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Poster #251

Real-World Outcomes After Switching to Immune Globulin Subcutaneous 16.5% In Patients with Primary Humoral Immunodeficiency: A 3-Year Study

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Introduction

Subcutaneous immune globulin (IGSC) is indicated for the treatment of primary humoral immunodeficiency (PI).[1] While intravenous immune globulin (IVIG) has been the common treatment of choice for patients with PI, IGSC is increasingly being utilized in the US.[1,2]

Both IVIG and IGSC have been reported to be safe and efficacious in preventing infections, though IGSC differs in that it offers more freedom and convenience with self-administration at home.[1] IGSC is also been associated with high rates of medication adherence, and in patients who switched from IVIG therapy, improvements in health-related quality of life were observed.[2-5]

Immune Globulin Subcutaneous [Human] - hipp 16.5% solution (IGSC 16.5%) is a new subcutaneous product approved for PI.[6] Two phase 3 clinical trials have demonstrated good safety and efficacy outcomes in patients who have switched from IVIG to IGSC 16.5%.[2,3]

While post-marketing studies of IGSC 16.5% have included previous users of IVIG or IGSC, there is little published data on the impact of switching between subcutaneous formulations.[7,8] The objective of this study was to assess outcomes in PI patients who switched from an alternative IGSC product to IGSC 16.5%.

Methods

A retrospective, observational analysis was conducted over a 3-year period in IGSC-experienced patients with PI who switched from another IGSC therapy to IGSC 16.5% (CUTAQUIG®). Data were collected up to 12 months from date of switch occurring from June 2019 to August 2022.

Therapy switches to IGSC 16.5% were initiated at immunology and infectious disease physician clinics. IGSC-trained pharmacists and nurses provided training in self-administration and therapy management. Pharmacists dispensed medications and conducted monthly assessments to capture patient-reported outcomes.

Study data included:

- Baseline demographics and disease characteristics
- IGSC 16.5% therapy details
- Bacterial respiratory tract infections (RTIs); serious bacterial infections (SBI), defined as those requiring hospitalization
- Local infusion site reactions (ISRs); systemic adverse events (AEs)
- Adherence, defined as use within ±2 days of scheduled treatment

Descriptive statistics were provided as means, standard deviations (SD), medians, and minimum and maximum values for continuous variables. Frequencies and percentages were used for categorical variables. Trends in local ISRs and systemic AEs were assessed over time.

Study Cohort

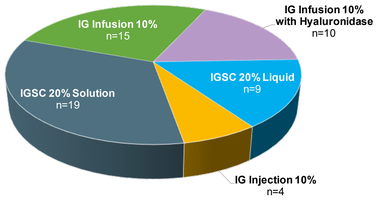
Results

Baseline Parameters

Table 1. Baseline Parameters

Parameter	IGSC 16.5% N=57
Patient Characteristics	
Age in years, mean ± SD	57 ± 13.5
Female gender, n (%)	44 (77%)
Body mass index in kg/m^2, median (IQR)	28 (25-35)
PI primary diagnosis, n (%)	
Common variable immunodeficiency	47 (83%)
Selective deficiency of IgG subclasses	5 (9%)
Nonfamilial hypogammaglobulinemia	4 (7%)
Antibody deficiency with near-normal Ig or hyperimmunoglobulinemia	1 (1%)
Years of Prior SCIG Use	**median (min, max)**
All SCIG Therapies	2.2 (0, 7)
IGSC 20% Solution[9]	2.5 (0, 5)
IG Infusion 10%[10]	2.0 (0, 7)
IG Infusion 10% with Hyaluronidase[11]	4.6 (0, 5)
IGSC 20% Liquid[12]	0.9 (0, 5)
IG Injection 10%[13]	1.9 (1, 3)

Figure 2. Prior IGSC Therapy



Therapy Switch to IGSC 16.5%

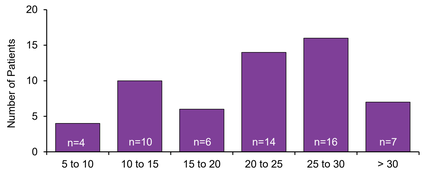
Table 2. IGSC 16.5% Utilization, Dosing, and Administration

Parameter	IGSC 16.5% N=57
Number of Infusions	
Total number of infusions	2480
Number of infusions per patient, mean ± SD	44 ± 13.6
Less than 24 infusions, n (%)	5 (9%)
Between 24 and 52 infusions, n (%)	21 (37%)
52 infusions, n (%)	31 (54%)
IGSC 16.5% Dose	**mean ± SD**
Weekly dose in mg/kg	147 ± 38.8
Monthly dose in mg/kg	588 ± 155.3
IGSC 16.5% Administration	**median (min, max)**
Maximum number of infusion sites	3 (2, 6)
Maximum volume per infusion site in mL	22 (15, 48)
Maximum rate per site in mL/hr	21.5 (6.1, 41.4)
Maximum rate per all sites in mL/hr	61.8 (22.1, 93.5)

- 57 patients initiated therapy switch, of which 31 persisted through 12 months. Four patients had not yet reached 52 weeks of therapy.
- 22 discontinued for various reasons: logistics at one clinic (n=9), payor issues (n=6), patient preference (n=3), adverse events (n=3), and transfer of care (n=1).

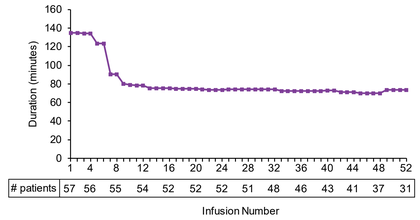
IGSC 16.5% Infusions

Figure 3. Maximum Infusion Flow Rate Per Site



- 42 patients (74%) had at least 1 infusion flow rate change over the study period.
- 25 of 42 (61%) had an increase in flow rate at infusion 7.

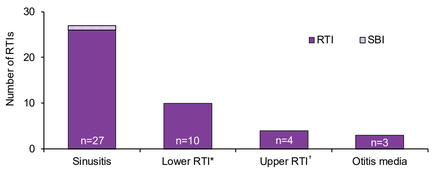
Figure 4. Average Duration of IGSC 16.5% Infusions



- The mean duration of infusions shortened over time, with the most notable drop at infusion 7.

Efficacy

Figure 5. Bacterial Respiratory Tract Infections



*Lower RTI included bronchitis (n=8) and pneumonia (n=2)
†Upper RTI included unspecified upper RTIs (n=3) and strep throat (n=1)

- 44 bacterial RTIs occurred in 29 patients, equating to a rate of 0.77 infections per patient over the course of the study.
- An SBI occurred in one patient hospitalized for sinusitis with sepsis and was subsequently discharged with no sequelae.

Tolerability

Figure 6. Local Infusion Site Reactions

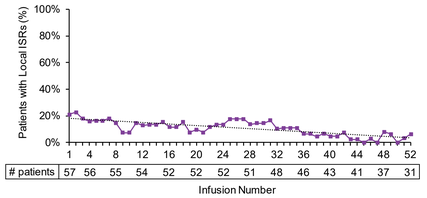


Table 3. Types of Local Infusion Site Reactions

Local ISRs	Number (%) of Subjects (N=57)	Number (rate*) of ISRs (N=2480 infusions)
Swelling	16 (28%)	138 (0.06)
Pain	14 (25%)	48 (0.02)
Itching	9 (16%)	76 (0.03)
Redness	9 (16%)	74 (0.03)
Bruising	5 (9%)	13 (0.01)

*Rate was calculated as the number of infusions with local ISRs divided by 2480

- Overall, 54% of patients reported ISRs; 26 patients (46%) experienced no local ISRs during the study.
- Local ISRs were highest at infusion 1 (21%) and decreased over time; 1 patient discontinued at 7 months of therapy due to continuing mild local ISRs.

Figure 7. Systemic Adverse Events

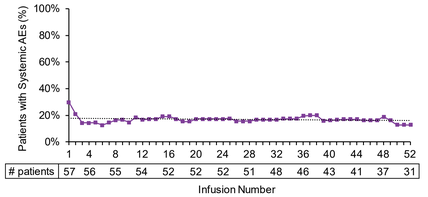


Table 4. Types of Systemic Adverse Events

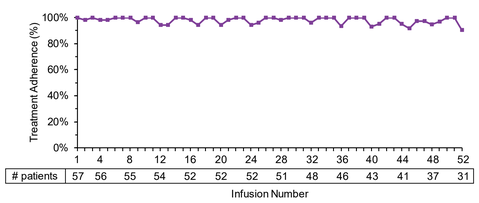
Systemic AEs	Number (%) of Subjects (N=57)	Number (rate*) of AEs (N=2480 infusions)
Fatigue	17 (30%)	356 (0.14)
Headache	12 (21%)	83 (0.03)
Myalgia/arthralgia	6 (11%)	19 (0.01)
Nausea/vomiting	5 (9%)	15 (0.01)
Fever/chills	2 (4%)	2 (0.001)

*Rate was calculated as the number of infusions with systemic AEs divided by 2480

- Overall, 44% of patients reported AEs; 32 patients (56%) had no systemic AEs.
- Patients with systemic AEs were highest at infusion 1 (30%) and lowest by infusion 50 (13%).
- 2 patients discontinued following switch due to exacerbation of autoimmune disease symptoms (n=1) and hypersensitivity with contact dermatitis (n=1).

Adherence and Persistence

Figure 8. Adherence to IGSC 16.5% Therapy



- Of 2480 infusions, 19 patients had a total of 48 missed or delayed infusions. The overall adherence rate of IGSC 16.5% was 98%.

Discussion and Conclusion

We present real-world outcomes in patients who switched IGSC formulations to IGSC 16.5%:

- A total of 57 PI patients switched to IGSC 16.5% after 2.2 years of alternative IGSC therapy use. Patients were primarily female with a diagnosis of common variable immunodeficiency.
- Standard dosing and administration were observed.[6]
- The rate of bacterial RTIs was 0.77 in our study versus a rate of 3.4 in the clinical trial, which measured all infections.[6] One serious bacterial RTI was reported, which resolved.
- The observed rates of local ISRs over the study period were consistent with previously published clinical and real-world studies.[3,7,8] Our data also showed a comparable trend of rates of local ISRs, with the highest during treatment initiation and decreasing over time.[3,7,8] It is important to note that 46% of patients experienced no local ISRs compared to 28% in the clinical trial,[3] potentially due to prior treatment experience with infusing IGSC products.[14]
- Similarly, the trend in systemic AEs paralleled results from previous studies.[3,7,8] Over half of study patients experienced no systemic reactions, reflecting high tolerability. Only 3.5% of patients discontinued treatment due to systemic AEs.
- Treatment adherence was exceptionally high at 98%, supported in previous reports of IGSC 16.5% use through immunology and infectious disease physician clinics.[7,8]
- IGSC 16.5% clinical trials were conducted in patients who were IVIG-experienced.[3,4] Our study greatly contributes to the literature by reporting outcomes in patients who switched from other subcutaneous IG formulations.

In conclusion, patients with PI were safely switched from other subcutaneous therapies to IGSC 16.5%. The rates of bacterial RTIs, local ISRs, and systemic AEs were low indicating treatment was effective and well-tolerated.

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