HEMORRHAGE

CLASSIFICATION & TYPES:

- **Arterial Hemorrhage**: it is recognized as bright red blood, spurting as a jet which rises and falls in time with pulse.
- **Venous Hemorrhage**: it darker red steady and copious flow, the color dark from excessive oxygen desaturation, later it becomes more darker because of further bleeding, except venous bleeding from pulmonary veins which is bright red due to oxygenation.
- **Capillary Hemorrhage**: it is bright red, often rapid ooze.
- Primary Hemorrhage: occur at the time of injury or RTA immediately or seen in surgical incisions at operation.
- **Reactionary Hemorrhage**: it is occur usually within 4-6 hrs after injury or operation, but in general it is with first 24 hrs, mainly to slipped ligature, or knot are not strong enough o dislodgement of blood clot, or post operative increase in blood pressure, or even post operative increase in venous blood pressure.
- **Secondary Hemorrhage**: it occur mainly 1-7 or even to 14 days post operatively, due to infection, erosion of blood vessel, CA affect blood vessel wall, bone fragment or even metal fragment that cause pressure and irritation to blood vessel,< mainly appear and start as little bleeding few days after operation on dry wound dressing.
- **Internal Hemorrhage**: that not seen by eye e.g. ruptures spleen or liver with bleeding in the peritoneal cavity or cerebral hemorrhage.
- **External Hemorrhage**: can be seen by eye e.g. penetration of skin by knife or piece of glass or bullet, or haematomesis, haematuria, vaginal bleeding…etc.

Clinical Presentation of Patient with Hemorrhage:

1. Pale, cold wet skin.

2. Restlessness, anxiety mainly due to effects of hypoxia on midbrain.
3. Rapid pulse with normal or increase BP which is maintained first by compensatory mechanisms when the bleeding continues or becomes severe leading to hypotension.
4. Deep sighing breathing (air hunger).
5. Thirst, occur in late stages.
6. Empty veins & difficult IV cannulation

Clinical & Lab. Measures:

1. Charting of the patient vital signs (PR,RR,BP, TEMP.) should be done
2. monitoring of patient clinical signs.(polar, sweating cyanosis, cold nose…etc)
3. Blood loss assessments (clinical judgments depend on clinical observation and experience e.g. weighing of dressing or packs, blood clot size, sucker volume…etc)
4. PCV & Hb testing (those should be repeated every 8 hrs for accuracy especially in case of blood loss and after blood transfusions.
5. Central venous pressure measurement, this can be done by introducing a catheter through the arm veins till it reach superior vena cava (SVC) and this will give the readings on a manometer.

Treatment of Bleeding

- **Stop of bleeding**

1. Applying of pressure or compression by bandage or sterile gauze on stie of bleeding.
2. Digital pressure directly on bleeding area or site.
3. Packing by means or rolls of gauze or cotton.
4. Use of tourniquet (less than 1 hrs)
5. Position and rest (e.g., limb elevation …etc)
6. Vascular control (proximal & distal to the operation field and site.

7. Spry coagulation using Argon beam system for surface oozing over a wide area.
8. Sedation e.g. diazepam 10mg……morphine 15-20mg….pethidine 100mg.
9. Cautery and diathermy (thermal application)
10. Cryotherpy (thermal application)
11. Ligatures.
12. Surgical clips.
13. Surgical operation e.g. spleenectomy
14. drugs administration e.g Adrenaline
15. bone wax
16. synthetic substances e.g. gelfoamor oxycell
17. Recently Laser applications

- **Restore of blood volume**: mainly by blood transfusion, IV fluids(dextran, Macrodex and normal saline) ,platelets or FFP.