ASSOCIATION BETWEEN FECAL CALPROTECTIN VALUES AND INFliximab TROUGH LEVELS IN INFLAMMATORY BOWEL DISEASE PATIENTS

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BACKGROUND

The Monitoring of monoclonal Antibodies Group in Europe (MAGE) recommends measuring biologics concentrations in inflammatory bowel diseases (IBD) and available evidence indicates that this strategy results in clinical benefit and in cost savings. Routine therapeutic drug monitoring (TDM) of IFX and Bayesian prediction as a rational decision tool in combination with follow-up of clinical response for individual dose adjustment has been implemented in our center.

OBJECTIVES

- First goal was to evaluate the relationship between fecal calprotectin (FCP), as a measure of disease activity, and IFX trough concentrations (Cmin) in three groups of patients: (1) IFX Cmin < 3 mg/L, (2) IFX Cmin = 3-7 mg/L and (3) IFX Cmin > 7 mg/L.
- A second goal was to determine the use of IFX Cmin as a clinical predictor of FCP<250 mcg/g and to assess the discriminative ability of IFX Cmin to predict subtherapeutic IFX Cmin (defined as Cmin<3 mg/L).

METHODS

Study design and population: Prospective study of IBD patients treated with maintenance IFX between January 2014 and February 2017. Evaluations: Blood samples, drawn immediately before IFX infusion to determine IFX Cmin, and fecal samples, within the same IFX cycle of administration to determine FCP, were obtained during the study.

We measured IFX serum Cmin using a commercially available validated enzyme-linked immunosorbent assay (ELISA) kit (Promonitor®). FCP values, obtained within the same infusion cycle as Cmin, were determined using ELISA.

RESULTS

Study population

A total of 89 patients were included, of whom 46.1% were women. Patients characteristics are shown in Table 1.

<table>
<thead>
<tr>
<th>Covariate</th>
<th>n=89 patients</th>
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<tbody>
<tr>
<td>Gender (41.6%) female, 48 (53.9%) male</td>
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<td>Diagnosis (57 (64%) CD, 32 (36%) UC</td>
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<td>Weight (70.5 Kg [60-83])</td>
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<td>PCR (1.7 mg/L [0.9-4.7])</td>
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<td>Albumin (4.4 g/dL [4.2-4.7])</td>
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<td>Smoking habit (52 (67%))</td>
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<td>Concomitant immunosuppressive therapy</td>
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| Concomitant immunosuppressive therapy    |               |

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There is higher percentage of samples with Cmin IFX ≥ 3 mg/L when FCP<250 mcg/g vs FCP≥250 mcg/g (69% vs 57%). Also, the median Cmin was lower when FCP was ≥250 mcg/g compared with <250 mcg/g (respectively 3.62 vs. 4.7 mg/L; p=0.043) (see Table 3).

Association between FCP and IFX Cmin

Based on ROC curve analysis, an IFX Cmin cut-off of >7 mg/L (AUC=0.586; IC95%: 0.504-0.667) was associated with FCP <250 mcg/g (85.7% specificity, 32.9% sensitivity) (see figure 2 and table 4).

CONCLUSIONS

- Significantly higher IFX Cmin were observed when FCP<250 mcg/g compared to FCP≥250 mcg/g. Also, percentage of samples with Cmin ≥ 3 mg/L is higher when FCP<250 mcg/g vs FCP≥250 mcg/g (36% vs 28%).
- IFX Cmin was a modest predictor of FCP<250 mcg/g and FCP was a modest biomarker to predict Cmin<3 mg/L.

REFERENCES: