4CPS-215 L04 IMMUNOSUPPRESSANTS

REAL-LIFE ANALYSIS OF THE DEVELOPMENT OF ANTIDRUG ANTIBODIES IN PAEDIATRIC PATIENTS WITH INFLAMMATORY BOWEL DISEASE AND THERAPEUTIC APPROACH

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Background and importance

Loss of response to infliximab and adalimumab therapy may occur **due to** development of **anti-drug antibodies (ADA)**, leading to treatment failure in inflammatory bowel disease (IBD).

Aim and Objectives

To **assess the immunogenicity of infliximab and adalimumab in pediatric IBD patients** undergoing therapeutic drug monitoring (TDM), **along with therapeutic approach** and potential **factors contributing ADA development**.

Material and methods

Retrospective observational study

January/2019 - September/2024

Pediatric IBD patients treated with infliximab and adalimumab undergoing TDM

Standard dosage regimen:

Treatment was initiated according to the **standard dosing regimen (SD)** for **adalimumab** and **infliximab** in **pediatrics,** and was **adjusted according to TDM.**
Intensified dosage involved either shortening interval or increasing dose, following **the Vall d'Hebron Hospital protocol.**

Adalimumab, infliximab and ADA concentrations were determined by enzyme-linked immunosorbent assay (ELISA) until May 2022, followed by chemiluminescence immunoassay (CLIA). Concretely, ADA if patients had infliximab ≤3 µg/ml and adalimumab ≤5 µg/ml concentrations (drug-sensitive assay).

Results

90 patients

- **Adalimumab – 38 (42.2%)**
- **Infliximab – 52 (57.8%)**

Antibodies analysis

- **Adalimumab antibodies (AAA)** – 33 samples from 10 (26.3%)
- **infliximab antibodies (ATI)** – 53 samples from 28 (53.8%) patients

Adalimumab and **infliximab** concentrations were <1mg/ml in all patients with ADA.

Adalimumab treatment group

No patients underwent adalimumab treatment were detected developing AAA

Infliximab treatment group

IBD diagnosed: **Crohn disease** in 2 (50.0%) and **ulcerative colitis** in 2 (50.0%) patients.

Infliximab antibodies developped by – 4 (**7.7%**) patients

- 3 (75.0%) females
- mean age: 12.9 (7.1) years

Two (50.0%) patients had been on adalimumab for <1 year.

No poor patient **adherence** was detected

Infliximab antibodies detection

All patients were on treatment with an **intensified infliximab dosage**

3 (75.0%) patients
- receiving immunosuppressants -

Discontinuation of infliximab

*Two (50.0%) patients

Infliximab intensification and ATI negativization.

- ATI= 22 ng/ml*
- ATI= 137 ng/ml*

*Infliximab concentrations before antibody detection (<6 months) were 1.5 µg/ml, 3.6 µg/ml and 5.9 µg/ml.

HLA-DQA1*05 genetic variants were analyzed in 3 (75.0%) patients, 2 (66.7%) patients were HLA-DQA1∗05 carriers.

Conclusion and Relevance

A proportion of IBD pediatric patients developed ADA, with a **higher incidence observed in those receiving infliximab**.

- **Intensifying treatment** may be effective in achieving ADA negativization, in some cases.