

brodalumab was effective regardless of the prior use of a biologic. This observation is in accordance with a study by Papp et al.<sup>6</sup> The safety profile associated with switching to brodalumab appears favourable and similar to those previously reported.<sup>2,6</sup>

In conclusion, the scientific value of this paper is in emphasizing the efficacy and safety of brodalumab in patients who have an inadequate response to ustekinumab, which was previously considered to be one of the most efficacious treatments.<sup>7</sup> This anti-IL-17R is effective for patients who are biologic-naïve as much as for patients with some challenging baseline characteristics. This information will be of great interest for the daily practice of dermatologists.

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## Conflicts of interest

None to declare.

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## Influence on contact allergy of immune-mediated skin diseases such as psoriasis

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Linked Article: Claßen et al. *Br J Dermatol* 2019; **180**:315–320.

The paper by Claßen et al., in this issue, provides novel data on the controversial issue of the frequency and profiles of specific contact sensitization in patients with psoriasis.<sup>1</sup> Previous studies revealed that nickel induces contact dermatitis mainly via a T helper (Th)1/Th17 pathway whereas fragrances or rubber polarize the immune response towards Th2.<sup>2</sup> The pathways in allergic contact dermatitis (ACD) have previously been considered to be constant across all allergens whereas these new data suggested that ACD differs mechanistically according to allergen.<sup>3</sup>

As psoriasis is one of the best characterized immune-mediated diseases with the interleukin-23–Th17 axis playing a priori a major role in its immunopathology, the authors decided to analyse sensitization profiles in patients with ACD who had psoriasis vs. otherwise healthy patients with ACD.<sup>1</sup> The findings of this age- and sex-adjusted retrospective analysis considered day 3 or day 4 readings of patch-tested patients, including 2387 patients with psoriasis and 161 989 control patients (excluding patients with atopic dermatitis from both groups). It revealed a significantly lower overall risk for contact sensitization in individuals with psoriasis and further supported a potential role of allergen-specific immune polarization in ACD.

Former studies have presented inconclusive data as a result of missing adjustment for factors such as age or sex.<sup>4–6</sup> A large Danish study previously found an inverse association between psoriasis and contact sensitization,<sup>5</sup> whereas smaller studies have stated a higher prevalence of contact sensitizations in patients with psoriasis.<sup>6</sup> Investigating the large cohort of patients from the Information Network of Departments of Dermatology (IVDK) Claßen et al. confirmed that patients with psoriasis at day 3 or day 4 exhibit a significant lower frequency of sensitizations to the 19 contact allergens from the baseline series except for four contact allergens (cobalt chloride, methylchloroisothiazolinone/methylisothiazolinone, mercapto mix and paraben mix) for which statistical significance was not reached.<sup>1</sup> Based on logistic regression analysis the results are independent of age and sex giving rise to high reliability, which is further enhanced by the exclusion of patients with atopic dermatitis as a confounder.

However, a few limitations have to be considered when interpreting the results based on day 3 or day 4 readings. Firstly, recent experimental data derived from individuals sensitive to nickel provided evidence that ACD in individuals who have psoriasis is typical and noninteracting; however, it occurs later than day 3 or day 4 and will be missed without a late reading around day 7.<sup>7</sup> The authors state, that they recently started to read patch-test results in addition on day 7. A follow-up analysis based on day 7 readings is encouraged and will provide

interesting results concerning true protective effects against allergic sensitization vs. late clinical manifestation in patients with psoriasis. Secondly, because of the limited collection of clinical data other than on ACD within the IVDK neither information on severity (Psoriasis Areas and Severity Index) nor localization of the psoriasis lesions could be included in the analysis. Finally, only the prevalence of contact sensitizations, not their clinical relevance is recorded in the Network.

Taken together, the reduced prevalence of contact sensitization at day 3 or day 4 in patients with psoriasis may indicate a reduced susceptibility and may contribute to a better understanding of the mechanisms and pathways in ACD. Moreover, growing knowledge about the immune polarization of distinct allergens may lead to new approaches for prevention and therapy.

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## Conflicts of interest

None to declare.

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## Supporting Information

Additional Supporting Information may be found in the online version of this article at the publisher's website:

**Audio S1.** Author audio.

## British Association of Dermatologists Biologic Interventions Register delivers: infliximab increases risk of serious infections

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Linked Article: Yiu et al. *Br J Dermatol* 2019; **180**:329–337.

The current issue of the *BJD* includes a study,<sup>1</sup> performed using data from the British Association of Dermatologists Biologic Interventions Register (BADBIR) up to October 2016, that demonstrates that infliximab is associated with an overall significantly increased risk of serious infection compared with nonbiologics [adjusted hazard ratio (adjHR) 1.95] and methotrexate only (adjHR 2.96). The risk of serious infection was significantly higher in the first 6 months (adjHR 3.49) and between 6 months and 1 year (adjHR 2.99) but not between 1 and 2 years as compared with the nonbiological cohort. The adjusted estimate for patients who were biologic-naïve and on infliximab was also higher (adjHR 1.37) but not statistically significant.

The strengths of this study are its prospective cohort study design, the participation of multiple dermatology centres and a large cohort of patients with psoriasis treated with infliximab ( $n = 422$ , with 105 started on first-line infliximab therapy) who were compared with 3421 participants included in a nonbiological systemic cohort, and the use of propensity score adjustment to address confounding.

Serious infections, usually defined by the use of intravenous antimicrobial therapy, hospitalization or death, are associated with significant morbidity and discontinuation of biological therapies in patients with psoriasis. A systematic review of randomized clinical trials and prospective cohort studies in psoriasis found that infliximab was associated with a nonsignificant increase in the risk of serious infection over placebo at week 20–30,<sup>2</sup> but there are inconsistencies in published data from registries and population-based observational cohort studies. Comorbidities of the underlying conditions prevent extrapolation of data from rheumatology or gastroenterology registries to patients with psoriasis.<sup>3</sup>

Data from 11 466 patients in the Psoriasis Longitudinal Assessment and Registry<sup>4</sup> indicate that infliximab ( $n = 1151$ ) and adalimumab ( $n = 2675$ ) treatment carry a higher risk of serious infections compared with methotrexate/nonbiological therapies and nonmethotrexate/nonbiological therapies; the corresponding cumulative incidence rates were 2.49, 1.97, 1.28 and 1.05, respectively.

Data from 2153 patients in the Spanish Registry of Adverse Events from Biological Therapy in Psoriasis (with a small number of participating centres) indicate that the risk of serious infection was significantly increased in patients treated with ciclosporin [adjusted relative risk (adjRR) 3.12] and