Press release

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Basic information

Name: Camilla Biering Lundquist Email: calund@rm.dk Phone: 78 41 90 56

Department of: Clinical Medicine

Main supervisor: Iris Brunner

Title of dissertation: Prediction of upper limb function and daily use after stroke

Date for defence: 27.05.2021 at (time of day): 14-16 Place: Hammel Neurocenter / Online

Press release (Danish)

Prædiktion af funktion og daglig brug af arm og hånd efter apopleksi

Nedsat kraft i arm og hånd er en hyppig følge efter apopleksi. Prædiktion af armfunktion og prædiktion af daglig brug af arm og hånd kan anvendes til at informere patienter om prognose, vejlede fysioterapetuer og ergoterapeuter i valg af behandling og målrette rehabiliteringen.

Et nyt ph.d.-projekt fra Aarhus Universitet, Health, sætter fokus på prædiktionsmodeller for arm og hånd. Over 100 patienter blev inkluderet i projektet og fulgt over 3 måneder. Deres armfunktion blev undersøgt med armtest og brug af arm og hånd blev målt med aktivitetsmålere (acellerometre). Præcisionen af en eksisterende prædiktionsmodel, kaldet PREP2, blev undersøgt. I projektet blev modellen anvendt på et senere tidspunkt efter hjerneskaden end oprindeligt tiltænkt. Desuden blev det undersøgt om graden af armfunktion efter hjerneskade havde betydning for fremtidig daglig brug af arm og hånd samt om andre faktorer, som nedsat opmærksomhed og nerveledning til arm og hånd, havde betydning. Fysioterapeuters og ergoterapeuters holdninger til armprædiktionsmodeller er væsentlige for en fremtidig implementering og blev undersøgt i et kvalitativt studie.
Ph.d. projektet er gennemført af Camilla Biering Lundquist, der forsvarer det d. 27/05/2021

På baggrund af ph.d. projektet konkluderes, at PREP2 ikke i sin helhed bør implementeres i klinisk praksis, hvis den anvendes to uger efter apopleksi. Dele af prædiktionsmodellen kan dog anvendes. Det kvalitativte studie viste, at erfarne neurologiske fysioterapeuter og ergoterapeuter er skeptiske over for armprædiktionsmodeller. Dette skyldes primært at modellernes blev ansat for at være for upræcise samt bekymringer vedrørende negative prognoser. PREP2 modellen blev dog vurderet at være et potentielt nyttigt redskab.

Forsvaret af ph.d.-projektet er offentligt og finder sted den 27/5 kl. 14-16 i Mødelokale 3, Regionshospitalet Hammel Neurocenter, Voldbyvej 15, 8450 Hammel. Grundet COVID-19 er der mulighed for begrænset offentlig deltagelse og derudover mulighed for online deltagelse. Link til online deltagelse kan tilsendes ved kontakt til Ulla.Hedegaard@midt.rm.dk. Titlen på projektet er ”Prediction of upper limb function and daily use after stroke”. Yderligere oplysninger: Ph.d.-studerende Camilla Biering Lundquist, e-mail: calund@rm.dk, tlf. +45 78 41 90 56 .

Bedømmelsesudvalg:
Moderator og chairperson: Inger Mechlenburg, Professor, PT, MSc, DM. Department of Orthopaedic Surgery, Aarhus University Hospital. Aarhus, Denmark

Bedømmer 1: Geert Verheyden, Professor, Dr. Department of Rehabilitation Sciences KU Leuven, Belgium

Bedømmer 2: Thomas Platz, Professor, Dr.med. Department for Neurorehabilitation, BDH-Klinik Greifswald, Germany

Press release (English)

Prediction of upper limb function and daily use after stroke

Upper limb (UL) impairment is a frequent consequence of stroke. Stroke survivors with impaired UL often experience subsequent functional limitations affecting activities of daily living.
Accurate prediction of UL function can provide patients and therapists with realistic expectations for UL prognosis, help set individual goals for rehabilitation, and may result in more effective utilization of health resources. However, existing prediction models may not be applicable in most rehabilitation settings, due to the fixed time points of the assessments very early after stroke. In this PhD project, it was examined if an existing algorithm, the PREP2 prediction algorithm, could be applied two weeks after stroke to predict upper limb function 3 months after stroke.
To be truly meaningful, improvements in UL function should be reflected in improved UL use in daily life. However, prediction of UL use is a new research field, and factors that predict UL use have received little attention.
In this PhD project, a prospective, observational study was conducted to examine prediction of upper limb function and daily use. Further, in a qualitative study, physiotherapists' and occupational therapists' perceptions of upper limb prediction models were explored and potential barriers to and facilitators of implementation were identified.
The project was carried out by Camilla Biering Lundquist, who is defending her dissertation on 27th of May 2021.

Based on the PhD, the PREP2 obtained two weeks after stroke was unsuited for clinical implementation. However, PREP2 showed potential to predict either excellent UL function in already well-recovered patients or poor UL function in patients with persistent severe UL impairment who did not have motor evoked potentials in the muscles of the upper limb. Experienced therapists where sceptical towards prediction models due to the lack of precision of the algorithms and concerns about ethical dilemmas. However, the PREP2 algorithm was regarded as potentially useful.

The defense is public and takes place on 27/05 -2021 at 14-16 in Meeting room 3, Hammel Neurorehabilitation Centre and University Research Clinic, Voldbyvej 15, Hammel. Due to COVID-19 the possiblity for physical attendence is limited, but it will be publicly available as an online defense. Link for the online session can be obtained by contacting Ulla.Hedegaard@midt.rm.dk. The title of the project is "Prediction of upper limb function and daily use after stroke". For more information, please contact Ph.D. student Camilla Biering Lundquist, email: calund@rm.dk, Phone +45 78419056

Assessment committee:
Chairperson and moderator of the defence: Inger Mechlenburg, Professor, PT, MSc, DM. Department of Orthopaedic Surgery, Aarhus University Hospital. Aarhus, Denmark

Assessor 1: Geert Verheyden, Professor, Dr. Department of Rehabilitation Sciences KU Leuven, Belgium

Assessor 2: Thomas Platz, Professor, Dr.med. Department for Neurorehabilitation, BDH-Klinik Greifswald, Germanye

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