

Introduction

- Chronic inflammatory demyelinating polyneuropathy (CIDP) is a rare autoimmune neurological disorder characterized by progressive weakness and sensory loss in the extremities¹
- First line treatment for CIDP includes immunoglobulin (Ig), corticosteroids, and plasma exchange
- The updated 2021 European Academy of Neurology/Peripheral Nerve Society (EAN/PNS) guideline on diagnosis and treatment of CIDP strongly recommends using subcutaneous immunoglobulin (SCIg) for maintenance treatment²
- SCIg allows for maintenance of more consistent IgG levels while providing the option of self-administration by patients with less systemic side effects than intravenous administration
- Needle length used in administration are initially decided by the dispensing specialty pharmacy. The needles supplied can subsequently be altered to optimize the infusion. This may depend on factors such as site of administration or patient body mass index (BMI)

Objective

- This retrospective analysis examined the correlation between needle length selection, anatomical site of SCIg administration; BMI of the patient and impact on these parameters with training visits

Methods

- This was a retrospective analysis that evaluated data of patients receiving SCIg (IgPro20). The data were collected during training visits by the Specialty Pharmacy Nurse Network (SPNN)
- Patients had up to six nurse-supervised training visits, based on mutual agreement of patient's competency for self-administration between the patient and the nurse
- The dataset chosen for this study was over a period of 9 months (April 2019 to December 2019)
- The parameters collected were: needle lengths used for SCIg administration, anatomical sites of administration and number of nurse visits. Each SCIg administration was not limited to a single anatomical site
- Baseline demographics, including age and BMI were recorded for each patient

Table 1: Patient demographics	
Characteristics	Total CIDP cohort (n=140)
Male/Female	77 / 63
Age	58.5 (26 – 86)
BMI	29.1 (17.4 – 55.6)
Needle Length (mm)	4 – 14
Total Administrations	1241
Site of Administration:	
Abdomen	1166
Thigh	72
Arm	3
BMI, body mass index; CIDP, chronic inflammatory demyelinating polyneuropathy.	

Results

- A total of 140 CIDP patients (77 male and 63 female) completing 1–6 SCIg training visits were included in this analysis (Table 1)
 - One patient was removed from the study after refusing therapy
- The detailed analysis was focused on the first three training visits as this was what most patients completed (n=114)
- The needle lengths used over the course of this study ranged from 4–14mm

Figure 1: Needle length used for administration vs individual BMI

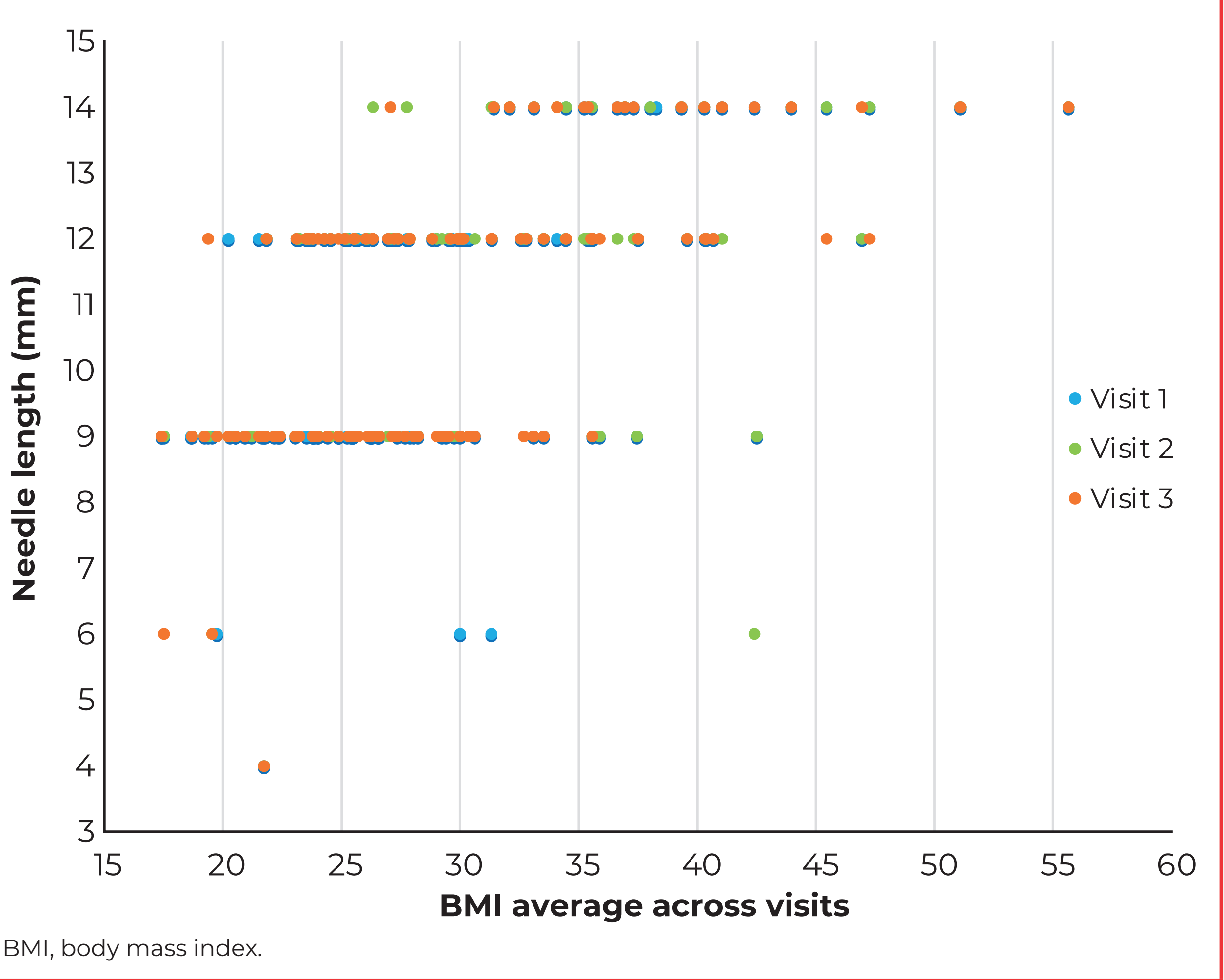
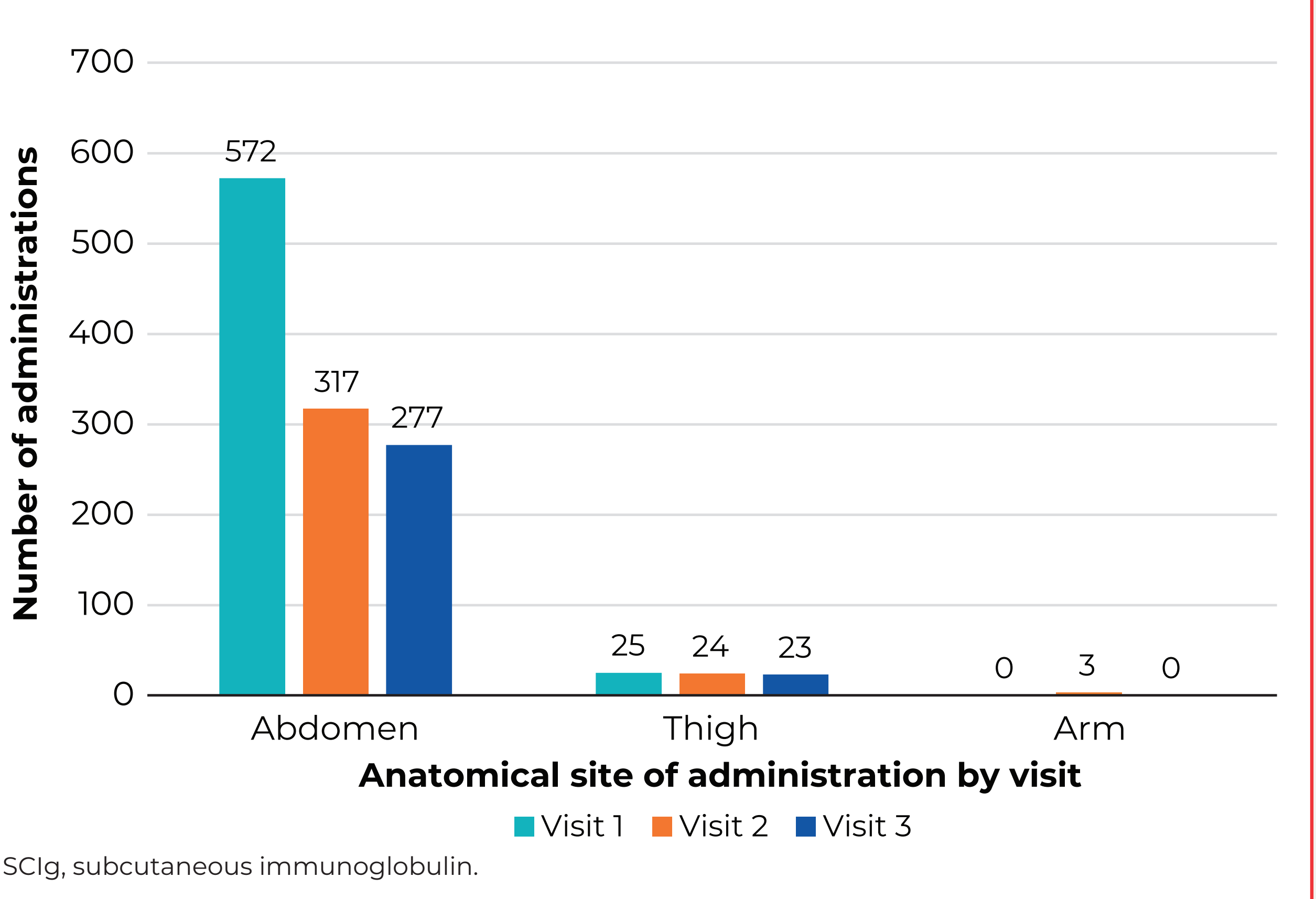


Figure 2: Anatomical SCIg infusion sites selected by training visit



- With an increase in the average BMI, the needle length size also increased (Figure 1)
 - The average BMI in patients using 6mm needle length was 24.8, followed by 25.1 in patients using 9mm, 30.0 in those using 12mm, and 38.9 in those using 14mm needles (Table 2)
- Of the total 1241 administrations, the abdomen was the most used administration site (1166 utilizations), followed by the thigh (72 utilizations), then arm (3 utilizations) (Figure 2)
- The 12mm needle length was most used for infusions in the abdomen and 9mm was most used in the thigh (Table 3)
- Most patients continued their SCIg infusions using the same needle length from their first infusion visit (Figure 3)

Figure 3: Needle length of first visit vs final visit

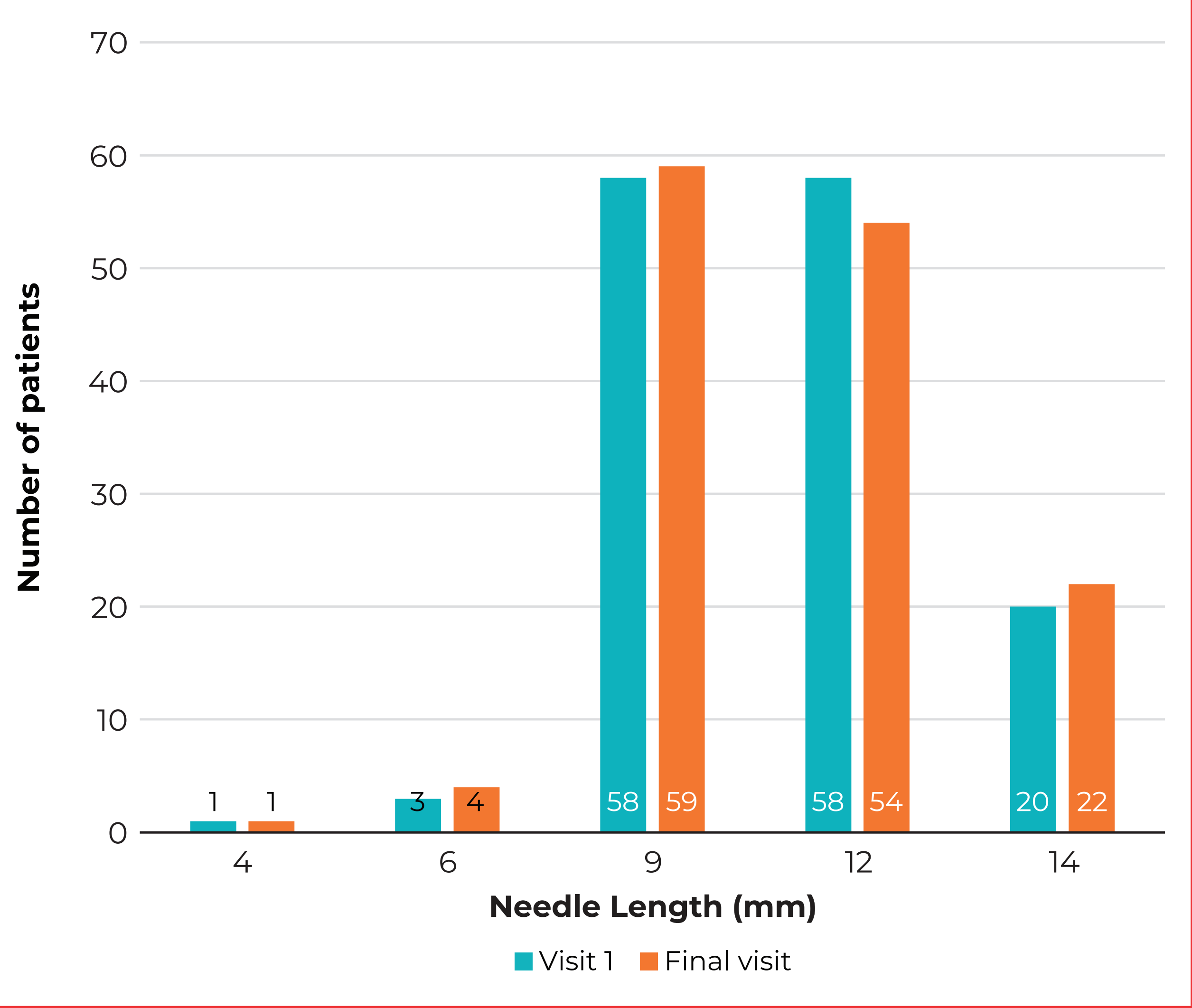


Table 2: Needle length and corresponding average BMI

Needle Length (mm)	Average BMI
6mm	24.8
9mm	25.1
12mm	30.0
14mm	38.9
BMI, body mass index.	

Table 3: Variation in needle length (mm) used by number of training visit*

	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5	Visit 6
Abdomen	12	12	12	12	12	–
Arm	–	6, 9, 12	–	–	–	–
Thigh	9	9	9	9	9	–

*The baseline and the visit with most patients

Discussion

- Successful administration of SCIg therapy is dependent on several factors
- The length of the needle used for administering the product can play a significant role in the patient experience of the SCIg infusion
- BMI correlated with corresponding changes in the depth of subcutaneous fat layer, which is the intended location for SCIg infusions. Therefore, it is important to consider choosing the needle length to one that is optimal to the patient
- The data in this analysis suggest that there was a trend to use longer needle lengths as BMI increased, independent of site of administration (of note, the average BMI in patients who used the 6mm and 9mm needle length was comparable)
- The anatomical site of SCIg infusion also influenced the length of the needle used
- There is a need for needle size optimization
 - Most patients and specialty pharmacies are familiar with only two needle lengths (9 or 12 mm)
 - Hence, patients tend to stay with the needle length they were started on
 - As patients are often started with a standard needle length, consideration to revising this in subsequent infusions will potentially result in optimizing patient experience

Conclusions

- The BMI and preference for injection site can help determine optimal needle length for infusion of subcutaneous Ig for individual patients

References

- GBS CIDP Foundation International. What is Chronic Inflammatory Demyelinating Polyneuropathy (CIDP)? Accessed from <https://www.gbs-cidp.org/cidp/> on the 6/22/2023.
- Van den Bergh P, et al. *European Journal of Neurology*. 2021;28(11):3556–3583.

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Disclosures

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