**Material and Methods**

**Study Design**

This was a retrospective observational study of prospectively collected data conducted at the Outpatients Department of Immunology of Infectious Diseases of ATTIKON University hospital from September 2018 to December 2019. Patients with moderate-to-severe HS were eligible to participate. The study had two phases: one first phase of patient enrolment with duration of 3 months and a second phase of nine months of follow-up. The study was approved by the Ethics Committee of the ATTIKON University Hospital.

Inclusion criteria were (1) written informed consent; (2) age 18 years or older; (3) diagnosis of HS; (4) Hurley stage II or III HS; (5) need of therapy with adalimumab (ADA); (6) lack of intake of any antibiotic treatment the last 2 months; (7) absence of nasal carriage of *Staphylococcus aureus* at baseline visit. The diagnosis of HS was based on the diagnostic criteria described in the European guidelines [1]. ADA was prescribed to patients with moderate-to-severe HS with total count of inflammatory lesions (sum of inflammatory nodules and abscesses) ≥3 without any response to one 3-month oral course of antibiotics.

**Study Procedures**

At the baseline visit, epidemiological and clinical data of the patients were recorded, including age, gender, weight, body mass index (BMI), smoking status, Hurley stage, family history, age of HS onset, IHS4 score (International Hidradenitis Suppurativa Severity Score System), history of HS surgical therapy in the past, the time from HS onset to start of ADA and comorbidities. Patients who were screening negative for nasal carriage of *S. aureus* were eligible to participate. Those who started treatment with ADA were followed up from week 0 to week 48. Patients agreed not to use daily topical antiseptics throughout the study. Patients were treated only with ADA; no other concomitant medication for HS was given. Positive response to ADA treatment was assessed by the HS Clinical Response score (HiSCR) at weeks 12 and 48. HiSCR is defined as any at least 50% reduction of the inflammatory lesion count from baseline without any increase of the absolute count of abscesses and or draining fistulas [2].

Patients were under follow-up for HS flares for 48 weeks. The flare-ups were defined as any least 25% increase of the total count inflammatory lesion count from the baseline corresponding to minimum increase of 2 inflammatory lesions [2]. Upon presentation of a flare, patients were persistently asked for stress factors and/or menses. Samplings for carriage of *S. aureus* were collected from the nares of patients presenting a flare-up during the first 12-week period under ADA. Nasal samplings were also collected after completion of 12 weeks of ADA treatment from all patients who did not present any flare-up. Swabs were taken once.

**Laboratory Techniques**

Nasal samples were obtained with a sterile fiber-tip swab from both anterior nares of patients. Swabs were immediately streaked onto Chapman agar plates (Oxoid, Deutschland GmbH, Germany) for isolation and incubated for 48 hours at 35°C. *S. aureus* was identified by the configuration of characteristic cocci and confirmed by positive catalase and coagulase tests (Thermo Scientific™ Staphylase™ Test). The sensitivity of the nasal swab test is defined by its ability to detect *S. aureus* as pathogen of skin infections and it is ranging between 65% and 95% [3, 4].

**Statistical Analysis**

Descriptive statistics were expressed as mean ± SE or percentages. The % changes of IHS4 score from baseline were calculated. Comparisons between qualitative variables were done by the Fisher exact test and for quantitative data by Student’s *t* test. Mann-Whitney test was used for the univariate analysis of continuous data. Multivariate logistic regression analysis was performed to define epidemiological and clinical variables associated with non-response to ADA treatment. Any *p* value below 0.05 was considered statistically significant. All statistical tests were two-sided.

**References**

1. Zouboulis CC, Bechara FG, Dickinson-Blok JL, Gulliver W, Horváth B, Hughes R, et al. Hidradenitis suppurativa/acne inversa: a practical framework for treatment optimization - systematic review and recommendations from the HS ALLIANCE working group. J Eur Acad Dermatol Venereol. 2019 Jan;33(1):19–31.
2. Kimball AB, Sobell JM, Zouboulis CC, Gu Y, Williams DA, Sundaram M, et al. HiSCR (Hidradenitis Suppurativa Clinical Response): a novel clinical endpoint to evaluate therapeutic outcomes in patients with hidradenitis suppurativa from the placebo-controlled portion of a phase 2 adalimumab study. J Eur Acad Dermatol Venereol. 2016 Jun;30(6):989-94.
3. [Petry](https://pubmed.ncbi.nlm.nih.gov/?sort=date&size=20&term=Petry+NJ&cauthor_id=32782054) NJ, [Montgomery](https://pubmed.ncbi.nlm.nih.gov/?sort=date&size=20&term=Montgomery+AD&cauthor_id=32782054) AD, [Hammer](https://pubmed.ncbi.nlm.nih.gov/?sort=date&size=20&term=Hammer+KDP&cauthor_id=32782054) KDP, [Lo](https://pubmed.ncbi.nlm.nih.gov/?sort=date&size=20&term=Lo+TS&cauthor_id=32782054) TS. Methicillin-resistant *Staphylococcus aureus* (MRSA) screening upon inpatient hospital admission: Is there concordance between nasal swab results and samples taken from skin and soft tissue? Infect Control Hosp Epidemiol 2020 Aug 12;1-4. doi: 10.1017/ice.2020.345
4. [Hsu](https://pubmed.ncbi.nlm.nih.gov/?sort=date&size=20&term=Hsu+MS&cauthor_id=31003927) MS, [Liao](https://pubmed.ncbi.nlm.nih.gov/?sort=date&size=20&term=Liao+CH&cauthor_id=31003927) CH, [Fang](https://pubmed.ncbi.nlm.nih.gov/?sort=date&size=20&term=Fang+CT&cauthor_id=31003927) CT. Role of nasal swab culture in guiding antimicrobial therapy for acute cellulitis in the era of community-acquired methicillin-resistant *Staphylococcus aureus*: A prospective study of 89 patients. J Microbiol Immunol Infect 2019 Jun;52(3):494-497.