HAEMATOLOGY 2 NOTES

LEC 1- ANAEMIAS (iron def, megaloblastic, aplastic)

IRON DEFICIENCY ANAEMIA
-Affects 10-30% of the population
-Iron
+80% in haem
+rest in myoglob and iron containing enzymes
+transferrin delivers iron to cells
>and to RBC precursors to make haemoglob (has high affinity receptors for transferrin)
+require 1-2mg/ day
+absorbed as Fe^{2+}
+amount absorbed depends on stores
+Fe^{3+} (oxidised 2+) is converted to ferritin (this is how it's transported)
+stored as ferritin and haemosiderin
+Free iron is toxic (we have no way to remove excess ourselves, need external iron chelation)

-Causes of iron def
+blood loss (in uterine or GIT)
+infants, adolescence, pregnancy and lactation require more
+malabsorption – gastrectomy, coeliac disease
+crap diet – cows milk has it, very rare in Australia
+parasites – in intestine e.g. hookworm
+latent iron deficiency
+depleted stores

-Clinical Features
+flat, brittle nails
+epithelial changes
+diet cravings
+ low MCV, MCH, MCHC, Hb, Hct, iron and ferritin
+High transferrin levels
+hypochromia
+microcytes
+pokilocytes
+elliptocytes
+target cells
+erythroid hyperplasia (in BM)
+pale RBCs (In BM)

-Treatment
+oral tablets
+treat cause – diet / haemorrhage

VIT B12 DEFICIENCY

-Vit b12

+essential in DNA synthesis
+help in mature RBCs
+keep nerve cells healthy
+found in meat, fish, eggs, milk and dairy
+made in microorganisms
+needed from diet
+need 2-5 ug /day
+intrinsic factor needed to absorb
+transported by transcobalomins
+store has 3-4 year supply

-Folate

+in leafy greens, liver, meat and fruit
+need 0.2mg /day
+absorbed as tetrahydrofolate (in the jejnum)
+store has a few months supply
+transported by albumin (weakly bound)
+def due to
-poor diet (fast food is bad)
-malabsorption (coeliac disease, sprue)
-increased requirement (pregnancy)
-alcohol
+Clinical features
-anaemia
-jaundice
-glossitis
-+/ weight loss
-neuropathy in b12 def
-oval macrocytes, hypersegmented neutrophils, +/ thrombocytopenia
-decreased vit b12 or folate
-decreased LDH
-decreased unconjugated bilirubin
-hypercellular (in BM)
-ineffective haemopoiesis (in BM)
+Diagnosis
-high MCV
-assay for vit b12, folate, anti-IR antibodies
-absorption of vit b12
-homocysteine level
+Treatment
-intramuscular b12 inj
-oral folate
-dietary correction