On the Fast Track: A Comparison of IL-23 and IL-17 Inhibiting agents for Psoriasis Clearance

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Introduction

- Psoriasis is a disease involving rampant inflammatory pathways that result in keratinocyte proliferation causing scale-like plaques to form on patients
- Biologic drugs such as IL-23 and IL-17 inhibiting agents target the mediators of these pathways to attenuate inflammation
- The innovations of these treatments have caused patients and physicians to strive for complete clearance of psoriasis
- The Psoriasis and Severity Index score is a standardized method to quantify the severity of psoriasis and can be used to measure therapy efficacy
- **This research determines the timeframe within which 50% of patients achieved 100% clearance with various biologic agents**

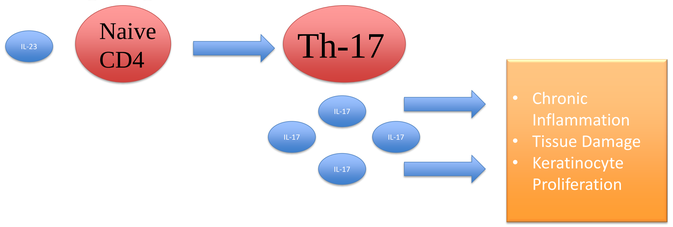

Figure 1: Interleukin -23 induces a naïve CD4 t cell to differentiate into a Th-17 T cell. Th-17 produces Interleukin 17 which causes chronic inflammation, tissue damage, and keratinocyte proliferation

Methods

- A PubMed search was performed for clinical trials investigating IL-17 and IL-23 inhibitors in psoriasis treatment
- Studies from FIXTURE, ERASURE, BE RADIANT, UNCOVER-1, UNCOVER-2, AMAGINE-2, AMAGINE-3, VOYAGE-1, UltIMMA-1, and UltIMMA-2 were analyzed
- Engauge Digitizer Software was utilized to estimate the weeks at which PASI10050 were achieved for each drug

Results

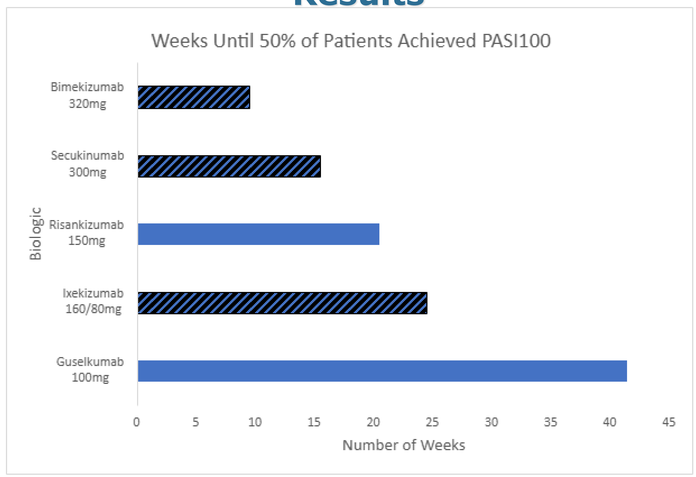

Figure 2: Time (in weeks) for 50% of patients to achieve PASI100 arranged from fastest (top) to slowest (bottom). IL-17 inhibitors are represented with striped bars and IL-23 inhibitors with solid bars. Time approximations for reaching PASI10050 are derived from interpretations of data within the trials using Engauge Digitizer Software.

- Bimekizumab was the fastest biologic to achieve PASI10050 at 9.5 weeks
- Secukinumab-16 weeks; Risankizumab-21 weeks; Ixekizumab-25 weeks; Guselkumab-42 weeks
- Ustekinumab (IL-23) failed to reach PASI10050

Disccussion

- Overall, IL-17 inhibitor groups reached clearance faster than IL-23 inhibitor groups
- Correlates with our understanding that IL-17 is a downstream effect of IL-23
- IL-23 must first induce IL-17 production before clinical changes can be observed
- In practice IL-23 inhibitors are still often chosen due to their less significant side effect profile
- IL-17 inhibitors are associated with increased rates of mucocutaneous candidiasis and exacerbation of inflammatory bowel disease while IL-23 is not

Conclusions

- This publication adds to previous methods of that measure the rate of psoriasis treatment such as time for 50% to reach 90% or 75%
- These studies also showed IL-17 to be faster than IL-23
- Complete clearance and rate of clearance are important to patients and should be considered when choosing therapy
- These metrics provide patients a sense of relative speed of their treatment options
- Further research should include new biologics such as tyrosine kinase inhibitors

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