**Supplementary methods: statistical analysis**

Statistical analysis was performed using the software R (version 3.4.2). The association between IFX concentrations and therapeutic response was evaluated in a univariate analysis by generalized linear model of the binomial family (logistic regression), using patients response to IFX as the dependent variable and IFX concentration as the independent variable. To identify the best predictor of IFX response, the most significant association between IFX concentrations and response at the various time points considered was identified on the basis of the logistic regression analysis. Receiver operating characteristic (ROC) curves were then constructed for IFX concentrations, to determine the optimal cut-off to predict patients' clinical response to IFX. Sensitivity, specificity and the positive and negative predictive values of the cut-off point were analyzed. To test the association of the identified cut-off value with demographic and clinical covariates (age, sex, IBD type, clinical laboratory parameters including CRP, albumin and calprotectin), univariate logistic regression analysis was performed, considering patients’ IFX concentration below or above the cut-off point as the dependent variable and the demographic/clinical covariate as the independent variable.

Multivariate analysis was performed to test the potential confounding effect on the association between therapeutic response and the cut-off identified for IFX concentration by clinical and demographic covariates. The multivariate analysis was done by logistic regression, using therapeutic response as the dependent variable and the cut-off for IFX concentration together with all covariates significantly associated with this cut-off in the univariate analysis, as independent variables.

An analysis on the association between post-induction infliximab concentrations and the clinical laboratory parameters was performed also by generalized linear mixed effects models, considering the clinical laboratory parameter of interest as the dependent variable and infliximab concentration as the independent variable. For the clinical laboratory parameter, normality of the distribution was evaluated by visual examination of the data histogram and by Shapiro’s test and an appropriate transformation was applied to restore normality. For the association between AIA concentrations and IFX concentrations was determined by non-parametric Spearman’s test.
Supplementary Figure 1: Boxplot comparing clinical response at the end of induction therapy and serum IFX concentration at the IV infusion between patients with primary failure, partial response or remission. The bold horizontal line represents the median value. Statistical significance was assessed by logistic regression analysis.
Clinical response after induction therapy

Infliximab concentration (µg/ml) at IV infusion

- Primary failure: n=6
- Partial response: n=6
- Remission: n=23

p-value = 0.00032
Supplementary Figure 2: Areas under the ROC curves for the serum IFX quantification at the IV infusion for clinical remission at 54 weeks of treatment. ROC, receiver operating characteristic. Optimal cutoff value was 3.11 µg/ml (sensitivity 88.9%, specificity 80.0%).
AUC: 85.9% (72.3%–99.5%)
Supplementary Figure 3: Concentration of IFX and relevant laboratory variables. Concentration of IFX was significantly inversely correlated with CRP and calprotectin and directly correlated with albumin (p-values and correlation lines are from linear mixed-effect models).
Supplementary Figure 4: Scatterplot displaying IFX and AIA concentration. AIA concentrations were inversely correlated with IFX trough concentration. The correlation was assessed using Spearman’s tests.
Supplementary Figure 5: Temporal evolution of anti-infliximab antibodies (AIA) levels during therapy. Connected dots represent a single patient. The dashed line represents the cut-off for AIA positivity (10 µg/ml).