

# MYCOBACTERIUM AVIUM COMPLEX (MAC) IMMUNE RECONSTITUTION INFLAMMATORY SYNDROME (IRIS) IN HIV-POSITIVE ADOLESCENT

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## Background

Mycobacterium avium complex (MAC) can develop in HIV - patients with CD4 cells less than 50 cells/ml. Immune reconstitution inflammatory syndrome describes a collection of different inflammatory disorders which are associated with paradoxical deterioration of various pre-existing infectious processes following commencement of HAART in HIV-infected patients (Goebel, 2005). The main risk factors for developing IRIS are rapid decline in viral load and low baseline CD4 cells (especially less 500 cells/ml). (French et al, 2004)

There are lack data of IRIS course and management in HIV - positive children. Hereby the complicate case of IRIS (MAC - associated) in HIV -positive adolescent are presented.

## Case Presentation Summary

First HIV-diagnosed 13 year old boy was hospitalized in our center with complains: weight loss, fatigue.

Weight and height were less 5 percentile.

Blood test: Hb- 95 g/l, platelets – 143 x10<sup>9</sup>/l, WBC- 10,7x10<sup>9</sup>/l, ERS – 74 mm/h;

ALT- 130 U/l, AST -181 U/l;

CD4 – 0,9%-2 cell/ml

VL – 354,667 RNA copies/ml

X-ray: sings of pneumonia.

Antibiotic (clindamycin) for pneumonia treatment, trimethoprim/ sulfamethoxazole (TMP/SMX), isoniaside, azithromycin as a prophylaxis of opportunistic infections (OI) were prescribed, signs of pneumonia resolved on a/b treatment and antiretroviral therapy (ART) TDF/FTC/EFV was started.

After 2 weeks of ART starting: fever, liver and spleen enlargement appeared.

Blood test: Hb- 81 g/l, platelets – 51 x10<sup>9</sup>/l, WBC- 18x10<sup>9</sup>/l.

Ferritin -2337 µg/l.

CD4 – 2%-8 cell/ml.

Blood PCR DNA CMV was positive.

Thorax and abdominal CT scans: mesenteric and thorax lymph nodes enlargement, hepatosplenomegaly.

Hemophagocytic lymphohistiocytosis (HLH) and TB /MAC –infections were suspected. Sternal puncture was made, HLH was excluded.

Ethambutol (EMB), rifampicin (RIF), amikacin (Am), linezolid (LZD), levofloxacin (LFX), azithromycin (Azithro), as a MAC treatment, ganciclovir for treatment CMV were prescribed, human immunoglobulin was transfused few times, INH, TMP/SMX and ART were continued. Because of thrombocytopenia on the 2nd month of ART treatment glucocorticoid (GKK) prednisolone was prescribed. Clinical, laboratory and radiological improvement were achieved.

Patient received:

EMB/RIF/AM/LZD/LFX/azithro+INH for 3 months

EMB/RIF/AM/LFX/azithro+INH for 3 months

Prednisolone for 6 months

On the 9 months of ART treatment: weight loss, abdominal pain and vomiting, mesenteric lymph nodes enlargement appeared. Laboratory data: Hb- 89 g/l, platelets – 136 x10<sup>9</sup>/l, WBC- 6x10<sup>9</sup>/l, ESR-50 mm/h, CRP-92 mkg/l, ferritin -967 µg/l, PCT – 0,4 ng/ml, CD4 – 10%-57 cell/ml, viral load - 60 RNA copies /ml. US and CT examinations: mesenteric lymph nodes enlargement. Diagnostic laparotomy was performed and mesenteric lymph nodes were removed for histopathological and immunohistochemical analysis. Mycobacterium avium complex IRIS was diagnosed, although, TB IRIS was not excluded completely.

LZD was added to previous regimen of MAC treatment, INZ was stopped.

Clinical and laboratory improvements were gained.

Patient is still on treatment.

## Learning Points/Discussion:

In our patient the next risk factors for IRIS developing were presented :

- Low CD4 count at initiation of ART;

- High pre-ART HIV viral load;

- Late ART starting

- Shorter duration of OI treatment prior to starting ART.

In our case IRIS appeared twice during the first year of ART treatment at day 14 and at 9 month of ART treatment.

IRIS could occur within 3-12 months of initiating HAART.

In the study with involving HIV adults with TB -IRIS duration of reconstitution syndrome was more than 90 days in 40% and in 3% with more than 1 year. Lymph node IRIS involvement is independent risk factor for a prolonged clinical course ( Bana et al, 2016). In our patient the clinic of mesenteric lymph nodes enlargement appeared very soon after ART start ( in first 2 weeks) and re-appeared after stop of GKK and LZD treatment and increasing CD4 cells more than 50 cells/ml on 9th months of ART treatment.

The course of GKK softened signs of IRIS although didn't prevent reconstitution syndrome.

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