Poster

[P25-7] P25-7: Immunosuppressive drugs (2): Monoclonal antibody and genotyping

Chair: Toru Hashida, Japan

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[P25-7-3] Intra-patient variability in the pharmacokinetics of etanercept maintenance treatment

Teun van Gelder[1], Ji Sun van Bezooijen[2], Marco Schreurs[3], Birgit Koch[4], Henk te Velthuis[5], Martijn van Doorn[6], Errol Prens[7] (1.Erasmus MC, 2.Erasmus MC, 3.Erasmus MC, 4.Erasmus MC, 5.Sanquin Reagents, 6.Erasmus MC, 7.Erasmus MC)

Keywords: Intra-patient variability Etanercept, Therapeutic drug monitoring

Background

Etanercept has shown to mediate a favourable effect on Immune Mediated Inflammatory Diseases (IMID), including plaque psoriasis. Therapeutic drug monitoring (TDM) of etanercept could improve clinical outcome and cost-effectiveness. A high intra-patient variability (IPV) of etanercept trough concentrations at standard dosing would reduce the feasibility of TDM. Studies have focussed on the inter-patient differences associated with the exposure to biologics. The aim of this study was to determine the IPV of etanercept and to correlate etanercept trough concentrations and IPV with treatment response.

Methods

Repetitive serum samples of 29 psoriasis patients on standard etanercept maintenance treatment were collected. In these samples, etanercept trough concentrations were determined and IPV was assessed, in relation to response to treatment.

Results

The median IPV of etanercept trough concentrations was 33.7 % (Q1 21.3 % and Q3 51.7 %) ranging from 8% to 155%. All six non-responders showed an IPV at or above the median value of 33.7 %. The six non-responders showed a higher IPV as compared to the 23 responders (53.9% vs 24.2 %; P= 0.031). The mean etanercept trough concentration for each patient ranged from 0.7 to 6.8 mg/ml, with a median trough concentration of 2.7 mg/ml. Patients with an IPV above the median had lower mean etanercept trough concentrations compared to patients with an IPV below the median (1.96 mg/mL, 95% CI [1.7 ; 2.4] vs 3.2 mg/mL, 95% CI [2.7 ; 4.0]; P = 0.001).

Conclusions

The median IPV of etanercept trough concentrations in this study population was 33.7 %. A higher IPV was correlated with lower etanercept trough concentrations and with non-responsiveness. Prospective trials are required to demonstrate the value of adjusting the etanercept dose based on drug trough concentrations. The relatively high IPV observed in this study may complicate TDM.