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A CASE REPORT ON ANOREXIA NERVOSA

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ABSTRACT: Anorexia nervosa (AN) is a life-threatening condition with the highest mortality rate of all psychiatric disorders. The core physiological features of ANare the extreme overvaluation of shape and weight. Severe AN causes cardiovascular complications and majorly refeeding syndrome. The prominent features of refeeding syndrome include severe hypo-phosphatemia, hypokalemia and hypomagnesia, and other fluid imbalance abnormalities, vitamin deficiencies, volume overload, and edema. Most cases are brought to clinical attention only when there are severe somatic complaints. According to the Global Leadership Initiative on Malnutrition (GLIM) classification, the patients with AN present chronic disease-related malnutrition without inflammation with different degrees of severity. To be diagnosed with anorexia nervosa a person must meet all of the current DSM 5 criteria. We cannot pinpoint a single cause for anorexia nervosa. It is caused by the complex interaction of various genetic and psychosocial factors, other risk factors include: stress, social isolation, poor emotion regulation strategies, and general psychiatric co-morbidities. In anorexia, Nutritional supplements can improve weight gain, which can reverse the abnormal hematological factors, dermatological factors, bradycardia & abnormal liver enzymes. Although nutritional rehabilitation is an essential component of the physical treatment of anorexia nervosa, psychological treatment is also necessary to address the anxiety issues of the patient.

INTRODUCTION: Anorexia nervosa (AN) is a life-threatening condition and has the highest mortality rate of all psychiatric disorders. Characterized by weight loss and difficulties in maintaining an appropriate body weight for height, age, and stature People with anorexia generally restrict the number of calories and their food types. Few people who have the disorder also exercise compulsively, purge via vomiting and laxatives, and/or binge eat.

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The core physiological features of anorexia nervosa are the extreme overvaluation of shape and weight. The primary features of this syndrome are significant voluntary weight loss, hypometabolism, amenorrhea, and excessive exercise despite cachexia. Moreover, more severe and causes cardiovascular complications and majorly refeeding syndrome-DSM-5 (Diagnostic & Statistical Manual of Mental Disorders 5th Edition) Criteria for Anorexia Nervosa.

To be diagnosed with anorexia nervosa, a person must meet all of the current DSM criteria:

Restriction in food intake leads to weight loss or failure to gain weight, which results in a significantly low body weight compared to someone of the same age, sex, and height.

Fear of weight gaining or becoming fat. Have a distorted view about themselves and their condition (Examples of this might include the person thinking that they are overweight when they are actually underweight or believing that they can gain weight by eating just one single meal.

A person with an may also not believe that there will be a problem with being at a low body weight; these thoughts are known to professionals as "distortions"). We cannot pinpoint a single cause for anorexia nervosa. It is caused by the complex interaction of various genetic and psychosocial factors, other risk factors include stress, social isolation, poor emotion regulation strategies, general psychiatric co-morbidities.

Consequences of Anorexia Nervosa: Medical Consequences include Amenorrhea, Infertility, Osteoporosis, Hypoglycemia, Sudden Death-Arrhythmia, Refeeding Syndrome, Bradycardia, Hypotension and Dryskin. Psychosocial Consequences includes social Isolation, Aggression, Irritability, Anxiety, Dysphoria

Treatment for Anorexia Nervousa: Enhanced cognitive behavior therapy. Mantra- Maudsley model of anorexia nervosa treatment for adults. Family therapy

Refeeding Syndrome: Refeeding syndrome is defined as the occurrence of severe fluid and electrolyte shifts and dysfunction of various organ systems, for example cardiovascular, neurologic and hematologic complications. There is a rapid reversal in the insulin, thyroid, and adrenergic endocrine systems in refeeding syndrome. The prominent features of refeeding syndrome include severe hypophosphatemia, hypokalemia and hypomagnesia, other fluid imbalance abnormalities, vitamin deficiencies, volume overload, and edema. Rare occasions patients with the refeeding syndrome may develop gastrointestinal symptoms and can show abnormality liver function test results

Case Report: A 16-year-old female adolescent presented in emergency with the following complaints of severely cachetic (BMI-11), hypothermic- 94°F, and bradycardia (30-40/min). Her initial blood investigations showed deranged liver function &renal function, and thrombo-cytopenia was also evident. After observing all the signs and symptoms, the physician initially diagnosed the case as anorexia with multi-organ dysfunction. It was also seen that she had refeeding syndrome in the form of low phosphate, decreased magnesium and other electrolytes. Her early medical history shows complaints of intentional weight loss, constipation and abdominal pain for 4 months and so was shown in the outpatient department. Gastroscopy shows moderate gastritis and mild duodenitis and diagnosed with dyspepsia, weight loss, and constipation. During further follow-ups, no improvement occurred, constipation bowels were getting improved on taking laxatives, but relapsed on stopping laxatives, menarche was irregular 6/12, skin and breast atrophy was found, clitoris prominent due to loss of fat, functional hypothyroidism, complaints of petechiae/ purpura, 3 days before admission, the child was seen with hypotension, worsening hypothermia, and thereby admitted in the inpatient department.

IV antibiotics (Meropenem) and anti-fungals (fluconazole) were started as prophylaxis while the culture samples were sent. Polyethylene glycol was given for laxative purpose. She was started on IV fluids (dextrose) to maintain her calorie requirement. Magnesium, phosphorus and potassium supplements were included. Magnesium hydroxide 400mg & sodium acid phosphate has been started. A special diet plan was made since she continues to refuse oral feeds. Psychological counseling was initiated, and antipsychotics (risperidone) and antidepressant (mirtazapine) were added. One episode of hypotension was managed with IV fluid bolus (sodium chloride).

The further evaluation shows that low calcium, vitamin-D, and calcium carbonate has been included; thyroid profile shows hypothyroidism and thereby started a minimal dose of thyroxine sodium (25mcg). Blood investigation still shows thrombo-cytopenia. It was observed that she had ecchymotic patches over the chest. Colonoscopy shows ileal ulcers and patchy colitis. Histopathology shows mucosal acanthosis; gastroscopy report shows mild chronic antral gastritis and liver functions test was found to be high. With all this subjective and objective evidence, the consulting physician concluded that the child has Anorexia Nervosa with electrolyte imbalance, refeeding syndrome, deranged LFT,

secondary hypothyroidism, ecchymosis of skin secondary to malnutrition, cardiovascular instability. Her target calories gradually increased with a gradual reduction in IV fluids; electrolytes were adjusted accordingly and checked periodically. Initially, she was hesitant to take her feeds which improved with effective psychological counseling. Multivitamins were also added to the treatment regimen. The parents were also counseled regularly about the condition and the ongoing treatment regimens. The culture showed no growth, and hence antibiotics were stopped. Cardiac functions were constantly monitored. Her zinc and vitamin-klevels were in the lower than normal limits, so supplements were added for this. On further blood investigation, it was seen that platelets were increased and reached within the normal limit. Normal bowel movements were also seen, and thyroid levels were also found to be normal; hence anti-hypothyroid drug was stopped. Heparin ointment was advised for ecchymosis. Further days, the liver function test was also improved on treatment. In the following days, it was started showing evidence of improving her conditions, so was planned for discharge.

At the time of discharge her BMI increased to 11.7, blood investigation shows normal levels of sodium (145mEq/L), potassium (3.5mmol/L), urea (11mg/dL), creatinine (0.5mg/dL), total bilirubin (0.6mg/dL), protein (4.7g/dL), albumin (3.4g/dL), Liver function were improved significantly. Platelet was restored to normal range (3.21 lakhs/µl). Magnesium was found to be (1.6mg/dL) and phosphorus (4.1mg/dL).

She was found to be hemodynamically stable, and as per psychiatric counseling, she was encouraged to recognize her triggers and advised regarding coping skills she was improved in taking her daily diet, temperature instability was found to be stable, cardiac functions were normal, blood gas done was normal, vitamin k level improved, pt INR values were found to be normal hence discharged with advice

DISCUSSION: Anorexia nervosa (AN) has the highest mortality of any psychiatric disorder [5]. It has a prevalence of about 0.3% in young women. It is more than twice as common in teenage girls, with an average age of onset of 15 years; 80-90% of patients with anorexia are female. An is the most common cause of weight loss in young women and admission to child and adolescent hospital services [6]. Most cases are brought to clinical attention only when severe somatic complaints [7]. According to the Global Leadership Initiative on Malnutrition (GLIM) classification, the patients with AN present chronic disease-related malnutrition without inflammation with different degrees of severity. This means that the main etiological factor of malnutrition is starvation [10]. Extreme malnutrition can result in elevated levels of liver enzymes.

Hepato-cellular injury can occur due to the triggers of malnutrition such as apoptosis, autophagy, hypoperfusion of liver, oxidative stress & hypoxia [3]. It is common to have dry skin in patients with nutritional deprivation [1]. Inadequate intake of primary nutrients, as with certain diets can present with other dermatological conditions [14]. The patients with AN present micronutrient deficiencies due to low food intake that can be aggravated in patients with purging habits and during the refeeding process [11.] In these patients, constipation can be seen due to reduced calorie intake.

Bradycardia & hypotension are the most common physical findings in patients with anorexia nervosa [1]. Bradycardia in anorexia is due to decreased metabolism of energy utilization which can be due to less calorie intake & physiological adaptation to increased vagal tone. Bradycardia is reversible with clinical improvement on treatment and proper weight gain [4]. A variety of disturbances in thermoregulatory processes have been identified in patients with AN. Malnutrition, thermal insulation loss, and hypoglycemia are generally accepted as the principle underlying mechanism [8]. Acrocyanosis is a condition due to shunting of blood flow in response to hypothermia [1]. Patients with hypothermia conditions can be improved by oral intake & warming. The temperature should be maintained up to 96-97°f.

RBC, WBC, and platelets can be affected by bone marrow which is adversely affected by AN, which may lead to thrombocytopenia.[1] Changes of the peripheral blood cell count in patients with an is a frequent observation, revealing that almost one third of them suffer from anemia or neutropenia and 5–10% from thrombocytopenia [12].

Ecchymoses and petechiae is a bleeding tendency caused by anorexia [2]. Hematological changes without any other severe complications can be due to bone marrow microenvironment alterations; this can be reversed with good weight gaining and adequate nutrition [9].

Refeeding syndrome (RS) has been described in malnourished patients with AN and mainly involves mineral deficiencies (hypophosphatemia, hypokalaemia, and hypomagnesaemia), as well as vitamin (thiamine) deficiencies and volume overload [10]. Hypophosphatemia is the main cause of refeeding syndrome, which leads to the depletion of phosphorylated compounds. These are mainly for the production of energy, protein synthesis & glycogen formation [2].

If the syndrome is detected, the feeding rate should be slowed down, and essential electrolytes should be replenished. The hospital specialist dietetics team should be involved. Fluid repletion should be carefully controlled to avoid fluid overload [15]. In anorexia, Nutritional supplements can improve weight gain, which can reverse the abnormal hematological factors, dermatological factors, bradycardia & abnormal liver enzymes. Although nutritional rehabilitation is an essential component of the physical treatment of anorexia nervosa, psychological treatment is also necessary to address the anxiety issues of the patient [13]. The evidence base for the use of drugs in anorexia nervosa is poor; psychological therapy works in a better way. Family work is the only well-researched intervention that has a beneficial impact; in younger patients, motivation for treatment lies with parents, schoolteachers, or medical professionals. The guiding principle of motivational enhancement is to acknowledge and fight the patient's ambivalence about recovery. Treatment is more effective when the therapist and patient work together against anorexia [6].

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