

A Case Report on Hyperferritinemia and Iron Deficiency Anaemia in Alcoholic Hepatitis

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Abstract: Usually in iron deficiency anaemia, ferritin level will be low. Here we report a case of hyperferritinemia and iron deficiency anaemia in alcoholic hepatitis. Ferritin is the major iron-storage protein in the liver where most of the extra body iron is stored. The pathogenesis of liver damage due to iron overload could be reflected by the ferritin levels.

Key words: Ferritin • Alcoholic Hepatitis • Iron Deficiency Anaemia

INTRODUCTION

Alcoholic hepatitis is characterized by a variable constellation of symptoms, which may include feeling unwell, enlargement of the liver, ascites and modest elevation of liver enzyme levels (As determined by liver function tests). Alcoholic hepatitis can vary from mild with only liver enzyme elevation to severe liver inflammation with development of jaundice, prolonged prothrombin time and even liver failure. Severe cases are characterized by either encephalopathy or the combination of elevated bilirubin levels and prolonged prothrombin time; the mortality rate in both severe categories is 50% within 30 days of onset [1].

Alcohol damages the liver resulting in an increase in liver enzymes detected in blood (ALT, AST and GGT) and increased serum ferritin levels since the liver is the main organ of iron storage. It is suspected in a patient with high alcohol consumption when this person shows the characteristic clinical symptoms (fever, hepatomegaly, jaundice and anorexia) and typical laboratory findings (ALT/AST>2 [1], high GGT, MCV>100, high IgA, high serum ferritin with normal transferrin saturation). MCV decreases if there is co-existent iron deficiency.

Case Report:

History and Examination: A 43yr male was admitted in Sree Balaji Medical College and Hospital (Medicine department) with complaints of anorexia, abdominal distension, nausea, vomiting. He gave history of alcohol

intake for the past 10 years. He had signs of liver cell failure like ascites, jaundice, spider naevi, alopecia. He had features of anaemia like pallor, giddiness and tachycardia.

DISCUSSION

Combination of hyperferritinemia and iron deficiency anaemia occurs in 1) hereditary hyperferritinemia cataract syndrome; 2) iron refractory iron deficiency anaemia and 3) alcoholic hepatitis [2].

Ferritin [3] is the main protein that stores safely the iron inside the cell. Ferritin consists of a soluble protein (Apo ferritin) and an inner layer composed of ferric hydrophosphate. Each microgram of plasma ferritin per litre ($\mu\text{g/L}$) is equivalent to between 8-10 milligrams of iron deposit. Normally, a low level of ferritin indicates a low level of iron (Iron Deficiency Anemia). However, a high level of ferritin may indicate various pathologies, including inflammation or infection, since this protein is an acute phase reactant.

High values of ferritin usually indicate high levels of iron, but this is not always the case. High levels of ferritin or hyperferritinemia is associated with diseases or conditions such as: haemochromatosis, haemosiderosis, hereditary hyperferritinemia cataract syndrome [4], alcoholic hepatitis [5], viral hepatitis, obesity, chronic kidney disease, neoplasia, still's disease.

Following history and examination have to be done in a patient with high serum ferritin levels: [6, 7, 9]

Investigations:

Table 1: Serial investigation reports.

PARAMETERS	DAY 1	DAY 3	DAY 5	DAY 7
HB	7.8gm%	8.0gm%	7.8gm%	8.8gm%
PCV	33%	34%	33%	37%
MCV	67fL			
Total bilirubin	6.0mg/dl			
Direct bilirubin	3.2 md/dl			
AST	350IU			
ALT	160IU			
GGT	300IU			
Ferritin	1600 µg/L	1500 µg/L	1670 µg/L	1700 µg/L

- Family history
- Presence of cataracts at an early age (<35 years)
- Alcohol intake
- History of transfusional iron treatments
- History of known cancers
- History of liver diseases

Physical Examination:

- Hepatomegaly
- Calculation of body mass index
- Blood pressure
- Measure waistlines

Analytical Tests:

- Hemogram or complete blood count (CBC)
- Transferrin saturation
- Glucose
- Cholesterol, HDL cholesterol include
- Triglycerides
- Transaminases and GGT
- C-reactive protein
- Hepatitis serologies
- If the ferritin level is greater than 1000 µg/L, assess level of ceruloplasmin and transferrin.

If the ferritin level is greater than 1000 µg/L, consider to perform relevant genetic tests [8].

In the present case, serial measurement of ferritin levels were high inspite of iron deficiency.

CONCLUSION

In our case, the patient was clinically diagnosed to have alcoholic hepatitis and investigations revealed elevated ferritin levels. The other causes of hyperferritinemia are ruled out.

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