Poster # 362

Immune Globulin Subcutaneous 16.5% in Immunoglobulin-Naïve Patients with Primary Immunodeficiency

Jeffrey W. Langford, MD, AE-C;[1] Rodney Johnson, MD, FACAAI, FAAAAI; [2] Richard F. Herrscher, MD, FACAAI;[3] Precious A. Anyanwu, PharmD, PhD;[4] Lucinda J. Van Anglen, PharmD[4]

[1]Langford Allergy, LLC, Macon, GA; [2]MIddle Georgia Allergy and Asthma, Dublin, GA; [3]AIR Care, Dallas, TX; [4]Healix Infusion Therapy, Sugar Land, TX

Key Findings

- **This real-world study demonstrates effectiveness of IGSC 16.5% in IG-naïve patients with PID.**
- **Local and systemic adverse event rates were similar or lower than previous studies and decreased significantly over time.**
- **A collaborative practice model resulted in high patient adherence with IGSC 16.5% in IG-treatment-naïve patients.**
- **IGSC without need for IVIg should be considered as an approved therapy option.**

AAAAI / WAO Joint Congress
February 28 – March 3, 2025
San Diego, CA

This study was funded by a research grant from Octapharma USA, Inc. Paramus, NJ

Background

- Immune Globulin Subcutaneous (Human) 16.5% (IGSC 16.5%), Cutaquig® is a subcutaneous immunoglobulin (IG) therapy approved for the treatment of primary immunodeficiency disease (PID) in adults and pediatric patients ≥ 2 years following intravenous IG (IVIg)[1].
- Efficacy, tolerability and safety has been demonstrated with IGSC 16.5% in clinical trials and long-term study following IVIg.[2,3] In practice, subcutaneous IG (SCIG) as initial therapy has become more commonplace, but data is limited, and payors continue to require IVIg prior to SCIG. We previously assessed a small cohort of IG-naïve patients with favorable outcomes[4] and a review of literature suggested similar outcomes in IG-naïve with IG-experienced patients[5], but a lack of studies remains.
- The aim of our study was to evaluate clinical outcomes in IG-naïve patients in a larger population receiving IGSC 16.5% as initial therapy.

Methods

- A retrospective, observational review was conducted nationally in IG-naïve patients with PID who received IGSC 16.5% for 24-weeks. Patients were included who initiated treatment between June 2019 and February 2024. Treatment initiation and training occurred in immunology and infectious disease physician offices and was conducted by IGSC-trained pharmacists and nurses. Pharmacists dispensed medication and supplies and performed monthly assessments to capture patient reported outcomes.
- Data collected included patient demographics, IGSC 16.5% therapy details, respiratory tract infections (RTIs), infusions site reactions (ISRs), and systemic adverse events (AEs).
- Efficacy was assessed as the annualized rate of serious bacterial respiratory tract infections (SBIs), assessed as any incidence of bacterial pneumonia, osteomyelitis or septic arthritis, bacteremia or sepsis, visceral abscess or bacterial meningitis.
- Tolerability and safety was evaluated based on the rates and incidence of ISRs and systemic AEs, respectively. Treatment adherence was defined as self-administration of IGSC 16.5% within ± 2 days of scheduled treatment.
- Descriptive analyses were reported as frequencies and proportions for categorical variables, and as mean ± SD or median (IQR) for continuous variables. Linear regression modeling was used for the incidence of ISRs and AEs as a function of infusion number.

Study Patients

Table 1. Demographics

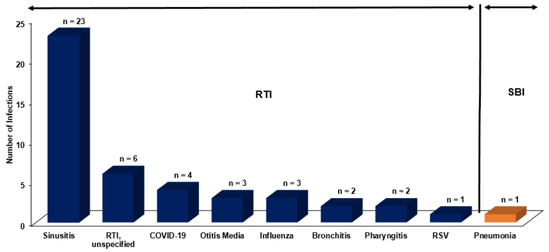
Parameter	IGSC 16% N = 70
Sex, n (%)	
Female	59 (84)
Age, median, IQR	50 (40, 60)
≤ 6 years	4 (6)
18 to 24 years	5 (7)
25 to 44 years	14 (20)
45 to 64 years	36 (51)
≥ 65 years	11 (16)
Body mass index in kg/m^2, median (IQR)	29 (24.3, 34.2)
PI primary diagnosis, n (%)	
Common variable immunodeficiency	27 (38.6)
Selective deficiency of IgG subclasses	18 (25.7)
Nonfamilial hypogammaglobulinemia	14 (20.0)
Other[a]	11 (15.7)
Monthly dose (mg/kg), median (IQR)	455.7 (395.3, 560.4)

Table 2. Infusion Parameters

Parameter	IGSC 16.5% N = 70
IGSC 16.5% Infusions	
Total infusions, n (%)	1680
IGSC 16.5% Dosing Interval	
Weekly self-administration, n (%)	68 (97)
Every other week self-administration, n (%)	2 (3)
IGSC 16.5% Administration, median (IQR)	
Initial rate per infusion site (mL/hr)	13.6 (7.9, 19.4)
Initial rate per all infusion sites (mL/hr)	38.8 (23.6, 49.9)
Initial volume per infusion site (mL)	19.2 (16,24)
Initial volume per all infusion sites (mL)	58.9 (48,72)
Maximum rate per infusion site (mL/hr)	19.5 (16, 22)
Maximum rate per all infusion sites (mL/hr)	55.3 (41,67)
Maximum volume per infusion site (mL)	21 (16, 24)
Maximum volume per all infusion site (mL)	66.3 (48,74)
Number of infusion sites, median (IQR)	3 (3, 4)

Efficacy

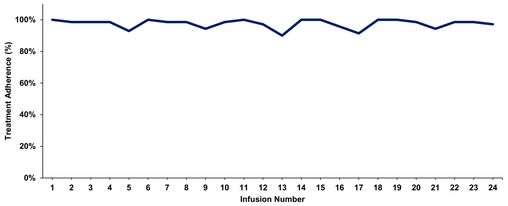
Figure 1. Respiratory Tract Infections and Serious Bacterial Infections



- 1 SBI (pneumonia) occurred, resulting in an annual rate of 0.03 infections/subject/year
- 45 RTIs were reported, resulting in an annual rate of 1.29 infections/subject/year

Adherence

Figure 6. Adherence Over 24 Weeks



- Of the 1680 infusions administered over 24 weeks, 1638 were self-administered within ± 2 days of the treatment window
- This reflects an overall treatment adherence rate of 98%

Tolerability

Table 3. ISRs by Patient

ISRs	By Patient (N = 70) n (%)
Redness	20 (28.6)
Swelling	18 (25.7)
Itching	14 (20.0)
Pain	9 (12.9)
Bruising	7 (10.0)
Burning	2 (2.9)
Leaking	2 (2.9)
Other[b]	3 (4.2)

- 428 ISRs in 41 patients were reported in 1680 infusions for a rate of 0.25 per infusion
- 29 patients (41%) experienced no ISRs, including 3 of 4 pediatric patients

Figure 2. Total Number of ISRs

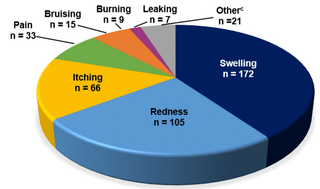
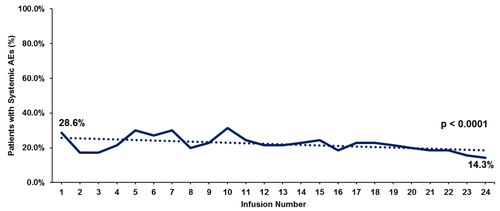


Figure 3. Incidence of ISRs over 24 Weeks



Safety

Table 4. Systemic AEs by Patient

Systemic AEs	By Patient (N = 70) n (%)
Fatigue	16 (22.9)
Headache	16 (22.9)
Nausea/Vomiting	4 (5.7)
Fever/Chills	4 (5.7)
Myalgia/Arthralgia	4 (5.7)
Other[d]	2 (2.8)

- 373 systemic AEs in 26 patients were reported in 1680 infusions for a rate of 0.22 per infusion
- 44 patients (63%) experienced no AEs, including none in the pediatric population

Figure 4. Total Number of Systemic AEs

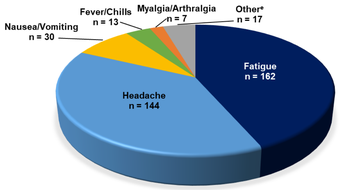
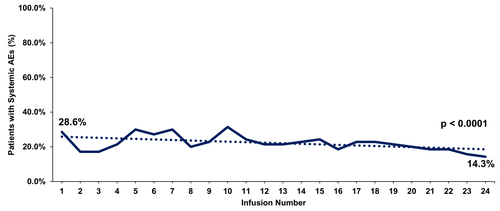


Figure 5. Incidence of Systemic AEs over 24 Weeks



DISCUSSION

- A total of 70 IG-naïve patients successfully completed 24 weeks of IGSC 16.5% therapy, with the majority receiving standard weekly dosing regimens.
- IGSC 16.5% demonstrated clinical effectiveness, with a low annualized SBI rate at 0.03 per person per year, well below the rate of 1.0 to provide evidence of efficacy by the FDA. This is consistent with the clinical trial data[2,3] and studies in IG-naïve patients[4,5].
- Tolerability was high, with 41% reporting no ISRs. The overall ISR rate in the was 0.25 per infusion, less than in our previous data[4] and similar with clinical trial data with IGSC 16.5%.[2,3]
- IGSC 16.5% was safe in IG-naïve patients with an overall rate of systemic AEs of 0.22 per infusion. While fatigue and headache were the most frequently reported systemic reactions, 63% of patients experienced no systemic AEs. These results were comparable to our previous data in IG-naïve patients[4].
- As previously reported, rates of ISRs and systemic AEs were highest at initial infusion and decreased significantly over time.[2,3,4]
- Treatment adherence was high with IGSC 16.5%, potentially enhanced by the physician and staff oversight of patients and infusions.
- Real-world results from this large cohort study supports previous findings on the effectiveness, tolerability, and safety of IGSC 16.5% in IG-naïve PID patients[4].

Abbreviations and Footnotes

Abbreviations: IQR, Interquartile Range; RSV, Respiratory Syncytial Virus

[a]Other PI diagnoses: antibody deficiency with near-normal immunoglobulins or with hyperimmunoglobulinemia (n=6, 9%), hereditary hypogammaglobulinemia (n=3, 4%). immunodeficiencies with predominantly antibody defects (n=2, 3%); [b]Other ISRs: bleeding (n=1, 1.4%), flakiness (n=1, 1.4%), tenderness (n=1, 1.4%); [c]Other total ISRs: tenderness (n=12), flakiness (n=8), bleeding (n=1); [d]Other systemic AEs: dysgeusia (n=1, 1.4%), dizziness (n=1, 1.4%); [e]Other total systemic AEs: dysgeusia (n=12), dizziness (n=5)

References

1. Cutaquig® (immunoglobulin human subcutaneous) [package insert] Octapharma USA, Inc., Paramus, NJ, 2021. 813-824.
2. Kobayashi RH, et al. *Front Immunol* 2019; 10: 40.
3. Kobayashi RH, et al. *Clin Exp Immunol* 2022; 210: 91-103.
4. Langford J, et. al. *Ann Allergy Asthma Immunol* 2022; 129(5): S53.
5. Smits CA, et. al. *Immunotherapy* 2022; 14(5): 373-387.