

* Lec (1) :

polycythemia

Mainly 2 type

① Relative polycythemia

- فاصني زيادة حقيعية في Mass وانما انضامها في volume قليلاً بسبب فقدان السوائل.

↓ volume ↑ concentration of RBC Mass

- Severe diarrhea
- diuretic مدرات البول
- water deprivation ما يترد فاي

② Absolute polycythemia

- Real increase in RBC Mass
↑ Erythropoiesis in Bone Marrow

↑ RBC

and some outside the bone

Marrow Spleen, liver.

"polycythemia Vera"

primary

Secondary

Mutation in Gene "Tyrosine Kinase JAK2"

hypoxia

↓ O₂ delivery
To tissue
↑ Erythropoietin

* Secondary Absolute : ↓ O₂ → ↑ Erythropoietin

No splenomegaly

① Causes → a) adaptive - "high Altitude" ↓ O₂ ↑ RBC

"cyanotic heart disease" hypoxia لونه دم أزرق

عدم وصول بالقلب زخم في O₂

"chronic pulmonary disease"

"Sleep apnea" اضطراب أثناء النوم ↑ RBC

بسبب السمنة مثلاً

b) paraneoplastic → cancer Need high Energy ↑ O₂ consumption.

c) drinking Alcohol

frequent urination "Relative polycythemia" ↓ volume of Blood
depression in Respiratory Center ↓ O₂ ↑ RBC

d) Blood doping : endurance : منسجاة الدم : endurance
 ارتباطه التحميه قبل الجري مع الزحف مع ليس جسمه
 فيه RBC ليكن طبيعي high + Bradycardia

e) Smoking ☠️

2) Symptoms : Related to the causes " liver cirrhosis in Alcoholic patient"

- General in all polycythemia Regarding the cause.
- plethora "احمرار" زيادة بترديه الدم
 - headache
 - clotting تجلط
 - cyanosis → viscus Blood
 - dizziness
 - ↑ Bleeding
 - "ازرقاقه" نقص في التردية الك بعض الاعضاء
 - Blurred vision
 - RBC تجز
 - hypertension
 - (uwf) clotting factor لا

3) Labs : 1) ↑ Hb > 16.5 > 16
 Men Women

2) ↑ hematocrit > 49 > 48
 Men Women

3) ↑ RBC count * Lab finding

4) Treatment → Treat the Underlying Causes.

* primary Absolute : "polycythemia Vera"

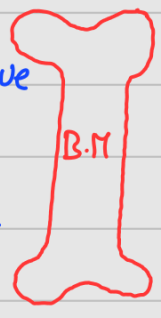
1) pathogenesis

in polycythemia vera (Myelo proliferative

Syndrome) تكثر غير مدرودس

Because of Mutation of Gene Mckia

The Receptor → يرض تنال ↑ RBC



Hematopoietic Stem cell



→ All Blood cell

RBC, WBC, platelet

Erythropoietin

Erythropoietin يستجيب "Tyrosine Kinase jak2" Receptor على سطحها

ترتبط لا Receptor وتنشط فتتكاثر الكية . اما تابدي يا و تكثر تاكونه

في Erythropoietin

- one of the findings in polycythemia vera is "panmyelosis"
all cells increase in production

Because of the increase in Hematopoietic stem cell proliferation

"splenomegaly" spleen \rightarrow زيادة حجم الطحال \rightarrow زيادة إنتاج الخلايا

② Symptoms: General polycythemia symptoms.

- | | | |
|----------|----------------|--------------------------------|
| Specific | - pruritus | - Secondary Gout |
| | - peptic ulcer | - spent phase |
| | - AML | \hookrightarrow splenomegaly |

③ Labs: - leukocytosis \uparrow WBC
- Thrombocytosis \uparrow platelet
- jak 2 Mutation
- \downarrow Erythropoietin
- Hypercellular Bone Marrow

* Notes of Abdullhadi Okasha Lec.

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