

Reduction of Infusion Time Using a 10% Immunoglobulin Product During Staffing Shortages Due to COVID-19

Authors: Barbara Prosser, RPh, Timothy P. Walton, MHS, CCRP, Christine Miller, PharmD, Dave Luckey, MBA, Craig Vollmer, BA, Drew Doyle, RPh – Soleo Health

Introduction

The recent healthcare crisis due to the novel Coronavirus disease 2019 (COVID-19) has created an increased demand for infusions administered within the home environment. Patients with immunodeficiencies who are receiving intravenous immune globulin (IVIg) are at greater risk for contracting infections, like COVID-19. A recent article¹ recommends that patients receiving IVIg for neuromuscular conditions should also have their infusions transitioned to the home environment as quickly as possible due to COVID-19. Hospital and outpatient clinics providing scheduled infusions have referred patients to specialty pharmacy organizations in order to make availability for critically ill patients and reduce COVID-19 exposure risk to patients and employees. Due to increased demand for home infusion, it has become imperative to reduce nurse visit times to minimize COVID-19 exposure risk to nurses and patients while meeting these increased demands.^{1,2}

Purpose

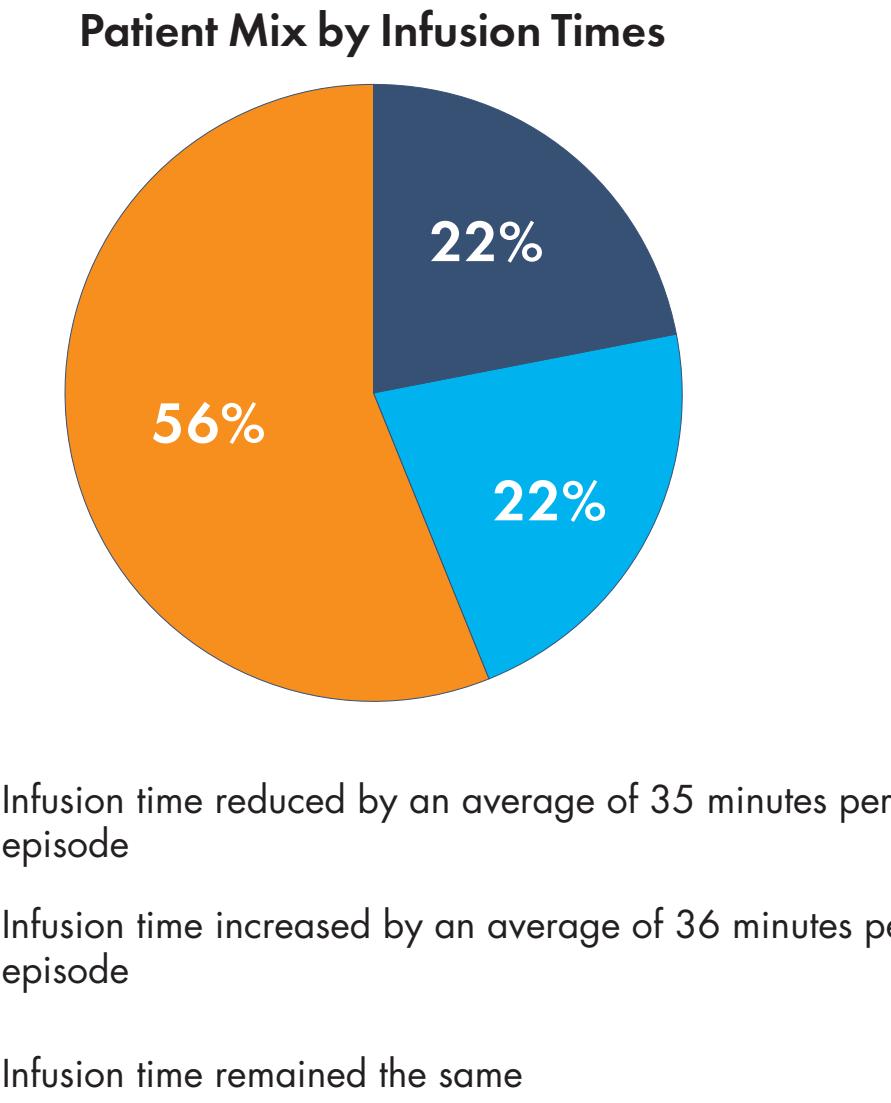
The purpose of this study is to determine if a 10% immune globulin (Ig) product with a 15-minute titration protocol has a shorter total infusion time and could therefore reduce the amount of time spent in a patient's home.

Methods

A retrospective review of patient medical records was conducted by a multidisciplinary team over a 30-month period. Customized reports from the proprietary outcomes program, SoleMetrics[®], identified patients receiving Gammaglobulin 10% after previously receiving other Ig products. This allowed for a comparison of infusion times for all Ig products pre and post transition to the 10% Ig product with a 15-minute titration protocol.

Results

- A total of 23 patients met the inclusion criteria
- Thirteen patients had infusion time reduced by an average of 35 minutes per episode
- Maximum reduction observed = 1 hour 15 minutes
- Five patients had an increase in infusion time by an average of 36 minutes per episode
- Five patients had no change per episode
- Two patients were transitioned from subcutaneous immunoglobulin (SC Ig) to 10% IVIG due to tolerability issues
- The most frequent adverse events reported (>10% patients) included headache and fatigue. Fatigue may also have been attributed to premedication with diphenhydramine, which was taken by 83% of patients



Details of the 13 Patients with Shorter Infusion Times

Patient	Primary Diagnosis	Dose (G/Kg)	Frequency	Time Savings per Infusion	Time Savings per Cycle
1	CVID	0.40	Every 3 to 4 weeks	0:55	0:55
2	Myasthenia gravis	0.21	Daily for 5 days one time	0:20	1:40
3	Cerebellar ataxia	0.76	Daily for 3 days one time	1:15	3:45
4	Demyelinating disease of central nervous system	1.03	Every 4 Weeks	1:13	1:13
5	Polymyositis	0.43	Daily for 5 days every 4 weeks	0:15	1:15
6	CIDP	0.42	Daily for 5 days one time	0:30	2:30
7	Dermatopolymyositis	0.64	Daily for 3 days every 6 weeks	0:45	2:15
8	Primary immunodeficiency	0.53	Every 6 Weeks	0:45	0:45
9	Myasthenia gravis	0.47	Every 2 Weeks	0:15	0:30
10	CIDP	0.40	Daily for 5 days one time	0:30	2:30
11	Polyneuropathy	0.47	Daily for 2 days every 4 weeks	0:15	0:30
12	CIDP	0.37	Daily for 3 days every 4 weeks	0:30	1:30
13	Polymyositis	0.53	Every 4 Weeks	0:15	0:15

Discussion

- Reduction of infusion time may have a significant impact on nursing staffing and quality of life
 - With time savings like 1 hour 15 minutes, could potentially fit in another short patient visit in the same day, like a lab draw or central line dressing change
- Average time savings per infusion cycle (larger doses infused over several consecutive days) = 1 hour 30 minutes
- Infusion time reduction also presents opportunities for cost savings
- Each hour of nursing time saved corresponds to an average cost savings of \$90 for this specialty infusion company
- Patient #4:
 - 1gm/kg infused every 4 weeks
 - Time savings of 1 hour 13 minutes per infusion
 - Cost savings of \$1,170 per year
- Two patients initially received SC Ig, where no nursing was involved, and then switched to the 10% Ig product administered intravenously by a nurse
 - The total monthly SC Ig infusion time was calculated and compared to the new monthly IVIG infusion time
 - The total infusion time was reduced by an average of 160 minutes per month when switching to the 10% IVIG product

Conclusion

The home environment is an important site of care to help reduce the risk of exposure to COVID-19, especially for patients with immunodeficiencies and receiving Ig infusions. Using a 10% IVIg product with a 15-minute titration protocol and a shorter infusion time is one strategy to help reduce the amount of time a visiting nurse spends with a patient and allows greater flexibility with nursing scheduling.

References

1. Rajabally YA, Goedee HS, Attarian S, Hartung HP. Management challenges for chronic dysimmune neuropathies during the COVID-19 pandemic. Muscle Nerve. 2020 Jul;62(1):34-40.
2. Watanabe G, Ogurczak J. Effects of COVID-19 on home infusion. Pharmacy Times. June 25, 2020. Accessed June 29, 2020. <https://www.pharmacytimes.com/news/effects-of-covid-19-on-home-infusion>