Introduction

- Patients with chronic inflammatory demyelinating polyneuropathy (CIDP) and other chronic autoimmune neuromuscular diseases are treated with long-term intravenous immunoglobulin (IVIg) therapy.
- Common IVIg dosing regimens are based on an initial loading dose of 2 g/kg followed by 1 g/kg every 3–4 weeks.
- Ancodot reports of dyanmometry measurements and small studies of electrophysiological responses suggest that the effects of IVIg become detectable very rapidly after infusion, often peaking within 7–14 days, but diminish (wear-off) before the next dose is due.
- In real life, many patients receive IVIg at intervals ≤21 days.

Methods

- Records of patients with CIDP receiving home-based IVIg infusions from AxeCare were reviewed.
- Grip strength and disability scores were assessed every 3–4 weeks by trained nurses, just prior to dispensing IVIg infusions at home, and results were recorded wirelessly in the CareExchange® database using an iPad™.
- Grip strength was measured using Jamar dynamometers. Standardized forms were used to assess disability according to Rasch-built Overall Disability Scale (R-ODS) and Overall Neuropathy Limitations Scale (ONLS).
- For every patient, the mean, standard deviation (SD) and range of strength and disability scores were calculated.
- The variations in strength and disability metrics between consecutive measurements (visit-to-visit variations), as well as their mean, SD, and range, were calculated for each patient. These data were used to determine the overall mean variations over the entire patient cohort.

Results

- We reviewed CareExchange® records of 181 patients managed by 62 physicians. There were slightly more women (55%) than men; the mean patient age was 57 years.
- An example of data collected from an individual 59-year-old male patient is shown in Figure 2. The mean SD (range) values calculated for this patient were 89.0 ± 8.5 lbs (63.3–106.7 lbs) for left hand grip strength, 87.3 ± 6.7 lbs (74.7–104.0 lbs) for right hand grip strength, 42.7 ± 3.4 (30.9–54.0) for R-ODS and 2.7 ± 0.6 (2.0–4.0) for ONLS.
- Over the entire patient cohort, the mean ± SD (range) visit-to-visit variations in strength and disability scores were close to zero: 0.2 ± 2.5 lbs (−8.0–20.4 lbs) for left hand grip strength, 0.0 ± 2.5 lbs (−11.8–12.0 lbs) for right hand grip strength, 0.0 ± 2.1 (0.0–2.5) for R-ODS, and 4.4 ± 1.4 (1.7–7.4) for ONLS (Figure 3).
- The SD of visit-to-visit variation in grip strength and R-ODS were relatively small compared with the mean value calculated over the entire patient cohort (Table 2).
- Most of the patients had mean visit-to-visit variations <10% of the overall mean of each strength and disability metric (Figure 4).

Conclusions

- Grip strength and R-ODS values at the end of an IVIg treatment cycle were consistent over time.
- The very low variations in R-ODS and grip strength show that these measurements can be performed reliably by trained infusion nurses.
- Given that the variations in grip strength and R-ODS values recorded at the same time point in different cycles of IVIg treatment were much lower than the variations expected at different time points within individual cycles, we believe that the mean scores calculated in this work can serve as a baseline for the detection of wear-off related deviations.

Outlook

- Frequent assessments of R-ODS and grip strength may be useful in identifying patients with large treatment-related fluctuations.
- Multiple cycles of IVIg treatment showing similar strength and disability fluctuation patterns will be needed to identify wear-off effects in patients.
- In the future, this information might be useful for tailoring individualized IVIg dosing regimens, and for testing the hypothesis that maintenance of high serum IgG levels results in better outcomes.

References