Use of Rechargeable DBS Implantable Pulse Generators in Patients with Movement Disorders: Patient Satisfaction and Stimulation Parameters

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DISCUSSION

Previous studies on patient satisfaction and stimulation adjustment after battery replacement with another non-RC IPG:
- Alert 2009: 63 patients (34 PD, 20 ET, 9 RLS) - no significant difference in device type (p=0.48)
- Davies 2010 (18 PD patients with Gpi and Vms DBS for dystonia using Soletra IPG) - stimulation intensity can be reduced by 24.8% after IPG replacement with another non-RC device
- Harries 2011 (51 dystonia patients converted from non-RC to Activa RC) - 56%% would recommend RC, but 75% had problems charging battery at home using equipment provided by Medtronic.

PATIENT SATISFACTION:
- Our study demonstrated high overall satisfaction with RC, slightly higher in patients with initial RC than in subjects converted to RC; it did not correlate with degree of patient education and counseling prior to discharge after RC implant.
- Patients converted to RC, overall satisfaction with initial RC was higher than in converted group.
- Subjectively, symptom control was no different after conversion to RC.

PARAMETER ADJUSTMENT AFTER CONVERSION:
- Our practice is to generally reduce amplitude by about 10% in the OR at the time of IPG exchange to another non-RC or RC (not in all cases) due to greater efficiency of a new battery and concerns over tolerance.
- A mild decrease in stimulation parameters after conversion of non-RC to RC IPG might be permitted regardless of the diagnosis or stimulation site (NS).
- Initial post-conversion DBS settings (especially amp) tend to drift back towards the last non-RC parameters after a few post-conversion programming sessions. (p<0.03)
- Amplitude drift back to baseline, observed more in Gpi DBS, is likely due to high pre-conversion amplitude in patients with Ts and dystonia who could not tolerate lower settings after conversion.
- Further reduction of PW after conversion might be explained by the fact that Activa DBS devices allow smaller incremental changes in PW than Soletra stimulators.
- Frequency remained largely unchanged, likely related to converting 2 single-channel IPGs (Soletra) to one dual-channel RC IPG.

CONCLUSIONS:
- Study limitations – small size and retrospective chart analysis
- Patients are generally very satisfied with RC IPGs but are more satisfied when it is placed as the initial device. After conversion, patients prefer RC IPGs to their prior non-RC IPGs. Practitioners should consider this when advising patients about IPG choices.
- Recharging equipment may pose inconvenience to some patients.
- Larger prospective studies are needed to establish more definitive guidelines for reprogramming RC after conversion from non-RC IPG.

REFERENCES


RESULTS (continued...)