Efficacy and safety of the interleukin-12/interleukin-23 antagonist ustekinumab in Korean patients with moderate to severe psoriasis

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Psoriasis

- Approximately 2–3% of the population worldwide
- Chronic, relapsing inflammatory disease
- Often requires lifelong care
- Result from the activation of abnormal immune response
  - leads to keratinocyte hyperproliferation and epidermal thickening
- Overexpression of messenger RNA (mRNA) for interleukin (IL)-12 and IL-23 is often observed in psoriatic skin lesions
Psoriasis

- Conventional treatments
  - Systemic therapy with methotrexate, cyclosporine, oral retinoid and phototherapy
- Novel treatments
  : Recent advances in understanding the immunogenesis of psoriasis
  - Development of biological agents that target specific immunological pathways
**Background**

- **Ustekinumab**
  - Human monoclonal antibody
  - Binds to the p40 subunit of both interleukin (IL)-12 and IL-23, key cytokines in the inflammatory response of psoriasis
  - Neutralizes their activity
  - Approved in both the US and Europe for use in patients with moderate to severe plaque psoriasis
Objective

- To address the efficacy and safety of biologics in Korean patients with moderate to severe psoriasis
Method

Patients

- 32 patients with moderate to severe psoriasis treated with ustekinumab for at least 16 weeks in the Department of Dermatology of a Soonchunhyang University College of Medicine, between Jan. 2012 and Jul. 2014
- 24 male and 8 female
- Mean age of 45.8 years (range 28–63)
- Data on demographics, medical history, previous systemic therapy for psoriasis, efficacy and toxicity of treatment were collected from the medical records with written consent
Method

- **Treatment protocol**
  - Subcutaneous injections of ustekinumab 45 or 90 mg at weeks 0 and 4 and every 12 weeks thereafter

- **Evaluation of response**
  - Based on reported Psoriasis Area and Severity Index (PASI) 50, 75, and 90 response rates, defined as a $\geq 50\%$, $\geq 75\%$, and $\geq 90\%$ reductions from baseline PASI scores, respectively
  - Outcome measures were improvement in PASI score with respect to baseline at weeks 4 and 16, 52
The mean baseline PASI score was 25.7

Overall 6%, 44%, and 85% patients achieved PASI 75 response rates at weeks 4, 16, and 52 respectively

<table>
<thead>
<tr>
<th></th>
<th>Week 4</th>
<th>Week 16</th>
<th>Week 52</th>
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</thead>
<tbody>
<tr>
<td>PASI 50</td>
<td>12(37.5%)</td>
<td>27(84.4%)</td>
<td>11(84.6%)</td>
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<tr>
<td>PASI 75</td>
<td>2(6.3%)</td>
<td>14(43.8%)</td>
<td>11(84.6%)</td>
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<tr>
<td>PASI 90</td>
<td>0(0%)</td>
<td>4(12.5%)</td>
<td>5(38.5%)</td>
</tr>
</tbody>
</table>
Result

Baseline
PASI 24.3

Week 4
PASI 8.6

Week 16
PASI 1.8

Week 52
PASI 1.5
## Result

- Mild adverse events during the treatment

<table>
<thead>
<tr>
<th>Condition</th>
<th>Ustekinumab 45mg (n=32)</th>
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<tbody>
<tr>
<td>Infection</td>
<td>4 (12.5%)</td>
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<tr>
<td>Pruritus</td>
<td>3 (9.3%)</td>
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<tr>
<td>Abnormal hepatic function</td>
<td>1 (3.1%)</td>
</tr>
<tr>
<td>Arthritis</td>
<td>1 (3.1%)</td>
</tr>
<tr>
<td>Headache</td>
<td>2 (6.2%)</td>
</tr>
<tr>
<td>Hyperglycemia</td>
<td>2 (6.2%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>13 (40.6%)</strong></td>
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In this study, all of the patients had history of at least 6 months of conventional treatment

- No improvement

Treatment with 45mg injections of ustekinumab at week 0 and week 4, followed by every 12 weeks

- PASI 75 was achieved in more than three quarters of patients with moderate-to-severe psoriasis
- More than 90% of patients experienced clinically meaningful improvements
- No serious adverse events occurred defined as requiring hospitalization
Conclusion

- **Ustekinumab**
  - Effective, safe and well tolerated alternative treatment of both moderate to severe psoriasis in Korea
  - Support the notion that interleukin-12 and IL-23 have an important role in the immunopathophysiology of psoriasis


Zhun Cao, Chureen Carter, Kathleen L. Wilson, Brad Schenkel, Ustekinumab dosing, persistence, and discontinuation patterns inpatients with moderate-to-severe psoriasis, J Dermatolog Treat, 2014 Feb 20