"Pallidal Deep Brain Stimulation in Primary Generalized or Segmental Dystonia"
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Investigators at 10 academic centres in Germany, Norway, and Austria conducted a study to determine the effectiveness of deep brain stimulation (also known as neurostimulation) to treat primary dystonia. Forty volunteer patients with generalized or segmental primary dystonia participated. All patients were implanted with electrodes and stimulators. Twenty patients selected at random received active neurostimulation, and 20 received no stimulation.

After three months, patients were evaluated to measure changes in dystonia symptoms, disability, and quality of life. Neither the patients nor the evaluating physicians knew which volunteers received active stimulation and which did not. At three months, all patients in the study received active stimulation and then re-evaluated after six months.

The results of this study suggest that bilateral deep brain stimulation of the globus pallidus is significantly more effective than `placebo' stimulation in people with primary generalized and segmental dystonia. Following active stimulation, 83% of volunteers experienced positive improvement. Patients with generalized and segmental dystonia showed equal degrees of benefit averaging a 39% improvement in dystonia symptoms, a 38% reduction in disability, and a 30% improvement in depression. Half the volunteers experienced a more than 50% reduction of symptoms. After six months of stimulation, 17% of patients had a poor response (less than 25% improvement or worsening of symptoms).

Only three patients in the placebo group showed a degree of improvement above 25% in symptoms and an average 8% improvement in disability. There was no significant change in quality of life in members of the placebo group.

The degree of improvement in volunteers with segmental dystonia affecting the neck in combination with the face, shoulder, arm, or upper trunk was equal to that of those with generalized dystonia. This may have positive implications for people with focal cervical dystonia whose symptoms do not respond to oral medications or botulinum toxin injections.

In conclusion, this comparison study demonstrates that bilateral deep brain stimulation of the globus pallidus is effective in the reduction of dystonia symptoms and disability in people with primary generalized and segmental dystonia.

Summary prepared by the Dystonia Medical Research Foundation