Wearable Technology Devices will Replace Clinical PD Motor Assessments

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Parkinson's disease (PD) is a complex disorder expressed through a wide array of motor and non-motor manifestations, complications related with treatment, disability and quality of life deterioration. In addition, the disease is very variable in terms of course over time, presence and severity of symptoms and complications. Therefore, the assessment of PD patients is intricate and requires time, effort, and availability of appropriate, valid instruments.

The evaluations carried out by inferential methods based on the examination, interview, or self-assessment (rating scales and questionnaires) have some disadvantages, being the subjectivity and the non-physical nature of the measurements the most outstanding. However, they do not need specific conditions nor expensive equipment for application, and provide abundant information about the patients' state in the space (e.g., mobility of limbs, trunk, and neck) and the time (e.g., pain and sleep in the past 15 days). Although technology is gaining ground in some aspects (e.g., portable devices that provide information about long time periods), they are still mostly focused on the capture of data related with the movement (e.g., tremor, mobility during the night associated to sleep disorder) or very few autonomic functions (e.g., blood pressure and heart rate). The vast majority of non-motor symptoms, which have a strong impact on the patients quality of life, the quality of life itself, and other personal and subjective aspects associated with the experience of suffering a chronic disabling, and progressive condition are not susceptible of technological assessment, neither at present nor at the medium term.