**Bone Marrow Dysfunction**

**Definition:** It is the reduction or cessation of blood cell production affecting one or more cell lines. Pancytopenia, or decreased numbers of circulating red blood cells (RBCs), white blood cells (WBCs), and platelets, is seen in most cases of bone marrow failure, particularly in severe or advanced stages.

**Cause/Etiology:**

1. A decrease or damage to the haemopoietic steam cells
2. Maturation defect such as VIT B-12 deficiency
3. Differentiation defect such as myeldoplasia.

**Pathophysiology:**

The pathophysiology of bone marrow failure includes

(1) Destruction of hematopoietic stem cells as a result of injury by drugs, chemicals, radiation, viruses, or autoimmune mechanisms;

(2) Premature senescence and apoptosis of hematopoietic stem cells as a result of genetic mutations;

(3) Ineffective hematopoiesis

**Clinical feature:**

1. Anemia
2. Bone pain
3. Numbness of limb
4. Confusion
5. Constipation
6. Infection
7. Nausea
8. Vomiting

**Treatment:** Bone marrow transplantation

**Investigations:**

1. Ultrasound test
2. MRI test
3. Ultrasound test
4. PET scans
5. Bone marrow aspiration
6. Bone marrow biopsy test
7. Serum erythropoietin

**Treatment:** Bone marrow transplantation.

**Created By**

**Rana Singha**

**Companiganj Upazilla Health Complex**