

Certolizumab to treat hidradenitis suppurativa

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Abstract

Hidradenitis suppurativa (HS) is a chronic inflammatory skin condition that affects apocrine gland-bearing skin. The management of HS with biologics has expanded significantly over the past few years. Certolizumab pegol is a pegylated (polyethylene glycol) antigen-binding fragment of a recombinant humanized anti-TNF- α monoclonal antibody, which is approved for psoriasis, rheumatoid arthritis, ankylosing spondylitis, and Crohn's disease. In recent years many reports have been merging on the use of certolizumab in treating hidradenitis suppurativa. The electronic database MEDLINE was searched through PubMed in February 2022 using the following search terms: Certolizumab "[All Fields] OR" certolizumab pegol "[All Fields] AND "Hidradenitis suppurativa" [All Fields]. The search revealed that certolizumab was used in 6 case reports to treat HS with a total of 7 patients. We can con-

clude that there are few cases in the literature discussing the use of certolizumab in HS, all of which, show a good and promising response with no reported side effects.

Introduction

Hidradenitis suppurativa (HS) is a chronic inflammatory disorder of the terminal hair follicles and apocrine glands. It is characterized by the presence of inflammatory nodules that can progress to abscesses and fistulas in the apocrine gland-bearing skin, classically in armpits, groin, and other intertriginous areas.¹ The prevalence is estimated to be 0.40%,² with peak age between 30 and 40 years, and an incidence of 3:1 in females.^{1,2} Patients with HS suffer a significant reduction in quality of life with an increased risk of depression, anxiety, sexual dysfunction, and low self-esteem.^{1,3} The management of HS has expanded significantly over the past few years, and this includes lifestyle changes, topical therapies, systemic therapies, and surgical therapies.⁴ Biologics are rapidly emerging as a therapeutic modality used in multiple inflammatory conditions including HS. Adalimumab is currently the only US Food and Drug Administration (FDA)-approved treatment for moderate-to-severe HS.⁵ The pathogenesis of HS includes the expression of many pro-inflammatory cytokines including TNF- α , IL-12, IL-24, IL-23, IL-17, IL-1 and blockade of these cytokines is a mainstay of treatment in HS.^{1,5} Certolizumab is a humanized antigen-binding fragment of a monoclonal antibody which binds to TNF- α , and it is approved only for moderate to severe chronic plaque psoriasis and psoriatic arthritis.⁶ Very little is known about certolizumab pegol in HS; however, in recent years many reports have been merging on the use of Certolizumab in treating HS, especially in the pregnant patients.

Materials and Methods

The electronic database MEDLINE was searched through PubMed in February 2022 using the following search terms: Certolizumab "[All Fields] OR "certolizumab pegol" [All Fields] AND "Hidradenitis suppurativa" [All Fields]. The search revealed that certolizumab was used in 6 case reports to treat HS with a total of 7 patients.⁷⁻¹²

Results

Our search revealed that certolizumab was used in 6 case reports to treat HS with a total of 7 patients. Herein, we summarize the findings in the literature in order from most recent to oldest.

The first study was done by Repetto *et al.* in 2021,⁷ and reported two cases of HS with bilateral axillary and inguinal involvement, and concomitant psoriasis. They had been treated with adalimumab 40 mg weekly for approximately 2 years with only partial

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improvement. Both women reported planning to get pregnant during treatment. They were shifted to certolizumab pegol (CZP) 200 mg administered subcutaneously every 2 weeks for 3 months and they showed improvement in the international hidradenitis suppurativa severity score system (IHS4) from 8 and 11 to 1 and 3, respectively with no reported side effects.⁷

In 2021, Esme *et al.* reported the case of a 43-year-old male with bilateral axillary, intergluteal sulcus, and gluteal HS with Hurley stage 3.⁸ Different treatment options including numerous topical and systemic antibiotics, retinoids, adalimumab, secukinumab, methotrexate with poor improvement were used. The patient was started on CZP 400 mg every other week. The hidradenitis suppurativa clinical response (HiSCR) was achieved in the 12th week, 10-point visual analog scale (VAS) and dermatological life quality index (DLQI) scores regressed from 171 to 105, 9/10 to 3/10, and 27 to 19 after 3 months with certolizumab pegol treatment.⁸

Tampouratzis *et al.*, in 2020, reported the case of a 27-year-old woman with comorbid psoriasis and HS on the axillae with Hurley stage 2 and a 10 IHS4 score. Treatments with topical corticosteroids and methotrexate for one year were not effective and treatment with apremilast for 8 months did not offer clinical improvement in both diseases. She was started on CZP with an initial dose of 400mg, followed by 400 mg every 2 weeks. Treatment with CZP significantly improved psoriasis and psoriatic arthritis in week 8 and HS in week 12. She continued treatment for 9 months. The IHS4 score done after, and it significantly dropped to 1.⁹

Holm *et al.*, in 2020, reported the case of a 59-year-old man with Hurley stage 3. He showed insufficient response to topical azelaic acid and clindamycin, systemic lymecycline, rifampicin and clindamycin, acitretin, dapsone, adalimumab, ustekinumab, etanercept, ixekizumab, secukinumab, infliximab. The patient's hidradenitis suppurativa score (HSS) was 133, DLQI score was 25 and overall disease bother and overall disease pain score (VAS) were both 10 out of 10. Only adalimumab showed some effect but was discontinued due to urosepsis. He started certolizumab pegol 400 mg every other week then next month increased to 200 mg every week for 11 months. He reported an HSS score of 75, DLQI of 11, VAS pain of 10, and VAS disease bother score of 5.¹⁰

Wohlmuth-Wieser *et al.*, in 2020,¹¹ reported a case of 34 Y old female diagnosed with HS involving the groin and buttocks with Hurley Stage III and IHS4 score of 44. She was on clindamycin, rifampin, and adalimumab. The treatment was well-tolerated and led to a significant improvement in her symptoms. However, she got pregnant, and the patient decided to stop adalimumab at 6 weeks of gestation. At 19 weeks of gestation, she experienced a flare of her disease. The patient was started on CZP 400 mg subcutaneous injections (SC) every 2 weeks. At the 8-week follow-up, she achieved a HiSCR of 50. However, at the following visit the patient presented with worsening pain and one new abscess. The dose was therefore increased to 400 mg SC weekly at 32 weeks of gestation. The medication was well-tolerated without any side effects. At the last follow-up before delivery, symptoms had significantly improved. Her IHS4 score drop to 9.¹¹

Abad *et al.*, in 2019,¹² reported the case of a 53-year-old male with HS in the axillary and groin area. He was treated with adalimumab and infliximab with no improvement. He was started on certolizumab 400 mg as 2 SC of 200 mg each on weeks 0, 2, and 4. Later, the maintenance dose is 400 mg every 4 weeks. After 3 months all the lesions resolved completely. He continued for more than 7 months: a total of 10 months duration with no subjective or laboratory adverse reactions.¹² Summary of the clinical data seen in Table 1.⁷⁻¹²

Table 1. Summary of the clinical data.

Study	Number of patients	Gender	Age	Treated before and improvement the treatment	Score before	Treatment with CZP and dosage	Score after the treatment	Any reported side effect
Repetto <i>et al.</i> ⁷	2	Female	NA	Adalimumab Partial improvement	Patient 1: (IHS4 score 8) Patient 2: (IHS4 score 11)	200 mg every 2 weeks for 3 months. 400 mg every 2 weeks for 3 months.	Patient 1: (IHS4 score 3) Patient 2: (IHS4 score 2) HiSCR was achieved for both	No reported side effects
Esme <i>et al.</i> ⁸	1	Male	43	Adalimumab, secukinuma, and methotrexate Poor improvement	NA	400 mg every 2 weeks for 3 months.	HiSCR was achieved	No reported side effects
Tampouratzis <i>et al.</i> ⁹	1	Female	27	Methotrexate and apremilast No improvement	IHS4 score 10	400 mg every 2 weeks for 9 months.	IHS4 score 1	No reported side effects
Holm <i>et al.</i> ¹⁰	1	Male	59	Systemic lymecycline, rifampicin, clindamycin, acitretin, dapsone, adalimumab, ustekinumab, etanercept, ixekizumab, secukinumab, and infliximab Partial improvement on only adalimumab	HSS score 133	400 mg every other week then next month increased to 200 mg every week for 11 months.	HSS score 75	No reported side effects
Wohlmuth-Wieser <i>et al.</i> ¹¹	1	Female	34	Clindamycin, rifampin, and adalimumab Good improvement	IHS4 score: 44	400 mg every 2 weeks and then increased to 400 mg weekly	IHS4 score 9	No reported side effects
Abad <i>et al.</i> ¹²	1	Male	53	Adalimumab and infliximab No improvement	NA	400 mg as 2 SC of 200 mg each on weeks 0, 2, and 4. Later, the maintenance dose of 400 mg every 4 weeks. For 10 months.	NA	No reported side effects

CZP, certolizumab pegol; SC, subcutaneous injection; NA, not applicable; IHS4, international hidradenitis suppurativa severity score system; HiSCR, hidradenitis suppurativa clinical response; HSS, hidradenitis suppurativa score.

Conclusions

In conclusion, to this date certolizumab pegol is FDA-approved for the treatment of psoriasis, rheumatoid arthritis, ankylosing spondylitis and Crohn's disease, but not for HS. There are few cases in the literature discussing the use of certolizumab in HS, all of which, show a good and promising response with no reported side effects. Certolizumab was used as an alternative to the approved medications in cases of failure to therapy or contraindication (*e.g.*, pregnancy). However, the efficacy and safety of certolizumab in treating HS patients are still not well-established, and larger trials are needed.

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