Camille M Gelis, MS[1]
L2
[1]LSU Health Sciences Center, School of Medicine, New Orleans, LA

Contributors: Sydney N Ambrose, BS[1]; Aliyah B Pierre, MD[2]
Mentor: Christopher J Haas, MD[3]
[2]UTHSC, Department of Internal Medicine; [3]LSUHSC, Department of Dermatology

"Optimal Infliximab and Biosimilar Dosage and Infusion Frequency for Hidradenitis Suppurativa Control"

Hidradenitis suppurativa (HS) is a chronic inflammatory disease characterized by the recurrence of painful follicular nodules and abscesses in apocrine gland-bearing intertriginous areas that can progress to form sinus tracts, tunnels, and scarring.[1] HS is most prevalent among African American patients, patients with low income, and patients with diabetes mellitus, obesity, and/or other cardiovascular diseases. Infliximab (IFX), along with its biosimilar formulations, is an intravenously administered chimeric anti-tumor necrosis factor-α (TNF-α) monoclonal antibody with demonstrated efficacy in reducing HS severity.[2,3] There is no standardized dosing regimen of IFX for management of HS, but clinical guidelines suggest infusion of 5 mg/kg every 8 weeks with titration up to 10 mg/kg every 4 weeks depending on patient response.[4] Recent studies have indicated better outcomes may be achieved if patients initiate maintenance therapy at higher doses and frequencies.[5-7] IFX has the advantage of weight-based dosing over the two FDA-approved biologics for HS (adalimumab and secukinumab), allowing higher doses for patients with obesity. Early disease control is extremely important in HS for mitigation of scar formation, permanent tissue damage, and potential complications.[5,8] Thus, if determined to be more effective and comparably safe, initiating IFX at a higher maintenance dosage and/or frequency could improve patient outcomes. We aimed to determine the most effective IFX dosage regimen for HS. We performed a retrospective chart review of 27 patients who initiated or continued IFX/biosimilar for HS at University Medical Center in New Orleans between January 1st, 2020, and December 31st, 2023. We defined effective treatment as the regimen required to attain disease control, evidenced by disease stabilization and lack of progression. Of the 27 patients, 29.6% (8/27) discontinued IFX due to reported adverse events, eg, infusion reactions, documented 'failure' at low-dose without up-titration, and pregnancy. Maintenance dosing was initiated at 5mg/kg in 66.6% (18/27) of patients, most (55.5%, 10/18) at every 8 weeks; 72.2% (13/18) required dosage and/or frequency increase to attain disease control, and 27.8% (5/18) discontinued IFX. Of 5 patients (18.5%, 5/27) who initiated maintenance dosing at 7 or 7.5 mg/kg, 40% (2/5) remained stable, 40% required a dosage or frequency increase, and 20% (1/5) discontinued. One patient (3.7%, 1/27) initiated IFX at 10mg/kg every 4 weeks and has remained on this regimen. Independent of dosage, the most common infusion frequency required for disease control was every 4 weeks (52.6%, 10/19), followed by every 6 (21%, 4/19), 8 and 5 (both 10.5%, 2/19), and 9 weeks (5.2%, 1/19). The IFX regimen with the highest proportion of stable patients was 10 mg/kg every 4 weeks (26.3%, 5/19). The mean BMI of our cohort was 36.38, and most patients (63%, 17/27) had BMI ≥ 30. This, as well as the number of patients requiring dosage increase (68.4%, 13/19) and the disease control attained with higher doses/frequencies, demonstrates the beneficial role of frequent weight-based IFX dosing in patients with obesity and Hurley stage 3 HS. Minimal elevations in adverse events were seen upon dose escalation, indicating that the benefit derived from disease control—improved quality of life; decreased inflammatory pain, drainage, scarring, immobility, and disability; and prevention of potential future cardiac disease, secondary amyloidosis, and lesional squamous cell carcinoma—outweighs the risk if IFX is not contraindicated in these patients.

1. Ingram JR. Hidradenitis suppurativa: Pathogenesis, clinical features, and diagnosis. In: *UpToDate*. Connor RF, ed. Wolters Kluwer. Accessed June 4, 2024.
2. Grant A, Gonzalez T, Montgomery MO, Cardenas V, Kerdel FA. Infliximab therapy for patients with moderate to severe hidradenitis suppurativa: A randomized, double-blind, placebo-controlled crossover trial. *J Am Acad Dermatol.* 2010;62(2):205-217. doi:10.1016/j.jaad.2009.06.050
3. Shih T, Lee K, Grogan T, De DR, Shi VY, Hsiao JL. Infliximab in hidradenitis suppurativa: A systematic review and meta-analysis. *Dermatologic Therapy.* 2022;35(9):e15691. doi:10.1111/dth.15691
4. Alikhan A, Sayed C, Alavi A, et al. North American clinical management guidelines for hidradenitis suppurativa: A publication from the United States and Canadian Hidradenitis Suppurativa Foundations: Part II: Topical, intralesional, and systemic medical management. *J Am Acad Dermatol.* 2019;81(1):91-101. doi:10.1016/j.jaad.2019.02.068
5. Ghias MH, Johnston AD, Kutner AJ, Micheletti RG, Hosgood HD, Cohen SR. High-dose, high-frequency infliximab: A novel treatment paradigm for hidradenitis suppurativa. *J Am Acad Dermatol.* 2020;82(5):1094-1101. doi:10.1016/j.jaad.2019.09.071
6. Oskardmay AN, Miles JA, Sayed CJ. Determining the optimal dose of infliximab for treatment of hidradenitis suppurativa. *J Am Acad Dermatol.* 2019;81(3):702-708. doi:10.1016/j.jaad.2019.05.022
7. Moriarty B, Jiyad Z, Creamer D. Four-weekly infliximab in the treatment of severe hidradenitis suppurativa. *Br J Dermatol.* 2014;170(4):986-987. doi:10.1111/bjd.12713
8. Paek SY, Hamzavi I, Danby FW, Qureshi AA. Disease modification for hidradenitis suppurativa: A new paradigm. *J Am Acad Dermatol.* 2017;76(4):772-773. doi:10.1016/j.jaad.2016.12.015