PSORIASIS

UTILITY OF MONITORING USTEKINUMAB LEVELS IN PSORIASIS PATIENTS: CLINICAL RESPONSE IS CORRELATED WITH INTERMEDIATE USTEKINUMAB CONCENTRATIONS

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Introduction: Ustekinumab (UST) has been shown to be effective for the treatment of psoriasis. Nevertheless, some patients do not respond or lose response. When a concentration-response relationship is present, monitoring drug levels could identify underexposed patients. A correlation between concentration and clinical response has not been observed for UST at trough but might be present at intermediate time points of which sampling could be facilitated through dried blood spots (DBS) obtained via finger prick.

Objective: Investigate the correlation between UST concentrations at week 4 upon injection and clinical response in psoriasis.

Materials and Methods: Forty-nine psoriasis patients treated with 45 or 90 mg UST every 12 weeks for ≥16 weeks were included. UST serum concentrations and anti-ustekinumab antibodies (AUA) were measured using in-house developed ELISAs and disease severity was assessed by absolute Psoriasis Area and Severity Index (PASI). DBS methodology was developed and validated in nine patients.

Results: The median UST concentration at week 4 upon injection was 3.2 µg/ml (interquartile range 2.3-4.2 µg/ml). UST concentrations were inversely correlated with absolute PASI ($r = -0.312$, $p = 0.0291$), revealing that patients with higher UST levels respond better to treatment. In patients receiving 45 mg, median UST concentrations were considerably higher in excellent responders (2.9 µg/ml vs 1.6 µg/ml in PASI≤3 vs PASI>3, respectively, $p = 0.0420$). In the 90 mg group, patients with PASI≤1 had remarkably higher UST concentrations compared to patients with PASI>1 (4.7 µg/ml vs 2.9 µg/ml, respectively, $p = 0.0154$). Only one patient had undetectable UST concentrations and was

AUA positive. UST concentrations in DBS and serum correlated strongly (r = 0.967, p = 0.0002).

Conclusions: A concentration-response relationship at week 4 upon injection was observed for UST-treated psoriasis patients. Measuring UST concentrations at intermediate time points could identify underexposed patients which might benefit from dose intensification.