CHAPTER 4

BLOOD DISEASES

BLEEDING DISORDERS

The management of bleeding disorders is based on a precise diagnosis. If bleeding is life-threatening, replacement of blood and fluids for haemodynamic stability takes priority.

SALIENT FEATURES

Suspect

(a) Vascular and platelet disorders—if prolonged bleeding from cuts, purpura and mucosal bleeding.
(b) Coagulation disorders—if delayed bleeding from injury, bleeding into joints, muscles and GIT.

Treatment

General measures

Stop anticoagulants, if any. No intramuscular injections; no aspirin or nonsteroidal anti-inflammatory drugs (NSAIDs).

Apply local pressure to stop bleeding.

PLATELET DISORDERS (THROMBOCYTOPENIA)

Low platelet counts suggest either reduced production or increased destruction of platelets. In reduced platelet production, bone marrow examination shows reduced megakaryocytes and common causes are: megaloblastic anaemia, aplastic anaemia, marrow infiltration by malignancy. If bone marrow shows increased or normal megakaryocytes, it implies increased destruction as in idiopathic thrombocytopenic purpura (ITP), hypersplenism, disseminated intravascular coagulation (DIC). Infective disorders especially malaria and dengue are commonly associated with thrombocytopenia.

Treatment

Treat the primary cause.

Platelet transfusion is indicated mainly when platelets are not adequately produced and aim is to keep platelet count above 20,000/mm^3. If there is no fever and no clinical bleeding, even counts of 10,000/mm^3 are acceptable. Transfusing platelets in ITP is not useful as these are rapidly destroyed, but platelet concentrates may be transfused in life-threatening bleeding before specific therapy takes effect.

Platelets are stored at room temperature (22°C) on an agitator for up to 3-5 days. Once issued, they should be transfused rapidly.

Dose: One single donor platelet collected by apheresis raises platelet counts by 30,000 to 50,000 in an adult. One random donor platelet collected from a single unit of donated blood raises platelet counts by 5,000-10,000/mm^3 in an adult. The rise is less in DIC, ITP, febrile patients and during active bleeding. To check efficacy of transfusion, measure platelet count 45 minutes after transfusion.

Idiopathic thrombocytopenic purpura (ITP)

Test for HCV and HIV, iron deficiency for newly diagnosed patients. Bone marrow examination is not necessary irrespective of age of patients presenting with typical ITP.

Treatment

Tab. Prednisolone 2 mg/kg/day till response or 4-6 weeks and taper off slowly.

Or

Inj. Immunoglobulin 400 mg/kg/day for 5 days is as effective as steroids, response may be faster, but is much more expensive in case of contraindications to corticosteroids.

Or

Inj. Anti-D 50-75 mcg/kg single dose IV in Rh-positive, non-splenectomised patients.

Failure with one therapy may still be followed by response to other therapy. If there is poor response to the above, case must be referred to specialist centre for consideration of splenectomy.

PLATELET FUNCTION DEFECTS

If clinical presentation suggests platelet defect but platelet counts are normal, suspect platelet dysfunction. Bleeding time is prolonged in most cases. Platelet function tests will confirm the defect but facilities are not routinely available. Commonly caused by aspirin/NSAID use, and hereditary disorders.

Treatment

Stop NSAID use.

If active bleeding occurs, transfuse platelets.

COAGULATION DISORDERS

There is prolongation of coagulation parameters:

1. Prolonged prothrombin time: In liver failure, vitamin K deficiency, oral anticoagulants, disseminated intravascular coagulation (DIC).
2. Prolonged thrombin time, heparin use, DIC.

Treatment

Treat the underlying cause. If cause is not clear, give vitamin K and fresh frozen plasma (FFP) depending on investigation.

For overdose of oral anticoagulants or vitamin K deficiency.

Inj. Vitamin K intravenous (use IV preparation) 10 mg IV once daily for 3 days or till response.

For infusion of plasma components, refer to a specialist.

Fresh frozen plasma (FFP) contains active clotting factors present in blood.

Dose is 15 ml/kg initially, followed by 10 ml/kg every 12 hourly.

Cryoprecipitate contains factor VIII and fibrinogen and may be used in haemophilia and in DIC as replacement therapy. Factor VIII concentrates are needed for haemophilia A (refer to a specialist).

References

1. Bleeding and Thrombosis. In: Harrison's Principles of Internal Medicine. Fauci, Braunwald, Kasper et al (eds), 18th Edition, McGraw Hill Company Inc., New York, 2012; 457-464.
2. Evidence based Practice Guidelines for Immune-thrombocytopenia. The American Society of Hematology. Blood 2011; 117: 4190-4207. 2011.