

# Impact of virtual training upon patients with chronic inflammatory demyelinating polyneuropathy and primary immunodeficiency receiving subcutaneous immunoglobulin self-administration training during the coronavirus disease (COVID-19) pandemic



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## Introduction

### Chronic inflammatory demyelinating polyneuropathy (CIDP)

- CIDP is a progressive immune-mediated disorder of the peripheral nerves attributed to demyelination and impaired signal conduction in motor and/or sensory nerves<sup>1</sup>
  - Clinical features include symmetric distal sensory and motor disorders that have proximal and distal weakness
  - If left untreated, CIDP can limit patients' activity and quality of life

### Primary immunodeficiencies (PIs)

- PIs comprise more than 350 different types of inherited diseases, characterized by impaired or absent components of the immune system<sup>2</sup>
  - Clinical features include increased rate and severity of infections, immune dysregulation with autoimmune disease, and malignancy<sup>3</sup>

### Treating CIDP and PIs with subcutaneous immunoglobulin (SCIG)

- SCIG is approved for maintenance therapy in patients with CIDP (adults only) or PIs (adults and pediatric patients)<sup>4-6</sup>
  - Compared with intravenous immunoglobulin (IVIg), the benefits of SCIG include self-administration in settings convenient for the patient, flexible dosing, and lower reported systemic reactions<sup>7-9</sup>
- Patients are often trained to self-administer by specialty pharmacy nurses in their own homes; the success of this training can affect whether the patient remains on SCIG or reverts back to their previous treatment<sup>9</sup>
  - During the coronavirus disease 2019 (COVID-19) pandemic, an increasing number of patients transitioning to SCIG received virtual self-administration training

## Objective

To assess the impact and feasibility of virtual SCIG self-administration training upon patients with CIDP or PIs during the COVID-19 pandemic

## Methods

- This was a retrospective study utilizing data collected by the Specialty Pharmacy Nurse Network (SPNN) between October 2019 and December 2020
- Patients were identified via International Classification of Diseases (ICD)-10 codes G61.81 (CIDP) or D80.0-84.9 (PIs)
- Training mode for individual patients was identified as either live, virtual, or a combination of live and virtual sessions ("combined")
- For the purpose of this analysis, 'improved infusion parameters' was defined as an increase in either volume or rate per site, or a decrease in the number of infusion sites required between a patient's first and final session
- Data collected from (up to five) nurse-supervised training sessions were recorded:
  - Number and mode of training sessions; age, gender, and BMI; training success and discontinuation rates; reasons for discontinuation; and infusion parameters from each session
- Patients who discontinued SCIG training stopped receiving SCIG therapy, and reverted to IVIg treatment; patients who completed SCIG training no longer required self-administration training by nurses

## Results

### Cohort characteristics

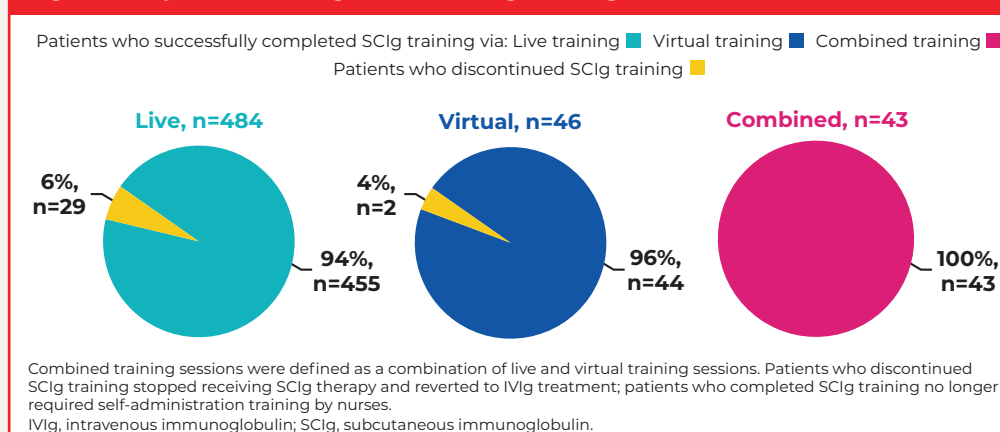
- A total of 573 patients attending 1-5 SCIG training sessions were analyzed
  - The cohort was comprised 120 (21%) and 453 (79%) patients with CIDP and PIs, respectively
- The majority of training (84%) was conducted live at patients' homes (Table 1)
  - The remaining patients were trained either fully virtually (8%) or via a combination (8%) (Table 1)
- Patients who trained virtually were slightly younger compared with those who trained live or via a combination (Table 1)
- In total, 542 (95%) patients successfully completed SCIG training
- Training success and discontinuation rates were generally comparable irrespective of training mode (Figure 1)
- Thirty-one (5%) SCIG discontinuations occurred during the observation period (29 trained live and two trained virtually, Figure 1)
  - Reasons for discontinuation included: adverse events (n=12), unable to infuse independently (n=9), patient/doctor decision (n=7), worsening condition (n=1), hospitalization (n=1), or insurance issues (n=1)

Table 1: Patient characteristics by training mode

Characteristic	Category	All patients, N=573	Live, n=484	Virtual, n=46	Combined, n=43
Cohort, n (%)	CIDP	120 (21)	101 (21)	11 (24)	8 (19)
	PIs	453 (79)	383 (79)	35 (76)	35 (81)
Age (years)	-	48.1 ± 21.1	48.0 ± 21.4	45.8 ± 19.2	52.1 ± 19.3
Gender, n (%)	Female	357 (64)	299 (63)	32 (70)	26 (65)
	Male	201 (36)	173 (37)	14 (30)	14 (35)
BMI (kg/m <sup>2</sup> )	-	28.4 ± 7.8	28.5 ± 8.0	27.8 ± 7.2	27.9 ± 6.2

All values are mean ± SD unless otherwise stated. Combined training mode was defined as a combination of live and virtual training sessions. BMI, body mass index; CIDP, chronic inflammatory demyelinating polyneuropathy; PIs, primary immunodeficiencies; SD, standard deviation.

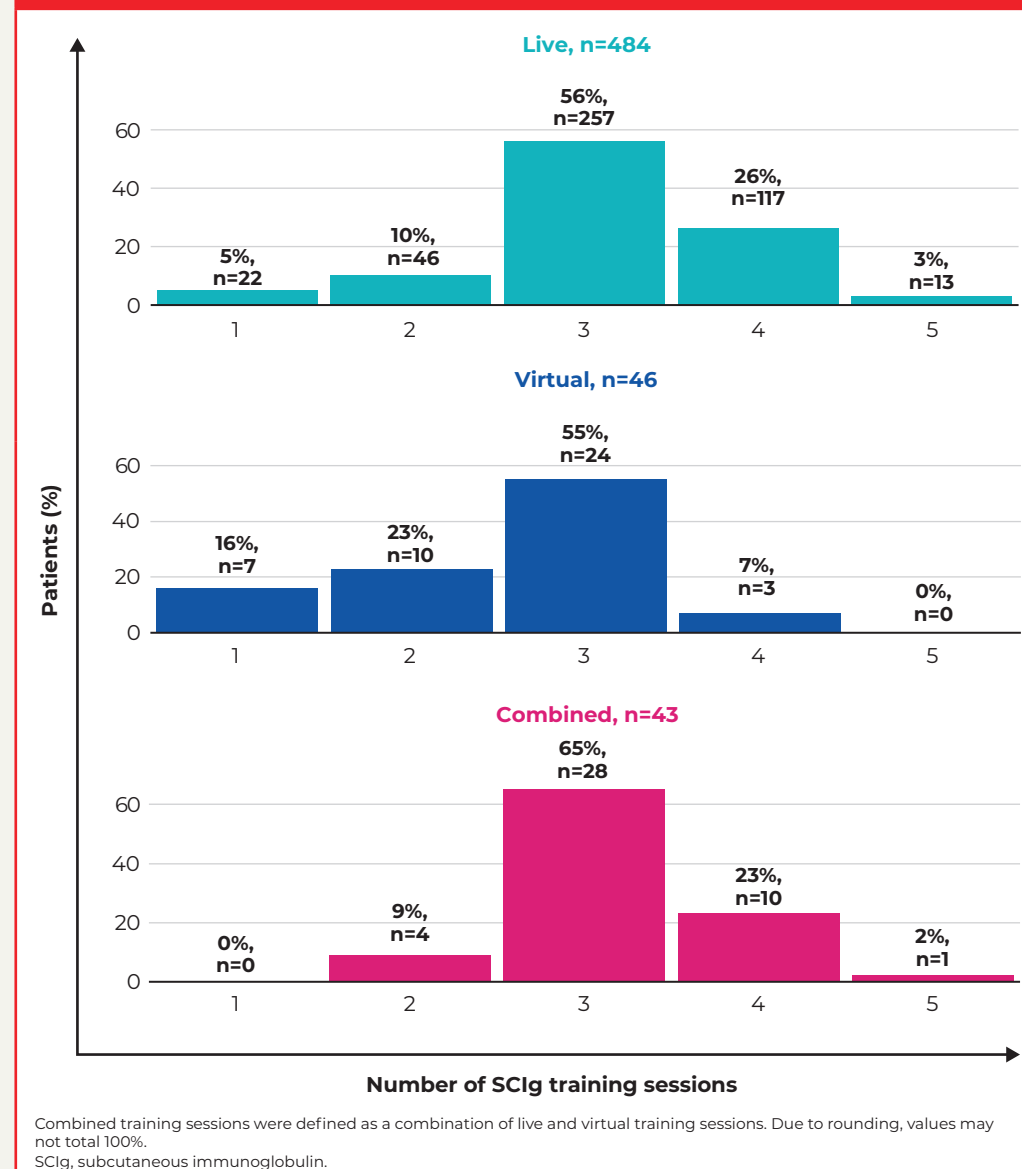
Figure 1: Impact of training mode on SCIG training success



### SCIG training requirements

- Overall, most patients required three training sessions irrespective of training mode (Figure 2)
  - Of the patients who successfully completed training, 29 (5%) required one training session, 60 (11%) required two training sessions, 309 (57%) required three training sessions, 130 (24%) required four training sessions, and 14 (3%) required five training sessions
- Patients who trained virtually were significantly more likely to require ≤3 sessions compared with patients who trained live or combined (93% vs. 71% and 74%, respectively; p=0.006)

Figure 2: Impact of the training mode on the number of sessions required by patients to complete SCIG training and become independent users of SCIG



### SCIG infusion parameters following training

The majority of successfully trained patients improved their infusion parameters between their first and final training session irrespective of the training mode (81%, n=440)

On average, patients who successfully completed training increased their infusion volume per site by 45% (mean ± standard deviation [SD], 6±7 mL/site) and their infusion rate per site by 46% (5±5 mL/hr/site) between their first and final training session

- No differences were observed between training modes

## Discussion

- Overall, patients who trained virtually were slightly younger and required fewer training sessions, compared with those who trained live or in combination
- Training success, discontinuation rates, and improvements in infusion parameters were largely comparable irrespective of training mode
- Nurse and patient confidence and experience with virtual vs. live SCIG training may have an impact upon a patient's ability to learn self-administration more quickly and with fewer discontinuations
  - As such, nurse training techniques may need to differ depending on training mode
- A limitation of this study was that fewer patients received virtual (or combined) training, compared with the number of patients who trained live

## Conclusions

- Virtual (or combined) training can offer a flexible training option and appears to be as effective as live training in patients with CIDP or PIs
- More data are needed to further explore the association between training modes, ease of learning, and nursing techniques used

## References

- Mathey, EK, et al. *J Neurol Neurosurg Psychiatry*. 2015;**86**(9):973-985.
- Picard, C, et al. *J Clin Immunol*. 2018;**38**(1):96-128.
- Amaya-Urbe, L, et al. *J Autoimmun*. 2019;**99**:52-72.
- Watkins, JM, et al. *J Neurosci Nurs*. 2019;**51**(4):198-203.
- Van den Bergh, P, et al. *J Peripher Nerv Syst*. 2021;1-27.
- Patel, NC, et al. *J Clin Immunol*. 2015;**35**(6):558-565.
- Stein, MR, et al. *Postgrad Med*. 2011;**123**(5):186-193.
- Moore, ML, et al. *Ann Allergy Asthma Immunol*. 2008;**101**(2):114-121.
- Murphy, E, et al. *J Infus Nurs*. 2021;**44**(5):289-297.

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