

My patient has acne and hidradenitis suppurativa: can I use isotretinoin?

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Introduction. Hidradenitis suppurativa (HS) and acne vulgaris (acne) are often associated.^(1,2) Isotretinoin is typically ineffective in treating HS⁽³⁾ and may even aggravate it⁽⁴⁻⁶⁾ but is often indispensable in treating acne. We assess whether isotretinoin may be used safely in adults with both HS and acne and when it might be contraindicated.

Materials and methods. Belgian HS patients from the European Registry for Hidradenitis Suppurativa Registry (ERHS)^(7,8) reporting a history of severe acne of the face and/or the back, and that have ever used isotretinoin for their acne, were all selected. Patients whose acne worsened on isotretinoin were compared to patients whose acne did not worsen (improvement or no change).

Results. Among the 82 selected patients, 10 (12.2%) report that their acne was aggravated whilst taking isotretinoin, while 72 (87.8%) report that their acne was not aggravated on isotretinoin. Of the 10 HS patients whose acne worsened with isotretinoin, 9 (90%) were men ($p=0.04$) and 8 (80%) were HS "conglobata phenotype" ($p<0.001$). In contrast, 47 (65.3%) of the 72 patients whose acne did not worsen on isotretinoin belonged to the HS "regular phenotype" ($p=0.01$) (**Table 1**). On multivariate analysis, the item most strongly associated with poor response to isotretinoin was the HS "conglobata phenotype", followed by BMI (worse response to isotretinoin if BMI $>25\text{kg/m}^2$) (**Figure A**).

Discussion. Isotretinoin is a potent inhibitor of sebaceous gland activity and is therefore highly effective in acne vulgaris, in which excessive activation of sebocytes plays a central role.⁽⁹⁾ In contrast, in HS, isotretinoin could aggravate an already existing lack of sebaceous glands,⁽¹⁰⁾ and therefore result in less lubrication of the skin surface, intensifying local mechanical friction with epidermal micro-injury and hyperplasia.⁽¹¹⁾

The difference in response to isotretinoin between the HS phenotypes could be readily explained by considering that the acne of the HS "regular phenotype" is acne vulgaris and that the acne of the HS "Conglobata phenotype" is actually HS of the face.

Conclusion. Like HS, acne can flare under isotretinoin. Subject to confirmation by prospective studies, isotretinoin appears to be an inappropriate choice for treating acne in a patient with HS "conglobata phenotype", especially if the patient is male or has a BMI greater than 25. Patients with an HS "regular phenotype" appear to be at a reduced risk of isotretinoin treatment worsening their acne.

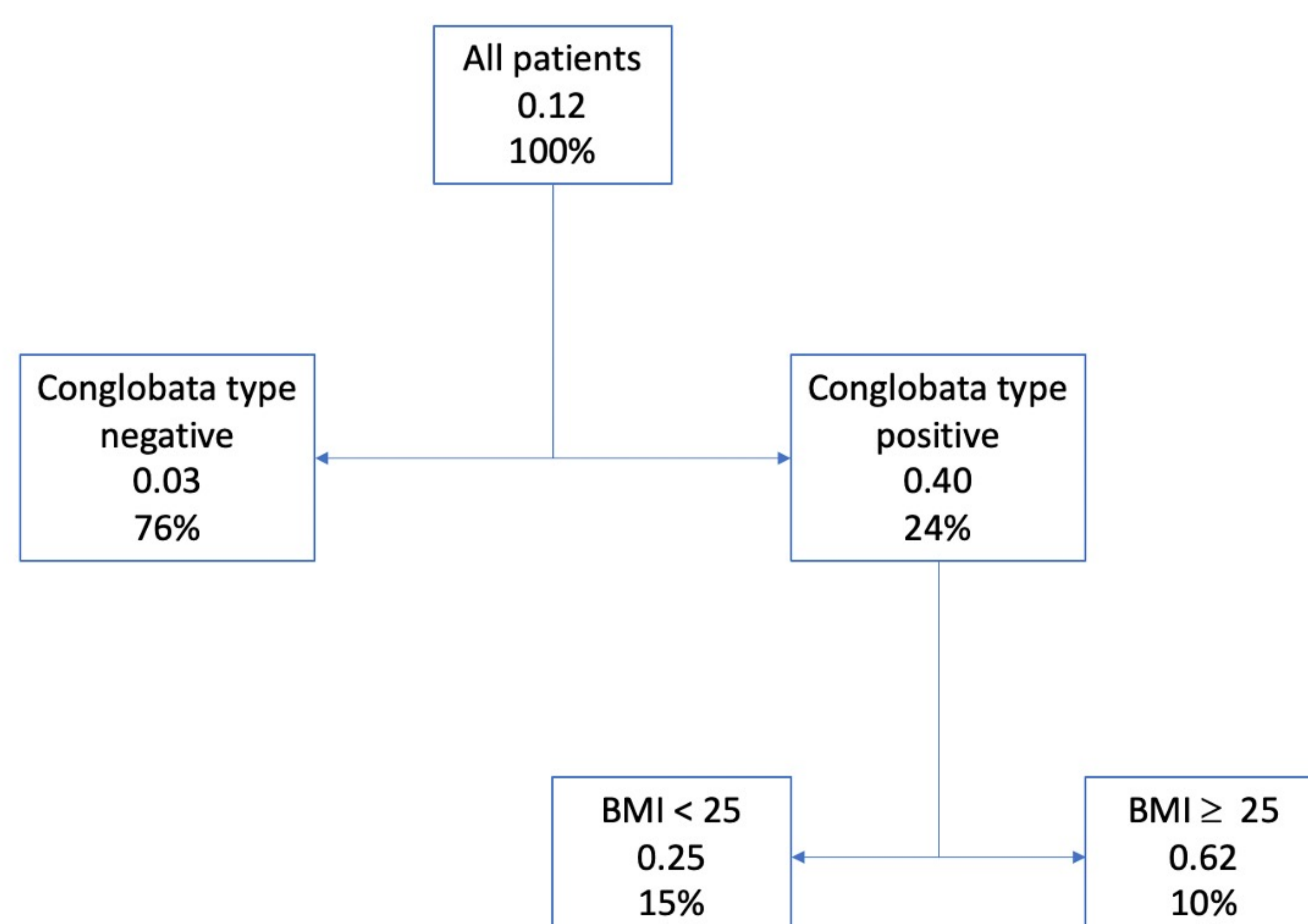
Table 1. Efficacy of isotretinoin, among HS patients: univariate analysis

| | Acne did not worsen under isotretinoin (N=72) | Acne worsened under isotretinoin (N=10) | p |
|---|---|---|------------------|
| Age at acne onset [years; mean \pm SD] | 14.2 \pm 3.2 | 13.8 \pm 1.8 | 0.71 |
| Age at acne end [years; mean \pm SD] | 22.9 \pm 10.7 | 30.1 \pm 10.2 | 0.09 |
| Age at HS onset [years; mean \pm SD] | 18.4 \pm 6.4 | 19.5 \pm 6.7 | 0.64 |
| BMI [kg/m ² ; mean \pm SD] | 27.1 \pm 6.1 | 27.9 \pm 7.5 | 0.71 |
| IHS4 [mean \pm SD] | 15.4 \pm 24.8 | 24.3 \pm 31.1 | 0.34 |
| Hurley stage, n (%) | | | 0.27 |
| I | 11 (22.9) | 4 (50.0) | |
| II | 33 (68.8) | 4 (50.0) | |
| III | 4 (8.3) | 0 (0.0) | |
| Gender, n (%) | | | 0.04 |
| Female | 34 (47.2) | 1 (10.0) | |
| Male | 38 (52.8) | 9 (90.0) | |
| History of pilonidal sinus, n (%) | 27 (38.0) | 3 (30.0) | 0.74 |
| History of PCOS, n (%) | 3 (9.1) | 0 (0.0) | 0.99 |
| Family history of HS, n (%) | 28 (41.2) | 3 (33.3) | 0.73 |
| HS started during acne period, n (%) | 50 (69.4) | 9 (90.0) | 0.27 |
| HS conglobata phenotype, n (%) | 12 (16.7) | 8 (80.0) | <0.001 |
| HS scarring folliculitis phenotype, n (%) | 4 (5.6) | 0 (0.0) | 0.99 |
| HS frictional furuncles phenotype, n (%) | 9 (12.5) | 0 (0.0) | 0.59 |
| HS regular phenotype, n (%) | 47 (65.3) | 2 (20.0) | 0.01 |

Statistical significant findings at 5% level are highlighted in bold.

SD, standard deviation; HS, hidradenitis suppurativa; BMI, body mass index; IHS4, international HS severity score system; PCOS, polycystic ovary syndrome.

Figure A. Efficacy of isotretinoin, among HS patients: decision tree analysis



1. Phan K et al. *Dermatology*. 2019;3(1):12.

2. Wertenteil S et al. *J Am Acad Dermatol*. 2019;80(5):1308-13.

3. Soria A et al. *Dermatology*. 2009;218(2):134-5.

4. Gallagher CG et al. *Clin Exp Dermatol*. 2019;44(7):777-80.

5. Poli F et al. *Ann Dermatol Venereol*. 2019;146(1):4-8.

6. Jørgensen A-HR et al. *Clin Exp Dermatol*. 2019;44(4):e155-6.

7. Daxhelet M et al. *J Eur Acad Dermatol Venereol*. 2016;30(8):1424-6.

8. Daxhelet M et al. *J Eur Acad Dermatol Venereol*. 2021;35(4):e274-6.

9. Bagatin E et al. *Expert Review of Clinical Pharmacology*.

2020;13(8):885-97.

10. Kamp S et al. *Br J Dermatol*. 2011;164(5):1017-22.

11. Sabat R et al. *Nat Rev Dis Primers*. 12 Mar 2020;6(1):18