatikan segera setelah latihan fungsional dengan PAFES. Parameter gait dinilai menggunakan komputer dengan *software CMax gait analysis*. Parameter gait meliputi titik aplikasi *Ground Reaction Force* (GRF) saat fase *Initial Contact*, kinematik lutut dan pergelangan kaki, serta *temporo spatial* (*step length*, *stride length*, *cadence*, dan kecepatan berjalan).

Hasil Penelitian : Perbaikan signifikan didapatkan pada letak titik aplikasi GRF saat *Initial Contact*, sudut lutut saat fase mid swing, sudut lutut saat fase pre swing, *stride length*, dan kecepatan berjalan saat menggunakan stimulasi PAFES dibandingkan tanpa stimulasi PAFES ($p < 0,05$). Perbaikan signifikan didapatkan pada letak titik aplikasi GRF saat *Initial Contact*, *step length*, *stride length*, dan kecepatan berjalan segera setelah melakukan latihan fungsional dengan PAFES, saat PAFES dimatikan ($p < 0,05$).

Kesimpulan : ada pengaruh penggunaan PAFES terhadap perubahan perbaikan *drop foot* gait pasca *stroke*

Kata Kunci : FES, *drop foot*, *stroke*, rehabilitasi

THE EFFECT OF POWER-ASSISTED FUNCTIONAL ELECTRICAL STIMULATION ON DROP FOOT GAIT IN POST STROKE PATIENTS

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Background : There was some gait deviation on drop foot gait in post stroke patients that can induce unefficient gait compensation. The aim of the current study was to examine the effect of Power-Assisted Functional Electrical Stimulation (PAFES) on drop foot gait in post stroke patients.

Methods : The design was quasi experimental study. Twelve stroke patients were assigned into experimental group (n = 12). All the research subject got PAFES at tibialis anterior muscle on the affected side. Then they walked in gait analysis walkway and got functional exercise 30 minutes. The gait analysis done three times when they walking: with PAFES switched off, PAFES switched on, and with PAFES switched off immediately after functional exercise. Gait parameter was assessed using computer with CMax gait analysis software. The parameter of gait consist of point application of Ground Reaction Forced (GRF) at Initial Contact phase, kinematic of knee and ankle, and temporo spatial (step length, stride length, cadence, and walking velocity).

Results : There was a significant improvement effect of point application of GRF, angle of mid swing knee, angle of pre swing ankle, stride length, and velocity when using PAFES compare without using PAFES stimulation ($p < 0,05$). And there was significant result of point application of GRF, step length, stride length, and velocity of walking after functional exercise with PAFES compare with result when the PAFES switched off ($p < 0,05$).

Conclusions : Power-assisted functional electrical stimulation may be an effective method for the improvement drop foot gait ability for stroke patients.

Keywords : FES, drop foot, stroke, rehabilitation