Early subthalamic neurostimulation improves quality of life of elderly patients with Parkinson’s disease


Background

- Subthalamic nucleus (STN) deep brain stimulation (DBS) well established for patients with Parkinson’s disease (PD)1
- Improvement of quality of life (QoL) and motor symptoms by STN-DBS in patients with PD2, 3
- Since the EARLYSTIM trial4: discussion about indication for DBS at earlier stages of PD
- In EARLYSTIM only inclusion of patients aged <61 years (mean age 52.9 years)
- Elderly patients form a relevant part of the PD population.
- Risk and benefit of transferring the concept of early STN-DBS to other PD subpopulations unclear

Methods

- Post-hoc analysis of prospective data from four centers (Cologne, London, Manchester, Venice)
- Inclusion criteria: age ≥61 and disease duration ≥8 years at intervention
- Assessment of QoL (PDQ-8 Summary Index, PDQ-8 SI), motor function and complications, cognition (MMSE), levodopa equivalent daily doses (LEDD) at baseline (MedON) and 3 to 6 months after surgery (MedON/StimON)
- Wilcoxon signed-rank test, Bonferroni correction

Results

- 21 subjects, mean age and disease duration at intervention 65.5 ±6.3 and 6.3 ±1.2 years
- Improvement of PDO-8 SI by 35.3% (p=0.025, effect size = 0.59)
- Improvement of motor impairment by 45.5% (p<0.001, effect size = 0.83)
- Reduction of motor complication scores by 39.6% (p=0.09, effect size = 0.41)
- Reduction of LEDD by 51.4% (p<0.001, effect size = 0.87)
- No change in mean MMSE total score (p>0.05)

Conclusion

- Significant improvement of QoL, motor impairment, and medication requirements
- Trend for improvement of motor complications
- Effect sizes for outcomes in our cohort: ‘large’ for motor impairment and LEDD, ‘moderate’ for QoL, ‘small’ for motor complications and negligible for MMSE
- Benefit from STN-DBS in our cohort well within the range reported in the literature
- Findings relevant to the debate about selection criteria for STN-DBS
- Elderly patients with short disease duration currently underrepresented in the literature, but important in clinical decision making

References


Affiliations

1 Department of Neurology, University Hospital Cologne, Cologne, Germany
2 National Parkinson Foundation International Centre of Excellence, King's College Hospital, London, United Kingdom
3 Department of Neurology and Neurosurgery, Salford Royal Foundation Trust, Greater Manchester, United Kingdom
4 Parkinson's disease and Movement Disorders Unit, IRCCS Hospital San Camillo, Venice, Italy
5 National Center of Epidemiology and CIBERNED, Carlos III Institute of Health, Madrid, Spain
6 Department of Stereotactic and Functional Neurosurgery, University Hospital Cologne, Cologne, Germany
7 Institute of Health Research (NIHR) Mental Health Biomedical Research Centre and King's College London.

Acknowledgment:
The poster presents independent research funded by the National Institute for Health Research (NIHR) Mental Health Biomedical Research Centre and Dementia Unit at South London and Maudsley NHS Foundation Trust and King's College London. Additionally an unrestricted peer reviewed educational grant was provided to support coordination of the UK dataset from Medtronic.