A NEW WAY TO MONITOR MULTIPLE SCLEROSIS

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Facts & Figures

Milestones

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Contributions

- ITRI and IMI 110 000 000
- EFPIA 135 800 029

Total 25 712 10 €

Challenge

Remote Assessment of Disease and Relapse in Central Nervous System Disorders (RADAR-CNS) is an international research project, which aims to improve healthcare provision and to develop new ways of monitoring major depressive disorder, epilepsy and multiple sclerosis (MS) using wearable devices and smartphone technology. The RADAR CNS ambition is to transform patient care through remote assessment. It is an international consortium of academic and EFPIA members who are leaders in the fields of depression, multiple sclerosis and epilepsy, with clinical expertise and access to patient cohorts in each disease area, combined with leading technical and methodological expertise in the disciplines required for RMT development and implementation (P&I). MS Depression and MS Disability and Fatigue studies are two observational, non-randomized, non-intraventional studies, using commercially available wearable technology and smartphone sensors. Both I.T studies are multicenter, international trials involving 9 MS centres: San Raffaele Hospital in Milan, Fundación Hospital Universitari Vall D’Hebron in Barcelona and Region Hovedstaden in Copenhagen.

MS disability and fatigue study

STUDY DURATION: 24 months
SAMPLE SIZE: 300 with a RR MS and 100 with a Secondary Progressive MS (SPMS)

AIM: The main aim is to evaluate if RMT represent a reliable and feasible instrument to better characterize the disability status of person with MS. Its objectives are to determine the usefulness of RMT as a possible tool to qualify the disability level of patients, and locomotor function and to detect longitudinal changes over time and to determine the usefulness of RMT to detect fatigue and its possible predisposing factors compared with standard evaluations.

Results

Through the RMT we will prospectively collect data, both passively (pRMT) and actively (aRMT), to provide information on potential predictors of outcome assessments. Moreover, to assess if RMT is a reliable instrument to characterize mood changes, cognition and disability patients will also undergo clinical visits at baseline and every 3 months to collect data about disability, cognition and emotional status using standardized evaluations.

Passive Remote assessment (pRMT)

For pRMT we will use a wearable devices and smartphone sensors to collect multisensor data in order to investigate what type of features derived from the smartphone-biosensors correlates to the traditional clinical diagnosis based on this standard evaluation. Data will be collected through the RADAR-CNS passive app developed by WP7.

Active Remote assessment (aRMT)

The aRMT consists of self-reported questionnaires and brief tests to evaluate different aspects of mood changes, disability, fatigue and cognition. Assessments and tests will be delivered through the smartphone app (RADAR-CNS active app) and through the web-based platform (REDCap) at fixed time points.

CONCLUSIONS

We believe that remote monitoring of persons with MS in ecological condition will give us a full picture of a person’s condition at a level of detail that was previously impossible.

This offers the opportunity to detect changes in disability, fatigue and mood before the individual themselves is aware of it. This could help to predict – or even avoid – relapse and disease progression.

Figure 1: Project structure

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