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Original Research Paper

Medicine

CURIOUS CASE OF TREATMENT INDUCED HYPOKALEMIA AND THIRD SPACING IN MEGALOBLASTIC ANEMIA

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ABSTRACT Megaloblastic anemia is very common in India especially strict vegeterians. Presentation of megaloblastic anemia varies from fatigue, lethargy, generalised weakness to more severe symptoms of heart failure and neurological sequalae of B12 deficiency.

Megaloblastic anemia can present as third spacing in lungs along with other features such as bilateral edema. Rarely patient may have hypokalemia due to ongoing treatment of megaloblastic anemia.Here we present a rare case of treatment induced hypokalemia and third spacing in lungs in megaloblastic anemia, which needs judicious treatment with supplementation of potassium and diuretics.

KEYWORDS :

Case Description:

A 63-year-old female presented to ER with complaints of loss of appetite, generalized fatigue, weakness and mild breathlessness.

On D/Q, no complaints of any bleeding tendency, fever, altered sensorium, cough, throat pain etc.

Besides varicose veins and a chronic non healing ulcer, there was no other past medical history.

She was not on any medications- allopathic or otherwise.

O/E- Afebrile, Pallor ++, B/L Lower Limb oedema ++, Varicose veins with ulcer on right lower limb with thick purulent discharge (chronic-since many months.)

Pulse-116/min, regular, BP-117/59mmHg, RR-22/min, SpO2 - 89-92 % on room air, for which nasal O2 at 2 L/ min had been started in ambulance itself.

CVS- S1S2+Normal, CNS- Conscious, Oriented, RS-crackles present bilaterally in both basal regions, posterior more than anterior.

No nodes/ organomegaly.

INVESTIGATIONS:

HB 2.5mg/dl, RBC COUNT 0.58, PCV 8.0, MCV 137.1, MCH 43.7, MCHC 31.9, RDW 25.7, PLATELET 24,000/mm3, WBC 3.20/mm3,

PERIPHERAL BLOOD SMEAR:

Severe pancytopenia was noted.

RBC- Hyper segmented neutrophils were seen.

Marked anisocytosis, moderate poikilocytosis, predominantly macrocytic normochromic with macro-ovalocytes, elliptocytes, tear drop cells and polychromatic macrocytes.

Leukopenia with thrombocytopenia was present
Serum Potassium- 3.8, Sodium- 145, Chloride 114, Albumin 2.6,
HIV, HBsAg, Anti HCV and COVID 19- negative,
INR 1.91,
Blood parasites (Malaria)- not detected,
Procalcitonin 0.61,
Retic count 1.1

Course :

Treatment initially started with Inj. Cyanocobalamin, Tab. Folic acid. [1].

Two packed red blood cells units had to be infused. She settled down and was shifted to the wards. However, she got progressively breathless and had to be readmitted to the ICCU. Inj furosemide was started, along with Nasal Oxygen - 3-4 L/M.

Her potassium was found to be very low - 2 mEq/L (after B12 correction and even before Furosemide), which was corrected by IV and then oral Potassium supplementation.

By virtue of ongoing treatment Hb gradually improved.

DAY	Hb LEVEL	WBC level	PLATLETS
DAY 1	2.5	3,200	24,000
DAY 3	8.8	7,970	44,000
DAY 5	7.8	7,300	56,000
DAY 9	7.7	6,570	82,000
DAY 11	8.7	8,130	1,83,000

USG Abdomen :

Grade 1 fatty infiltration of liver, gall bladder sludge, mild B/L pleural effusion

Bone Marrow Aspiration Cytology:

showed megaloblastic erythropoiesis and hypercellular bone marrow, confirming diagnosis of megaloblastic anaemia.

Serum potassium levels, which were found to be low after starting treatment with Vit. B12, showed following trend: -

DAY 2	serum potassium	2.0
DAY 6	serum potassium	3.8
DAY 9	serum potassium	4.8
DAY 11	serum potassium	4.0

2D ECHO - Normal

X-RAY CHEST report:

Fluffy opacities noted in B/L lung field and both cp angles-blunted.

HRCT CHEST(PLAIN) :

Revealed diffuse ground glass opacities in both lungs showing B/L symmetrical central distribution, smooth inter-lobular interstitial thickness and moderate B/L pleural effusion, these features denoted cardiogenic/hydrostatic or increased permeability pulmonary oedema.

Patient responded well to given treatment (rest + oxygen + IV Furosemide with potassium correction). Symptoms resolved, Hb improved and hypokalaemia resolved over next few days. Patient was discharged on Day 11, in a totally asymptomatic state.

3 weeks after discharge and on ONLY B12, folic acid and Oral Protein powder supplementation, she was absolutely asymptomatic. Appetite had improved, there was no breathlessness and oedema on legs had resolved totally.

Following were Lab reports :
Hb-9.5, WBC-4,700, platelets-200,000, MCV 107, K^+ 4.0,Creatinine-0.7

DISCUSSION :

This 63-year-old lady presented with a gross pancytopenia, bilateral lower limbs oedema and breathlessness. She developed hypokalaemia after B12 and Folic acid supplementation was begun. Hypokalaemia was probably due to ongoing treatment of megaloblastic anaemia and has been reported. [2,3,4] All other causes were eliminated.

Her pulmonary features were because of "third spacing" in lungs following gross megaloblastic anaemia.

Bilateral oedema in lower limbs was also probably because of same reason along with hypoalbuminemia.[5]

In Conclusion :

This case was unique in its presentation with(1) gross pancytopenia.[6,7,8,9](2) breathlessness and Lower limb oedema because of third spacing (3) significant hypokalaemia following replacement with Vitamine B12 and Folic acid.

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