

Prediction and real-life monitoring of DBS motor response in Parkinson's disease

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Chapter 12

Impact and valorization

Both the findings on individual preoperative outcome prediction for deep brain stimulation (DBS) in Parkinson's disease (PD), as on naturalistic monitoring in PD belong to the early development stages of potential future clinical decision support systems (CDSS). For both topics, the answers on the hypotheses enable next scientific steps towards CDSS which should optimize patient care in PD.

The described individual preoperative outcome prediction can improve patient counselling and maybe even patient selection in the future. This may lead to a positive socioeconomic impact. First, prospective follow up research should be done to optimize the target population and the predictive model, to validate predictive performance in a prospective setting, and to investigate the interaction between CDSS, clinician, and patient. A valorising partner such as a neuro- or health care-tech start-up may be included to enable a smoother transition from the scientific setting into an applicable CDSS. The lessons presented in our discussion are likely to be beneficial for researchers and clinicians considering CDSS for other neurological and psychiatric DBS-indications.

The proven long-term feasibility of electronic diaries (such as experience sampling method (ESM)) can contribute to more usage of ESM in clinical practice, and to a better understanding between patient and clinician about the naturalistic symptom fluctuations. Further, we encouraged the scientific community to combine ESM and motion sensors to improve naturalistic PD motor monitoring.

The demonstrated feasibility and potential methodologies of short-term naturalistic bradykinesia fluctuation detection may especially improve the evaluation and management of PD motor therapies. All this can improve real-life symptom assessment, provide the clinician with a more accurate therapeutic evaluation, and lead to better tailored therapeutic management in PD.