Do Biologics for Psoriasis Prevent the Development of Psoriatic Arthritis? A population-based study

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Psoriasis is a chronic inflammatory skin condition that commonly precedes psoriatic arthritis (PsA). Because biologics are used to treat both PsO and PsA, they may be helpful in the prevention of PsA. Literature has been mixed on whether biologics for PsO prevent the development of PsA.

**Aim:** To examine the incidence of PsA among a cohort of moderate-to-severe PsO patients treated with biologics versus without biologics.

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Methodology

- **Retrospective cohort study** using Optum Clinformatics Data Mart (2007-2021), contains 73.4 million patients
- **Cohort:** Newly diagnosed PsO patients with phototherapy as first PsO treatment, with no prior arthritis (n=4695)
- **Exposure:** Treatment with biologic
- **Outcome:** Incidence of PsA after 10 years
## Biologics associated with reduction in PsA cases

Incidence rate difference of -25.48 cases per 1000 person-years [95% CI -39.09, -11.87] (p=0.0011)

### Table 2: Incidence of PsA by therapy

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>Cases (PsA)</th>
<th>Person years</th>
<th>Incidence per 1000 person-years [95% CI]</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>4695</td>
<td>213</td>
<td>461</td>
<td>46.21 [40.40 – 52.85]</td>
</tr>
<tr>
<td>Phototherapy</td>
<td>4234</td>
<td>196</td>
<td>392</td>
<td>50.00 [43.50 – 57.55]</td>
</tr>
<tr>
<td>Biologics</td>
<td>461</td>
<td>17</td>
<td>69</td>
<td>24.55 [15.26 – 39.49]</td>
</tr>
</tbody>
</table>

### Table 3: Cox Proportional Hazards models

<table>
<thead>
<tr>
<th>Comparison</th>
<th>N</th>
<th>HR [95% CI]</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biologics vs. phototherapy (age and sex-adjusted)</td>
<td>4695</td>
<td>0.464 (0.275, 0.784)</td>
<td>0.004</td>
</tr>
<tr>
<td>Biologics vs. phototherapy †</td>
<td>4695</td>
<td>0.476 (0.282, 0.803)</td>
<td>0.005</td>
</tr>
<tr>
<td>Biologics vs. phototherapy §</td>
<td>4695</td>
<td>0.486 (0.283, 0.833)</td>
<td>0.009</td>
</tr>
<tr>
<td>Biologics vs. phototherapy (among oral systemic users) †</td>
<td>557</td>
<td>0.245 (0.088, 0.68)</td>
<td>0.007</td>
</tr>
</tbody>
</table>

† Covariates in this model include age, sex, time on oral systemics
§ Covariates in this model include age, sex, time on oral systemics, diabetes, hypertension

*The index date defined was the date of first phototherapy treatment following the first psoriasis diagnosis. Covariates were defined at this time.
†The presence of the covariate of interest was defined as at least two codes of the covariate, prior to the phototherapy initiation.
This study suggests that biologic use may reduce the development of psoriatic arthritis among psoriasis patients.

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Figure 2: Kaplan Meier Survival Curve

* Sample size limited to <10% of original sample size past year 8