Advances in the optimization of therapeutic drug monitoring using serum, tissue and faecal anti-tumour necrosis factor concentration in patients with inflammatory bowel disease treated with TNF-α antagonists

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ABSTRACT

Introduction

The relationship between clinical outcomes and serum anti-TNF levels is controversial. The **aim** of this study was to perform simultaneous analyses of serum, mucosal, and fecal anti-TNF-α levels.

Methods

Consecutive IBD patients who received maintenance anti-TNF-α therapy were enrolled. The number of TNF-α positive cells in the mucosa was detected using immunofluorescent labeling on biopsy samples. Serum, mucosal and fecal anti-TNF-α, serum anti-drug antibody, and fecal calprotectin levels were determined using ELISA. Each patient underwent body composition analysis as well.

Results

Data of 50 patients were analyzed. The number TNF-α positive cells was significantly higher in the inflamed part of the colon than in the un-inflamed part of the colon. Tissue and fecal drug levels did not show any association with serum drug levels; moreover, serum anti-TNF concentration did not correlate with endoscopic activity. Mucosal anti-TNF levels were higher only in IFX-treated patients in remission and IFX-treated patients with detectable fecal anti-TNF had lower tissue drug levels. Presence of the drug in the feces was significantly different according to disease activity.

Conclusion

Fecal drug concentration is suggested to be a better predictor of endoscopic activity and loss of response, and fecal drug monitoring may improve the estimation accuracy of tissue drug levels.