

EAN MDS-ES GUIDELINE:

Treatment of Parkinson's Disease: Invasive Therapies

THE EUROPEAN ACADEMY OF NEUROLOGY (EAN), in collaboration with the European section of the International Movement Disorders Society (MDS-ES), has now begun to use GRADE (Grading of Recommendations Assessment, Development and Evaluation) methodology systematically for their guidelines. The new Parkinson's Disease (PD) guidelines is a completely revised version separated into several chapters, of which a review on invasive therapies is the first part.

The guidance produced **EIGHT RECOMMENDATIONS** based on high-class evidence and five **CLINICAL CONSENSUS STATEMENTS** for topics which lack randomised controlled clinical trials.

Read the full guideline in the European Journal of Neurology:

<https://doi.org/10.1111/ene.15386>



- 1** Offer STN-DBS (deep brain stimulation of the subthalamic nucleus) to people with advanced PD if fluctuations are not satisfactorily controlled with medication or if tremor cannot be controlled with medication.
- 2** Consider offering STN-DBS to people with early PD and early fluctuations.
- 3** Do not offer DBS to people with early Parkinson's disease without fluctuations.
- 4** Both STN- and GPi-DBS (deep brain stimulation of the globus pallidus internus) are effective to treat symptoms of advanced PD with fluctuations but dopaminergic medication can only be further reduced with STN-DBS.
- 5** Consider offering LCIG (intrajejunal levodopa/carbidopa pump) for people with advanced PD if fluctuations are not satisfactorily controlled with medication.
- 6** Consider offering subcutaneous apomorphine pump infusion for people with advanced PD if fluctuations are not satisfactorily controlled with medication.
- 7** Consider offering unilateral pallidotomy with radiofrequency thermocoagulation to people with advanced PD who experience troublesome fluctuations and for which DBS or pump therapies is not a treatment option.
- 8** Consider using unilateral MRgFUS (MRI-guided-focused ultrasound) of the STN in people with distinctly unilateral PD only within clinical studies or registries due to the limited data on this new treatment.

For several interventions, controlled studies are not available or insufficient. These treatments are rarely used, but this guideline taskforce has issued the following **CLINICAL CONSENSUS STATEMENTS** reflecting the current state-of-the-art.

- 1** Randomised clinical trials (RCTs) for unilateral radiofrequency thermocoagulation of the thalamus for parkinsonian tremor or advanced PD are not available and formal recommendations are not possible. As DBS has a better safety profile this guideline taskforce does not recommend this treatment if safer treatments are available.
- 2** RCTs for unilateral radiofrequency thermocoagulation of the STN for people with PD are not available. Due to potential high risks for adverse events this guideline taskforce does not recommend this treatment.
- 3** RCTs for unilateral gamma-radiation radiosurgery of any of the three target nuclei are not available for people with PD. Due to potential high risks for adverse events this guideline taskforce does not recommend this treatment.
- 4** No sufficient RCTs are available for uni- or bilateral MRgFUS of the thalamus for medically resistant tremor in PD. Despite promising preliminary data, this treatment should only be applied within clinical studies or registries.
- 5** Do not use MRgFUS of the pallidum for advanced PD with fluctuations outside clinical studies.

Invasive treatments require appropriate selection protocols, but can profoundly change the life of people with PD.

This figure shows the patient groups and the appropriate recommendations.

		Advanced PD with resistant fluctuations	Early PD with early fluctuations	Early PD without fluctuations	PD with treatment refractory tremor	PD with predominant unilateral symptoms
Non-lesional	DBS of the subthalamic nucleus	■	■	■	■	
	DBS of the globus pallidum internum	■			■	
	L-dopa/Carbidopa intestinal gel infusion	■				
	Apomorphine infusion	■				
Lesional	Radiofrequency pallidotomy	■				
	Radiofrequency thalamotomy	■			■	
	Radiofrequency lesioning of subthalamic nucleus	■				
	Radiosurgery (Vim, Gpi, STN)	■				
	MRg-focused ultrasound				▨	■

Key:

- with incision
- Offer to eligible patients (e.p.)
- Do not offer
- Not applicable or no studies
- incisionless
- Consider offering to e.p.
- Clinical practise statements: not recommended
- parenteral
- Consider offering to ep. with strong limitations
- ▨ or with limitations

Details: Refer to full guideline