SUMMARY

The human organism has evolved complex mechanisms to ensure that no massive blood loss follows tissue damage and that circulating blood retains its fluidity. In response to vascular insult, blood around the site of damage is converted from a fluid to a solid state, with the formation of a primary hemostatic plug composed primarily of platelets and fibrin. This response is controlled so that the reaction remains localized and the entire vasculature is not blocked with thrombus. These responses and control mechanisms are known as ***hemostasis.*** Thrombosis may occur when there is a disorder or imbalance of the control mechanisms of hemostasis, or when there is an anatomical defect of the vessel wall or circulatory system. Hemostasis involves the interaction of plasma proteins, platelets, endothelial cells and blood flow.

Preoperative monitoring of hemostasis is of clinical importance, since no single test will detect all aspects of coagulation system,several tests must be performed concomitantly to assess each part of coagulation cascade.Aserious of laboratory tests are available to evaluate platelet function and number,coagulation phases and the clot lysis processes.

In ccardiopulmonary by pass the passage of blood through the heart lung machine and its tubing could lead either to sudden massive coagulation with frank clots developing in the tubing or, more commonly, to an insidious microscopic process leading to complete depletion of coagulation factors and subsequent intractable hemorrhage.

To prevent this, complete reversible inhibition of the clotting process must be achieved before extra-corporeal circulation is instituted, heparin is the current anticoagulant of choice and is normally administered prior to aortic and vena caval cannulation. At the end of bypass, following removal of the vena caval line, the action of heparin is reversed by the administration of protamine

For the management of acute thrombotic events in pregnancy therapeutic doses of low molecular weight heparins (LMWH) may be used, unless the shorter half-life of intravenous unfractionated heparin (UH) and predictable reversibility by protamine are important. Treatment should be continued up until delivery and into the puerperium. Pregnant women who have had an acute thrombotic event should be delivered by a specialist team. Women with mechanical heart valves are at high risk during pregnancy and require therapeutic anticoagulation throughout pregnancy under the direction of experienced specialists. Low-dose aspirin can reduce the risk of recurrent pre-eclampsia by about 15%, but the role of UH and LMWH in the prevention of recurrent miscarriage or obstetric complications associated with uteroplacental insufficiency is still uncertain

Several perioperative factors may cause an increased incidence of VTE. General anesthesia induces a reduction in blood flow to the lower limbs. As a result, areas of the endothelium in the calf veins become hypoxic and release mediators that attract and activate platelets and leucocytes. The subsequent clot propagates, particularly in the presence of reduction in fibrinolytic activity. General anesthesia there are gives rise to

Virchow's triad (venous stasis, abnormal coagulation and intimal damage) and predisposes to intravascular coagulation. In addition, surgery causes a reduction in fibrinolytic activity after operation, which has been shown to be related to an increased incidence of DVT.

In major orthopaedic surgery there is a high risk of both thromboembolism and haemorrhage, which although not directly fatal, indirectly fatal, indirectly exposes the patient, often elderly, to cardiac complications. Deep vein thrombosis *(DVT)* is a dangerous and underestimated complication in patients undergoing this type of surgery. If prophylaxis is not carried out, DVT develops in 50% of cases and pulmonary thromboembolism (PTE), which as is its most severe complication, is fatal in 1-5% of patients

Antiplatelet agents are indicated in the prophylactic treatment of certain thromboses, and in particular those due to a complication of atherosclerosis. Acetylsalicylic acid is the best-known, the most commonly used and, probably, the currently most effective agent.