

Polycythemia (erythrocytosis)

R/O lab error (redo CBC!)

	Hgb (g/L)	Hct
Men	>185	>0.54
Women	>165	>0.47

Relative

Normal RBC Mass
↓ Plasma volume
(mild ↑ in Hct!)

Smoking, obesity,
hypertension

Idiopathic

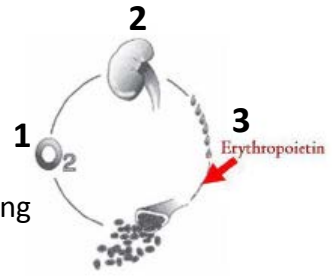
Dehydration
(burns, diarrhea,
diuretics)
→Tx: rehydration

Real

High RBC mass

Secondary (reactive)

↑ EPO
JAK-2 normal
Tx: treat underlying
cause!



Primary (Polycythemia vera, PV)

→Rare, acquired; pts > 60 yrs old
→headache, erythromelalgia, pruritus,
gout, plethora, ↑ plts/thrombosis
→splenomegaly, ↑ PMNs
→JAK2 mutation! (perpetually active
EPO receptor)
→Low/normal EPO, O₂ sat > 90%,

→Tx: Phlebotomy
+ ASA (great
prognosis)

1. Systemic Hypoxia

O₂ sat < 90% leads to ↑
EPO

High
altitudes

Heart murmur,
cyanosis w/out
pulmonary disease
→**Cyanotic Heart
Disease**

Abnormal CXR? SOB? Cough?
Smoking? Snoring?
Chronic chest/lung Sx?:
→**Sleep apnea**
→**Chronic pulmonary dx**

→Investigate: CXR, echocardiogram,
sleep studies, pulm func tests

2. ↓ O₂ delivery to Kidneys

O₂ sat > 90%, early onset, + family Hx,
abnormal P50 determination, ↑
carboxyhemoglobin, smoking

High O₂-affinity HgB:
(RARE)

→ congenital hemoglobinopathy
→ Familial polycythemia
→ Carboxyhemoglobin (CO binding Hgb)

→Investigate: Oxy-hgb dissociation
curve (determine P50)

**Renal artery
stenosis**

3. ↑ EPO secretion (tumor)

O₂ sat > 90%,
abnormal abdo ultrasound
Hx of testosterone/EPO use
→**Renal/hepatic EPO-
secreting cancer**
→**Self-injected
testosterone/EPO**

→Investigate: abdominal ultrasound to
look for growths/lesions in kidney/liver