20. DIGITAL MONITORING OF MULTIPLE SCLEROSIS PATIENTS

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Introduction. It is not possible to predict how multiple sclerosis (MS) will progress in any individual and it's difficult for a single specialist to manage all data of the disease and to offer an individual approach to each patient. The existing management strategies require patients to attend regular follow-ups at the medical centers, ideally at 6 or 12 months intervals. More regular personal consultations could improve disease outcome, but are limited by the time, cost and geographical restraints. The spread of COVID-19 pandemic has even further tightened the burden on monitoring chronic diseases like multiple sclerosis. Additionally, studies find that patients with MS more often feel depressed, have a higher level of stress and feel significantly less social support.

Aim of study. Review of literature on evaluation of the efficiency of new digital methods of monitoring patients with multiple sclerosis.

Methods and materials. Published literature of the last 5 years, involving the digital technologies for remote monitoring of patients with multiple sclerosis.

Results. Technological innovation is changing the traditional interaction between the patient and the healthcare workers, enabling patients to contribute with more health data between the regular visits. The most accessible device used is the smart-phone through apps or the internet. The apps can be divided in four categories to evaluate: screening and assessment, monitoring and self-management, treatment and rehabilitation and advice and education. The screening and assessment apps are an alternative to the standard neurostatus scoring tests performed by the physicians. Apps for monitoring disease can be combined with portable activity monitoring sensors, like wireless pressure sensors in patient shoes, accelerometers, gyroscopes, grip sensors can detect small changes in patient's gait, posture and balance. Some applications can provide advice and education to stimulate the patient's adherence to treatment and rehabilitation exercise programs. To collect the high volume of information that certain tools generate we can use Artificial Intelligence to create a digital twin paired to a patient's data, a technology in development at the moment.

Conclusion. Digital technologies may be a game-changing strategy in monitoring multiple sclerosis, however most of them need to be perfected and further studied before widespread adoption is likely. Introduction of movement sensors and Artificial Intelligence could help detect small changes in the course of the disease and alert the physicians. It remains to be studied if in the long term they benefit the patient's outcome.