Genetic differences among ethnicities could explain the male predominance in Asians. Recent studies have identified mutations in the genes encoding for γ-Secretase protein and its subunits in patients with HS.[7,8] A study of 53 Chinese patients with familial HS and confirmed nicastrin mutations (a protein subunit of γ-Secretase) found that 62.2% were males.[8] γ-Secretase mutations have also been identified in Caucasians, although only in a minority of patients.[7] Further studies to compare the frequency and prevalence of γ-Secretase mutations in various ethnicities would be useful in understanding ethnic and gender-specific differences.

This observation of a male predominance in recent Asian studies is interesting and requires further study, including a meta-analysis of epidemiological studies with a multivariable analysis to explore the potential factors that may influence the gender ratio. Upcoming genetic and metabolomics-related research will further add to the growing knowledge of the genetics and pathophysiology of HS.

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The effect of anti-IL-17 treatment on the reaction to a nickel patch test in patients with allergic contact dermatitis

In studies with mice and in nickel-allergic humans, IL-17+ cells have been found in positive patch test reactions indicating that IL-17 may play a crucial role in allergic contact dermatitis (ACD).[1–4] We conducted a trial (ClinicalTrials.gov, ID: NCT02778711) to examine the effect of anti-IL-17 (secukinumab) in patients with contact allergy.

Patients with a previous ++ or +++ patch test reaction to nickel sulfate were nickel patch tested before (day (D)0) and 1 week after (D14) administration of 300 mg secukinumab (D7). Nickel patch test and skinfold thickness was evaluated on D2/D3/D7 before treatment and on D16/D17/D21 after treatment (unblinded). The clinical reaction was graded using the International Contact Dermatitis Research (ICDRG) scoring system.[5] Skinfold thickness was measured with a micrometer (Mitutoyo, Tokyo, Japan) as the mean of three measurements (unblinded). Biopsies were taken on D3/D17, stained with hematoxylin and eosin (HE), and analyses for IL-17 were performed using polyclonal antibodies to IL-17 (ab79056; Abcam) (blinded readings).

Eight women and two men completed the study (100%), mean age 48.9 years (range 19–78). All reacted in the patch test; seven had a ++ reaction and three had a +++ reaction. On D16/D17, 4/10 and 5/10 responded with a slight reduced reaction to nickel compared to before treatment (Table 1). When comparing the overall Wilcoxon signed-rank test results for D2/D16, there was no significant change in response, but when we compared D3/D17, there was a significant reduction in clinical response ($P = 0.034$). For skinfold thickness, mean values (±SD) in millimeters were 0.23 ± 0.43 for D2/1.21 ± 1.47 for D16, and 0.96 ± 1.46 for D3/1.94 ± 1.71 for D17. Thus, an almost significant increase in skinfold thickness compared with D2 was found at D16 ($P = 0.050$), but when comparing D17/D3, no significant increase was seen ($P = 0.103$) (Table 1). There were no detectable differences in inflammation grade in HE-stained biopsies obtained before and after treatment. Quantification of IL-17-positive cells in immunohistochemically stained sections from biopsies was not possible because of weak nuclear staining (Fig. 1).

Administration of secukinumab before patch testing with nickel led to a slight reduced clinical reaction at D17 but not at D16. This finding was not supported by the results of skinfold thickness or histological scoring.

Table 1 Results of patch test scoring and grade of inflammation in skin biopsies before and after administration of secukinumab

	Reaction in nickel patch test before secukinumab treatment			Reaction in nickel patch test after secukinumab treatment			Grade of inflammation before secukinumab treatment	Grade of inflammation after secukinumab treatment
Patient no.	Day 2	Day 3	Day 7	Day 16	Day 17	Day 21	Day 3	Day 17
1	+	++	+? (Reference 5)	++	++	–	2	3
2	+	++	+	+?	+	+	3	3
3	+++	+++	+++	+++	+++	+++	5	4
4	++	+++	+	++	++	+	3	3
5	++	++	+?	+?	++	+?	4	3
6	+	++	+?	+	+?	missing	1	1
7	++	++	+	++	++	+	3	4
8	+++	++	+	++	++	+?	3	3
9	+	++	+	+	+	–	1	2
10	+	++	–	+?	+	–	1	1

For results of patch test scoring on the reaction to nickel, the clinical rating is presented according to the International Contact Dermatitis Research (ICDRG) scoring system. For day 17 versus day 3, $P = 0.03$. All subjects reacted to nickel, and none reacted to the vehicle.
For skin biopsies, the inflammatory score grades were converted to numerical scores, range 1–5 (mild = 1, mild-to-moderate = 2, moderate = 3, moderate-to-severe = 4, and severe = 5). For day 17 versus day 3, no significance was found ($P = 0.67$).
?± Refers to doubtful reaction; faint erythema only.

Bechara *et al.*[6] found that exposure to nickel in human monocyte-derived dendritic cells leads to an upregulation of IL-23, and this cytokine has an important role in the development of Th17 cells and the production of IL-17A, which is in line with the results of a previous study.[7] However, in another trial we have found minor or no effect of secukinumab in patients with ACD.[8] Recently, more downstream molecules than IL-17 have been proposed to be a possible target in ACD .[9]

Compared to baseline (D3), five of 10 participants responded at D17 with a slight reduced reaction to nickel after being treated with secukinumab, which might suggest that secukinumab would have an effect in experimentally-induced ACD. However, at D16 only four of the 10 participants had a reduced reaction to nickel compared to baseline (D2). Treatment with secukinumab did not result in any decrease in skinfold thickness or in the degree of histological inflammation.

Limitations of this study include: (1) only 10 patients were enrolled in the study, (2) readings occurred partly unblinded, and (3) patients were treated with a single dose of secukinumab.

In summary, our data indicate that secukinumab may result in a slight decrease of the clinical scoring of nickel patch test reaction but not in skinfold thickness or inflammation, indicating that anti-IL-17 is not a new potential treatment of ACD.

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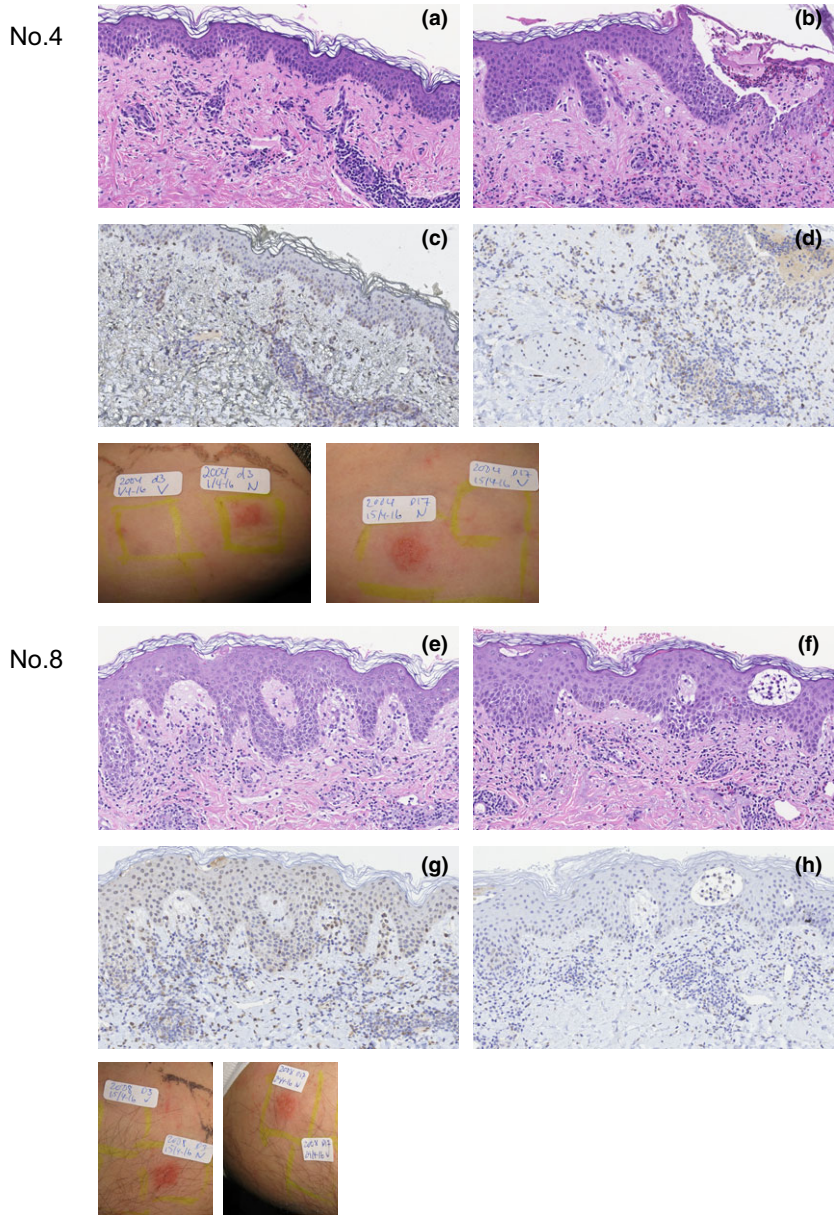

Figure 1 Photographs and histology micrographs from two participants. Skin biopsies were taken from nickel patch test lesions before and after secukinumab treatment: on day 3 (left) and on day 17 (right).
Participant no. 4: hematoxylin and eosin staining, ×20; (a) day 3, moderate inflammation with eosinophils and mild spongiosis; (b) day 17, moderate inflammation with spongiosis and eosinophils; immunohistochemical staining of IL-17, ×20; (c) day 3; (d) day 17.
Participant no. 8: hematoxylin and eosin staining, ×20; (e) day 3, moderate inflammation with eosinophils; (f) day 17, moderate inflammation with spongiosis and eosinophils; immunohistochemical staining of IL-17, ×20, (g) day 3; (h) day 17

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A cross-sectional study of YouTube videos about psoriasis biologics

Websites such as YouTube are increasingly being used as resources for health information. Given that YouTube functions as both a social networking site for patients with chronic disease states[1] as well as an unregulated resource for health information,[1–4] we conducted a cross-sectional analysis of the most relevant YouTube videos about psoriasis biologics in order to characterize the quality of information available via this platform.

A search was conducted on March 24, 2018, using the search term "psoriasis biologics," which yielded approximately 1,430 videos containing information about the mechanisms, side effects, and indications for various targeted therapies for psoriasis. The results were sorted by the default YouTube algorithm for "relevance," which is based on an iterative equation of view count, watch time, upload date, feedback ("likes" and "dislikes"), and frequency of keyword mention in the video script.[3] The top 100 results (first five pages) were screened for inclusion, and 79 were included in the final analysis; 19 did not discuss biologic therapies, two were duplicates. The content of the included videos was analyzed, and videos were classified into one of four distinct categories: (i) presentations by healthcare professionals, (ii) patient testimonials, (iii) health science website productions, or (iv) news broadcasts. Other information including number of watches, video duration, channel, and upload date were also extracted.

Thirty-seven of the videos (47%) were presentations by healthcare professionals that presented helpful information about the mechanisms of biologics and their indications. Videos generated by healthcare professionals were further subcategorized as layman-directed (38%) or professional-directed (62%); professional-directed videos were recordings of conference presentations, whereas layman-directed videos were educational materials targeted toward a patient audience. Videos generated by healthcare professionals had the fewest views of any category (median 601, interquartile range 1,487).

Individual patient testimonials comprised 31 of the 79 videos (39%) and had the most engagement of any video type (median views 4,600, interquartile range 14,005). Most testimonials were in favor of biologics (80%) but also acknowledged cost, side effects, and pain at injection site. Twelve percent of testimonials were antibiologic, often citing potential side effects. The remaining testimonials (8%) were documentation of individuals' first injection experiences. Five patient testimonials were excluded from the analysis because although they included "biologics" in the title, the videos directed viewers to a link promoting homeopathic remedies. The remainder of the videos were television news broadcasts (7%) and health science website productions (7%).

These results contribute to a growing body of evidence that everyday YouTube users are more likely to come across anecdotal health-related information generated by non-healthcare professionals than evidence-based educational materials. Our observation that physicians are actively using YouTube as a platform for patient education is consistent with other similar analyses on different diseases;[1] for example, Sajadi and Goldman found that 64% of YouTube videos for incontinence were from healthcare providers or organizations.[5] However, less than half of healthcare professionals' videos about psoriasis biologics are targeted for a patient audience, and these videos had substantially fewer views compared to patient testimonials. Similarly, Pant *et al.* found that only 23% of videos on myocardial infarctions provided patient-directed information.[6] Given the propensity for anecdotal information to be heavily weighted by health consumers,[7] medical professionals should consider incorporating more patient-based stories in their materials to increase viewer engagement. They might also consider encouraging viewers to give feedback by "liking" the video and subscribing to their channel, in order to use the YouTube relevance algorithm to their advantage.

We hope that this brief, cross-sectional analysis provides the basis for future studies on this important topic, especially as it relates to psoriasis patients' treatment-related decisions.

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