Prospective Observational Cohort Study of Insufficiently Controlled Antibody Deficiency Patients Transitioning to a High Titer IVIG

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INTRODUCTION

Patients with antibody deficiency have impaired immunoglobulin production, leading to recurrent infections and chronic lung disease. Standard intravenous (IV) or subcutaneous (SC) immunoglobulin (Ig) therapy reduces infection frequency and severity, yet many patients still experience breakthrough respiratory infections. This study hypothesized that an Ig-slra would reduce infection burden and healthcare utilization in patients inadequately controlled on standard Ig therapy.

METHODS

In a non-interventional, single-arm, multisite prospective observational cohort study each subject served as their own control across the 12 months surrounding transition to ASCENIV™ (immune globulin intravenous, human – slra; Ig-slra). Eligible participants were ≥ 12 years, with antibody deficiency insufficiently controlled on conventional Ig therapy for ≥ 6 months. Chart review and questionnaires captured infections (primary endpoint) and secondary endpoints: infections, medication use, lung function, healthcare utilization, quality of life (PADQOL16) and Ig levels. The interim analysis comprised 22 subjects (60 visits; 42 pre, 18 post), 5 subjects with complete pre-post values (4 with paired infection data). The primary endpoint, infection rate pre- versus post-transition, was analyzed cross-sectionally (Mann-Whitney), with an exploratory paired Wilcoxon signed-rank test in completers.

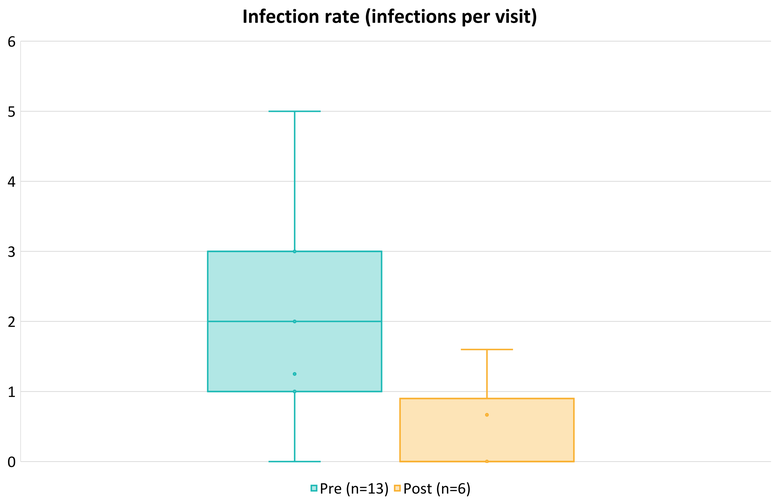


Figure 1. Infection rate, pre vs post transition. Mean infections since last visit per subject-period (Pre n = 13, Post n = 6; Mann-Whitney p = 0.009). Boxes show median and interquartile range; whiskers extend to 1.5× IQR; dots are individual values.

RESULTS

- Infection rate was significantly lower post-transition (mean infections since last visit per subject-period; n = 19 [13 Pre, 6 Post], r = 0.61, p = 0.009)
- Mean infection burden fell from 1.17 to 0.59 per visit (Figure 1)
- Annualized infections per subject-period: directionally consistent but not significant (n = 22 [15 Pre, 7 Post], r = 0.36, p = 0.102)
- Paired infections analysis: directionally consistent but not significant (n = 4 subjects, r = 0.46, p = 0.423)
- Respiratory infections: 80% pre-transition vs 30% post-transition of infections with a documented type (Figure 2)
- IgG troughs did not differ significantly (median 869 vs 916 mg/dL; p = 0.168)
- PADQOL16 scores were numerically lower post-transition (n = 3, mean 9) than pre-transition (n = 16, mean 17.9); the limited post-transition sample tempers interpretation (Figure 3)
- Secondary endpoints were underpowered and descriptive

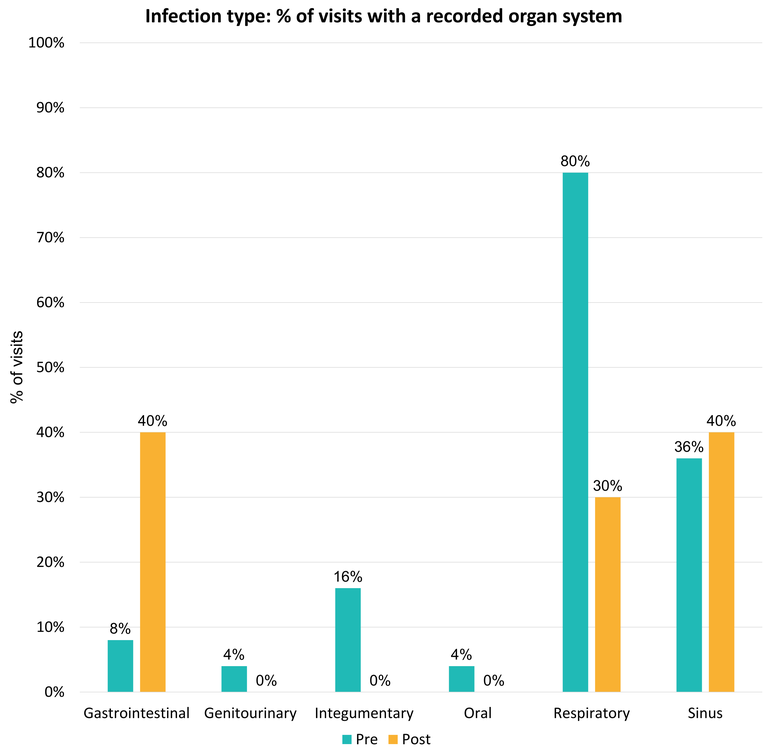


Figure 2. Infection type by organ system. Share of visits with a recorded infection type that listed each organ system (Pre 25 of 42, Post 10 of 18 visits; visits without a recorded infection type excluded). Visits may list more than one organ system. All four post-transition gastrointestinal visits are from a single subject. Percentages reflect small denominators and are descriptive only.



Figure 3. IgG, IgA and IgM troughs (mg/dL) and PADQOL16 scores, pre vs post transition. Boxes show median and interquartile range; whiskers extend to 1.5× IQR; dots are individual values. Lower PADQOL16 scores indicate better quality of life.

DISCUSSION

These interim findings demonstrate the potential benefit of Ig-slra in complex immunodeficiency patients insufficiently controlled on conventional therapy, with a reduction in infection burden. Early quality of life data trended favorably but remained too sparse to support conclusions. For clinicians, this emphasizes reassessing treatment efficacy in immunodeficiency and considering alternative Ig formulations when standard therapy is inadequate. Limitations include 5 paired completers and incomplete post-transition data to date.

CONCLUSION

Transition to Ig-slra was associated with a significantly lower infection rate than during the pre-transition period on conventional therapy, supporting a larger, fully accrued multisite analysis to confirm the signal.

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