Post stroke spasticity: From the spasticity app to the project moVe-it

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Background: Patients with stroke show spasticity in up to 40 % of cases, with approximately 20 % experiencing post-stroke spasticity (PSS) with relevant disability. This ongoing development usually only becomes apparent after treatment in a stroke unit and often continues for months, even after discharge from the rehabilitation clinic. Significant risk factors for this development can already be identified within the first days after stroke, including lesion volume, severe paresis and significant disability, e. g., in typically used scores such as the Barthel Index or the modified Rankin Scale.

Treatment of PSS: According to the current S2k guideline of the German Society for Neurology, treatment should primarily involve botulinum toxin A and physiotherapy. A Cochrane Review concludes that oral antispastic drugs are often ineffective in PSS and may cause significant side effects. Billing data from various statutory health insurance companies (e. g. [2, 4]) show a massive lack of proper care for those affected. The reasons for this are insufficient awareness among physicians, a lack of treatment capacity, a lack of information transfer during discharge management and inadequate coordination between patients, physiotherapists, occupational therapists and doctors in further care [3]. Our own analyses indicate an undercoding of the secondary diagnosis of spasticity in routine data, even in cases where BoNT treatment has been administered, as this secondary diagnosis does not influence the case weight.

Improving care through a freely accessible app: The recording and care of individuals affected by PSS should therefore be urgently improved. This management would also often prevent the development of contractures. Simple screening instruments should be widely implemented for this purpose. In collaboration with neurologists, therapists and the Bavarian Telemedicine Alliance (BTA), we have developed a simple app that uses short video clips to show patients or relatives frequent examples of spastic movement disorders (e.g. resistance against stretching, knee flexion when standing up, claw formation on the toes, co-contraction of the arms when walking, clenching of the fingers, inability to open the grip, etc.). Based on a traffic light principle, the app enables self-assessment and provides recommendations on when to seek treatment (from therapists or doctors). This application is available in the App Store and Google Play Store for anyone interested to download free of charge.

Initial results: Use of the app is showing an upward trend, with over 20 new users registering every month. By the end of February 2024, 400 users had registered, submitting a total of 800 spasticity assessments. This upward trend suggests the app's utility and merits further development. The use of the app as a screening method is currently being supplemented with other self-empowerment options. In 2021, Gracies et al. [1] showed a further and lasting improvement in PSS with a self-training program that combined static and dynamic stretching exercises for the patient. This suggestion will be incorporated into the app. Furthermore, supplementary video clips are being created to show patients how to perform these exercises themselves to improve the range of motion of a spastically restricted joint.

Conclusions and further development: The need to improve care for post-stroke spasticity is also recognized by health insurance companies and the G-BA (Federal Joint Committee). The moVe-it project, currently in its initial phase with support from the Innovation Fund, aims to develop a new form of care for the guideline-based treatment of PSS. Patients will be integrated into this approach with the help of the spasticity app. As interdisciplinary collaboration, particularly between doctors and therapists, is limited outside of a clinical setting, interdisciplinary case conferences will be used to coordinate and organize the optimal treatment strategy between the partners involved in a new form of care.

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