

PROACTIVE MONITORING OF INFLIXIMAB IN PAEDIATRIC INFLAMMATORY BOWEL DISEASE OVER A 4-YEAR PERIOD

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BACKGROUND AND IMPORTANCE

Preliminary data suggest that proactive therapeutic drug monitoring (TDM) guides dose adjustment to achieve appropriate trough concentrations (C_{min}), reducing the risk of treatment failure (TF) and improving safety.

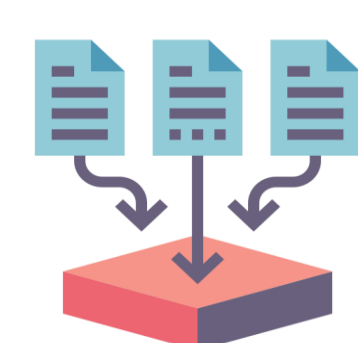


AIM AND OBJECTIVE

To analyse the experience of a multidisciplinary proactive TDM programme for infliximab (IFX) in children with inflammatory bowel disease (IBD) (Crohn's disease (CD) and Ulcerative Colitis (UC))

MATERIALS AND METHODS

Prospective single-centre study
Third-level hospital



VARIABLES:

- Demographical
- Clinical
- Analytical
- TDM

- ✓ **Efficacy** : TF, IBD-related surgery, and hospitalisation.
- ✓ **Adverse reactions (AR)**.



Children with IBD treated with intravenous IFX



September 2019 - September 2023

- **IFX C_{min}** and anti-infliximab antibodies (**ATI**) were determined by **ELISA** or **chemiluminescence**.
- Dose individualisation → population pharmacokinetic model of **Fasanmade et al (2011)**. → **NONMEM v7.4.3**.
- **IFX C_{min}** was monitored at induction and every six months
- **Target C_{min}** (µg/ml): 1-3 week(w): >25 ; 6-7w: >15; maintenance: 5-8.

RESULTS



N= 33 patients → 21 male; 18 CD/15 UC.
Age diagnosis: median (IQR): 11.58 (6.87-14.04) years old

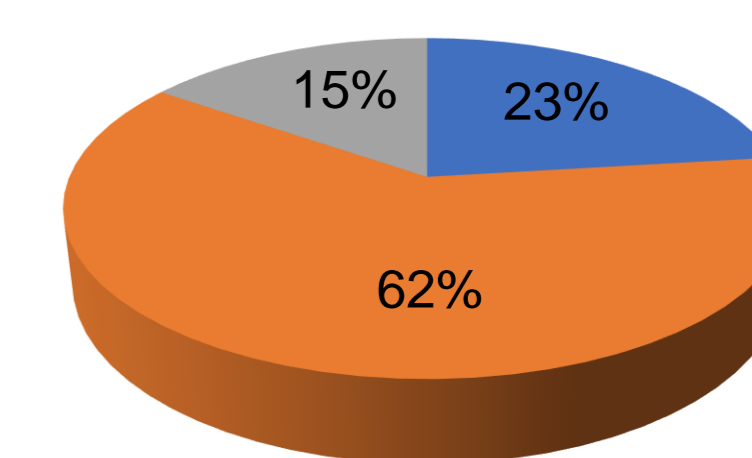
- 794 administrations; 290 IFX C_{min}
- **Dosage** (mg/kg): mean(SD): **8.66 (±2.22)**
- **IFX C_{min}** (µg/ml) (mean, SD):
Induction
1-3 w: 25.71 (±19.50)
6-7 w: 13.63 (±7.73)
14 w: : 14.60 (±8.01)
Maintenance:
10.47 (±8.47)

| | |
|--------------------------------|-----------|
| TF; n (%) | 6 (18.18) |
| primary (n) | 2 |
| secondary (n) | 4 |
| Causes (%): | |
| • pharmacodynamic failure | 66.37 |
| • severe IR related ATI | 16.67 |
| • other ARs | 16.67 |
| Hospitalizations; n (%) | 6 (18) |
| Causes (%): | |
| • IBD complications | 62.50 |
| • AR | 37.50 |
| Emergency visits; n (%) | 4 (12.12) |
| Causes (%): | |
| • AR | 100% |
| Surgery; n (%) | 2 (6.06) |

*IR: infusion reaction

Adverse reactions

■ IR ■ Infections ■ Paradoxical psoriasis



48.72% of the **ARs** were classified as **severe** (prevented the patients performing normal daily activities)

Posologies adjustments:
106 of 290 IFX C_{min}
(36.55%)

CONCLUSION AND RELEVANCE



Multidisciplinary **proactive TDM** programme **has allowed to successfully adjust IFX doses in paediatric patients**, obtaining promising clinical results similar to those reported in adults (Papamichael et al. 2017 and Sánchez-Hernández et al. 2020).

