

EMT LESSON PLAN: HEMOSTASIS & SHOCK

I. ~~MONITORING~~ THE CIRCULATORY SYSTEM

A. STRUCTURE:

- AORTA, ARTERIES, ARTERIOLES, CAPILLARIES, VENULES, VEINS, VENAE CAVAE
- CIRCULATION THROUGH HEART & LUNGS (REVIEW CONSEQUENCES OF L. HEART FAILURE & RIGHT HEART FAILURE)
- Blood

* rbc's: O_2 TRANSPORT BY HEMOGLOBIN

* wbc's: IMMUNOLOGIC PROTECTION

* plasma: - H_2O (IMMUNOLOGIC (FIBROBLIN)) FOOD

- PROTEIN { STRUCTURAL (ALBUMIN)

- FOOD { LIPOPROTEINS, BLOOD GLUCOSE ...

- PLATELETS (CLOTTING)

- CO_2 / HCO_3^- BUFFER / CO_2 TRANSPORT SYSTEM

- EXCHANGE IN LUNGS & AT CELLS (DIFFUSION + ACTIVE TRANSPORT) (BLOOD / BRAIN BARRIER)

- NORMAL ADULT VOLUME 6 LITERS "LOSS OF 1L IS SERIOUS"

B. FUNCTION

- MUSCULAR ARTERIAL WALLS

- VALVES IN VEINS (MUSCULAR ACTION \Rightarrow PUMPING)

- LYMPH CIRCULATION (")

$$CO = HR \times SV$$

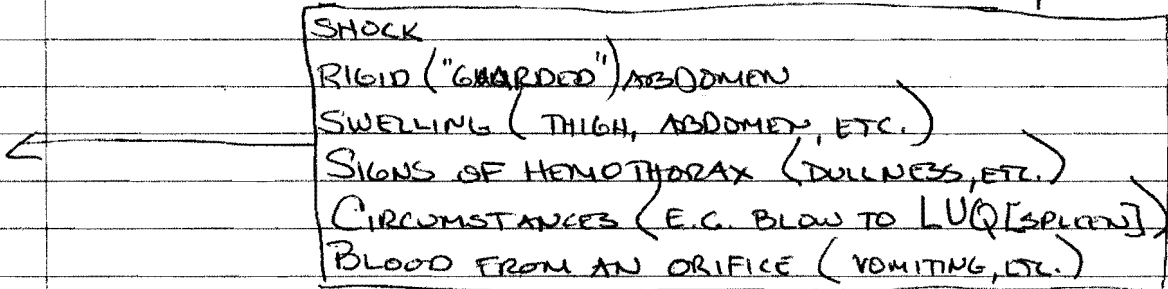
$$72 \times 72 \approx 5 L/min.$$

- CAPACITANCE VEINS: SYMPATHETIC & HORMONAL CONTROL OF SIZE

II. BLEEDING & HEMOSTASIS

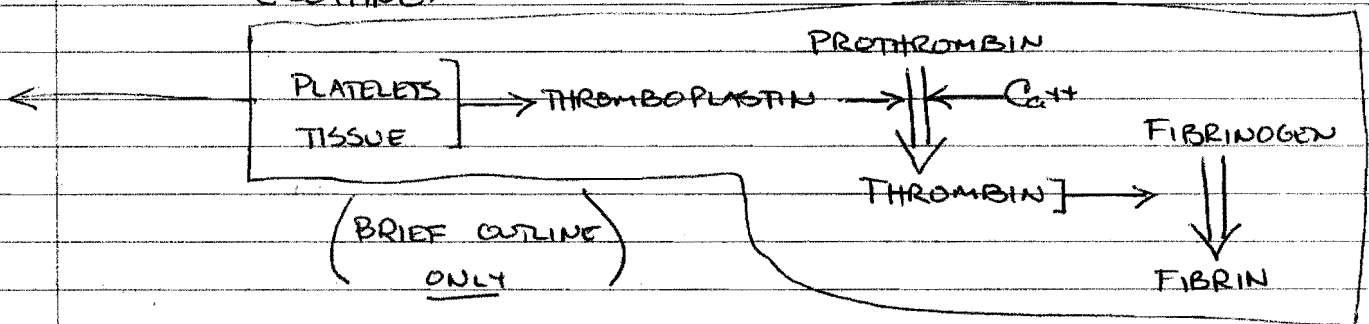
A. BLEEDING

- ARTERIAL: BRIGHT RED SPURTS
- VENOUS: STEADY FLOW (NOTE: VENOUS BLOOD IS DARK, BUT BECOMES BRIGHT RED ON EXPOSURE TO AIR)
- CAPILLARY: OOZE
- INTERNAL: MUST BE INFERRED FROM SIGNS & SYMPTOMS



B. NORMAL RESPONSE TO INJURY

- VESSEL ENDS RETRACT (UNLESS RAGGEDLY TORN)
- CLOTTING:



- SPECIAL CASES

- * SCALP
 - ① PRESSURE ON EDGES
 - ② REFLECTION OF TUNICA ALBA
 - ③ PRESSURE ON TEMPORAL OR CAROTID
- * EPISTAXIS
 - ① AVOID ASPIRATION & SWALLOWING BY POSITION
 - ② DON'T STOP BLEEDING IF SKULL FX SUSPECTED (SAME W/ EAR BLEEDING) WHY?
 - PRESSURE RELIEF
 - INFECTION
 - ③ PINCH NOSTRILS
 - ④ GAUZE ROLL UNDER UPPER LIP / PRESS
 - ⑤ ↓ BP ↓ ANXIETY
 - ⑥ ICE
 - ⑦ PACKING

- TOURNIQUETS

- * USE BP CUFF OR WIDE BANDAGE w/ PAD OVER ARTERY
- * TIGHTEN JUST ENOUGH TO OCCLUDE ARTERIAL FLOW (WHAT HAPPENS IF SLIGHTLY BELOW THIS PRESSURE?)
- * DON'T REMOVE: 45 MIN ISCHEMIA AND LIMB IS NOT DAMAGED;
- * "TOURNIQUET SHOCK" FROM RELEASE OF TOXINS ON TOURNIQUET RELEASE
- * EMBOLI FROM TOURNIQUETS RELEASE POSSIBLE
- * MUST BE OBVIOUS "TK" ON FORTHEAD, w/ TIME, IN BLOOD.
- * IN MASS CASUALTY SITUATION, DON'T COVER TOURNIQUET.

- PRESSURE DRESSINGS

- * DON'T USE AOE BANDAGE OR STRETCH ~~BAND~~ GAUZE. WHY?
- * GEN. RULE: DON'T REMOVE DRESSINGS, JUST ADD MORE ON TOP
- * PLACE BULKY STERILE PAD OVER WOUND
- * BANDAGE WELL WITH KLING
- * CHECK DISTAL PULSE REGULARLY