

Machine learning for triaging patients with low back pain towards personalized care

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Antragstellende

Dr. C. Bantel (Universitätsklinik für Anästhesiologie, Intensiv-, Notfallmedizin und Schmerztherapie), Dr. S. Fudickar (Department für Versorgungsforschung), Dr. R. Soer (University Medical Center Groningen, Spine Center), Prof. Dr. M.F. Reneman (University Medical Center Groningen, Department of Rehabilitation Medicine), Prof. Dr. A.P. Wolff (University Medical Center Groningen, Department of Anaesthesiology), Dr. R. S. Schiphorst Preuper (University Medical Center Groningen, Department of Rehabilitation Medicine), Prof. Dr. A. Hein (Department für Versorgungsforschung)

Zusammenfassung des Projekts

Background:

In the initial referral process for patients with (chronic) low back pain (LBP) in the Netherlands, patients are currently asked to fill out various questionnaires. Based on these responses, clinicians aim to triage patients to the most optimal treatment modality, including surgery, orthopedics, rehabilitation or pain anesthesiology, or to advise and refer them to primary care (e.g. physiotherapy). This process is based on best practice and holds substantial variations in triaging between clinicians (Kappa 0.67) on interrater reliability (Oude Nijeweme et al. 2017). The aim of this proposal is to increase the triaging reliability and to personalise the referral advice for low back pain treatments by a data-driven machine learning clinical decision support system (CDSS). The CDSS will 1): identify what treatment works for which patients and 2): to help physician assistants in the triaging process.

Hypothesis:

Biopsychosocial factors have predictive value for the clinical outcome (in terms of quality of life) independent and dependent on the treatment in the Groningen Spine Center. Based on factor analysis, the hypothesis is that within a 20 minute screening, appropriate personalized treatment selection can be performed for 90% of the patients.

Methods:

The research using machine learning will consider longitudinal recordings (over up to 5 years) of UMCG's spine center containing patient-reported baseline and treatment data from 1546 patients with LBP (data collection is ongoing with an intended overall sample size of 2000).

Exploitation perspective:

Follow-up project applications at national and international levels in cooperation with UMCG will build upon the results and will support alignment of the protocols between both centers as preparation for a multicenter randomized control trial in German and Dutch subgroups. Further, the new pain management programme at Klinikum Oldenburg will implement findings into its clinical routine as soon as they become available.