

# Obstetrics & Gynecology TEAM



## Anemia and Thyroid Diseases in Pregnancy

*Leader:* Sara Alhaddab

*Done By:* Rawan AlHayyan

◆ very important ◆ mentioned by doctor ◆ team notes ◆ not important  
Is by Kaplan

# Anemia & thyroid diseases in pregnancy



## Anemia

### PHYSIOLOGICAL CHANGES IN PREGNANCY

1. Blood vol. ↑ 50%
2. Plasma vol. ↑ disprop. to red cell mass plasma volume is more than RBC so hemodilutional effect
3. HCT ↓

CBC is important in order to diagnose

#### DEFINITION:

Hb < 12-g/dl in non pregnant

In pregnancy, definition of anaemia varies : <11 g/dl ~in 1<sup>st</sup> trimester  
<10.5 g/dl ~in 2<sup>nd</sup> and 3<sup>rd</sup> trimester

physiological changes in pregnancy maximum effect is in 2<sup>nd</sup> trimester

Postpartum anaemia is defined as Hb <10 g/dl

#### PREVALENCE

Anaemia affects ~24.8% of the world's population

Iron deficiency is the most common cause.

**I. Iron deficiency anaemia:** commonest deficiency state in the world as one third of the population is affected by IDA

- The commonest cause of anemia in pregnancy
- The fetus is always saved on the expense of maternal Fe stores

#### Diagnosis :

Clinical Symptoms & Signs:

Usually non-specific, unless severe:

- Fatigue.. most common.
- Pallor, weakness, headache, palpitation, dizziness, dyspnea and irritability.
- Poor concentration and hair loss( because of depleted iron storage). mi

#### Investigations:

1. **CBC with red cell indices:** is screening (routine) test we did it for all patient we don't wait for the patient to reveal symptoms, once she experience symptoms so she is in the severe form of anemia

low Hb

↓MCV & MCH& MCHC=Microcytic Hypochromic red cells-

2. **Smear to check for sickle cell**
3. **S. Ferritin, S. Fe & TIBC:** it is not a routine test however you have to consider it if you suspect IDA in the CBC picture

S.ferritin fall below 30 ug/l indicates early iron depletion

It is best single indicator of storage iron.

Patient we check her CBC even if she is not anemic we

check Ferritin is low because first iron stores become depleted and later on hemoglobin will be low

#### IDA:

- Hemoglobin <10
- MCV < 80
- RDW>15%

If there is IDA in the mother can the fetus acquire it as well?

No, because there is active transport of iron across placenta

However the complication of IDA could be IUGR and preterm birth

## Management of Iron Deficiency:

### 1. Dietary advice

2. **Oral iron supplements** every patient coming to antenatal clinic should be provided iron supplements as a prophylactic usually but if she is IDA we increase dose to her as we always give it with folic acid as folic acid known to prevent NTD

Recommended dose for treatment = 100 – 200 mg daily (We stick to this dose to not get the undesirable side effects)

e.g ferrous fumarate, ferrous sulphate and ferrous gluconate, combined iron and folic acid preparations

+/- Vitamin C to enhance absorption as it is preferable to be taken on empty stomach

(There are substances which interfere with absorption of iron as: tea – Ca (milk-Yogurt)

don't take it with supplement)

### 3. Parenteral Iron Therapy

- When there is absolute non-compliance, or intolerance to oral iron, or proven mal-absorption
- IM / IV

Most serious side effect of IV is anaphylactic reaction, IM is painful and can cause skin staining try to avoid it

We have to treat esp. if the patient is bleeding in delivery like post partum hemorrhage she may not tolerate the bleeding

## II. SICKLE CELL ANAEMIA

It is an inherited disorder it is recessive autosomal so you have to get the tow gene affected to show the disease but even if she is a carrier we have to counsel her

Most of patient will come already diagnose because it is the disease of childhood

The red cell contains Hb(s) instead of normal Hb. which causes the sickling.

SS = disease S = carrier

The disease is common in the Southern region, e.g. Gizan, Asir, Najran

### ❖ Complications in Pregnancy:

-↑ **Maternal mortality + morbidity**

HTN

Pre-eclampsia

Eclampsia

-↑ **Abortion**

-↑ **Perinatal mortality and morbidity**

prematurity(PROM-PREM.LABOUR), IUGR, IUFD

### ❖ PATHOPHYSIOLOGY:

Sickling of red cells with Hbs →sickle cell crisis.

Ischemia and infarcts of different organs. →

Pain →

We have to see these patient more than normal pregnant women in order to prevent complications as they are more prone to have HTN , Premature labour, pre-eclampsia , abrtio placenta , post partum hemorrhage

### ❖ Diagnosis :

**Hx and Physical + Lab:**

Screening by sickling test

Diagnosis by Hb electrophoresis after all

she diagnosed we have to check for other forms of abnormal hemoglobin because she could have a combine disease

**SICKLING** → 1. Bone  $\Delta$ s

2. Renal medullary damage

3. Hepatosplenomegally

4. Ventricular hypertrophy

Screening is peripheral blood test used to detect presence or absence of Hemoglobin S but can't differentiate between trait and disease we have to do diagnostic test which is hemoglobin electrophoresis

5. Pulmonary infarctions
6. CVS
7. Leg ulcers
8. Sepsis

The acute crisis are severe in pregnancy

→ Serious complications specially pulmonary

❖ **Management:**

She should avoid or pay attention to it dehydration and fever to avoid end organ failure or any crisis and she should come to the hospital

- ✦ Team approach Haematologist + Obstetrician
- ✦ R/O other causes of pain and fever and ↓Hb.
- ✦ Early Rx of infections : e. g. UTI

pneumonia

as they can cause acute crisis

- ✦ IV hydration + analgesia
  - ✦ Bld transfusion
  - ✦ ? Prophylactic transfusion
  - ✦ Close fetal monitoring → NST
  - BPP
  - U/S for grow
- + early delivery

❖ **MODE OF DELIVERY**

Vaginal delivery is encouraged

C/S is ↑ due to pelvic deformity

Continuous fetal monitoring due to impaired placental function

People don't like to leave them more than 40 wks because the higher the mortality and the higher the rate to get placenta abruption so a lot of people if she didn't go into labor before 40 wks they may induce it

In delivery get her hydrated , oxygenated and cross matched

**NB:**

Patient education and genetic counseling is important  
 Partner Hb electrophoresis  
 Prenatal diagnosis

- \* Sickle cell trait carries no risks

**With SA trait**

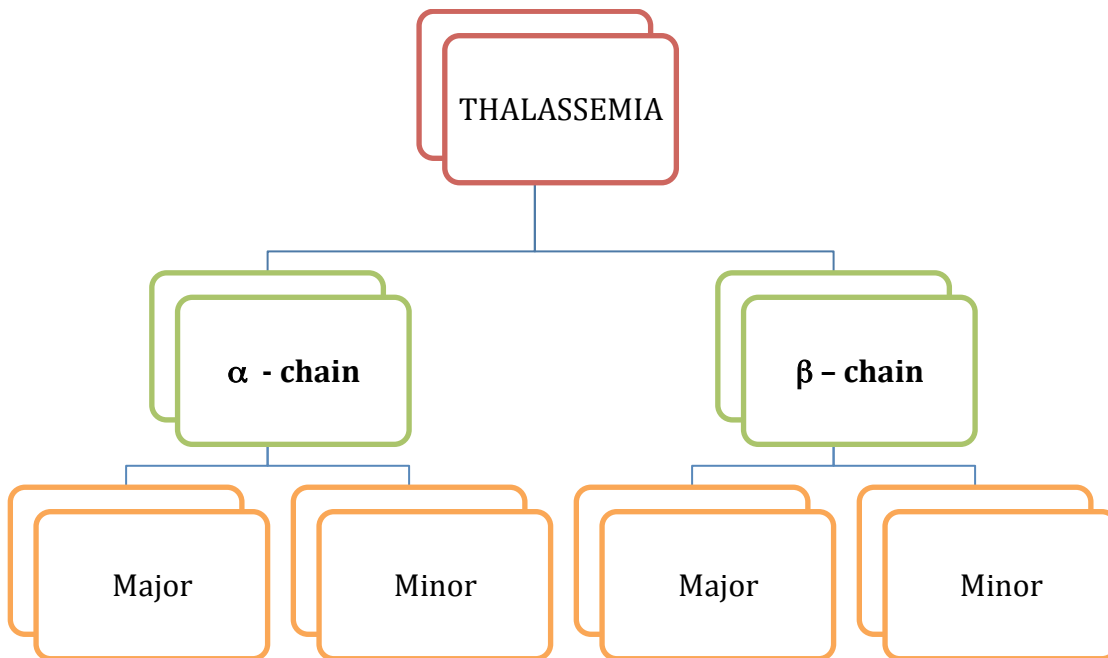
The only risk is increased UTI's in pregnancy

**With SS disease**

increased risk of IUGR, fetal death , and preterm delivery

**III. THALASSEMIAS**

They are impaired production rate of one or more peptide chains that are normal components of globin  
 → ineffective erythropoieses and hemolysis → anemia



not as severe as SCA affect on pregnancy of thalassemia

we want to monitor them esp for IDA and we need to treat it

### **Other anaemias**

- IV Anaemia from acute or chronic Bl. Loss
- V Anemia with chronic disease
- VI Megaloblastic anemia Folic acid

B12

# Thyroid disorder in pregnancy

## ❖ introduction

Pregnancy has significant impact on the normal maternal physiology .

There is increase in maternal production of thyroid- binding globulin by the liver because of estrogen stimulation .

There is increase in total T4 and T3 but there is no significant change in **free thyroid hormone FT4 FT3** .

The renal clearance of iodine increase in pregnancy .

Which hormone has affect on all (T3 – T4 – TSH)?

HCG

## I. Maternal hyperthyroidism

It occurs I in 500 pregnancies .

Majority are diagnosed before pregnancy .

Graves disease comprises 90% it is an autoimmune disease with circulating thyroid stimulating antibodies .

They had to be counseled regard 2 things: treatment and monitoring for complication in pregnancy and adjusting dose your aim is the lowest dose of that treatment which bring the maximum benefit which is upper normal level

## Rarer causes .

Toxic nodules.

Hashimotos thyroiditis .

Multiple nodular goiter

## ❖ Clinical presentation

Maternal tachycardia.

Weight loss.

Heat intolerance .

Heart murmurs .

Clinical diagnosis is difficult since all these symptoms are well recognized in normal pregnancy .

Thyroid function test will confirm the diagnosis.

Uncontrolled hyperthyroidism will cause.

Maternal cardiac arrhythmias like AF .

Vomiting ,diarrhoea ,abdominal pain and psychosis .

In case of autoimmune disease thyroid stimulating antibodies will cross the placenta and cause fetal goiter

TSH is low and thyroxin is High

When we start treatment? When we see low level of TSH

## Other complications.

Fetal growth restrictions .

Stillbirth .

Fetal tachycardia ..

Premature labor.

## ❖ Treatment

Drug therapy to maintain FT4 and FT3 in the normal range .

Treatment is usually medical with carbimazole , the lowest dose should be used as high dose may cross the placenta that will leads to hypothyroidism

Occasionally beta- blockers and surgical treatment can be undertaken

**Radioactive iodine is contraindicated.**

## **II. Maternal hypothyroidism** it is common in our society not only in pregnancy

The commonest worldwide cause is iodine deficiency

Maternal iodine deficiency is associated with the development of cretinism in the newborn due to congenital hypothyroidism .other cause is over treating hyperthyroidism .

Women treated with radioactive iodine will frequently use thyroxine supplements

### ❖ **Symptoms:**

Bradycardia .

Weight gain .

Heat intolerance .

Hair loss.

Constipation.

All is confusing with normal pregnancy symptoms

thyroid function test is not routinely done on pregnancy only when we suspect however we do offer them selectively to special patient esp. if they got Hx of thyroid diseases in the past – family Hx – previous Hx of infertility and miscarriages

### ❖ **Treatment**

by thyroxine replacement therapy.

## SUMMARY

ANEMIAS	INVESTIGATION	MANAGEMENT
IDA	CBC + S.Fe, TIBC, and S.Ferretin which is the best indicator of iron storage Low hemoglobin, S.Fe, S.Ferretin Hypochromic microcytic High TIBC, RDW>15%	Iron tablets
SCA	<b>Screening</b> by sickling test <b>Diagnostic</b> by hemoglobin electrophoresis	In general try to avoid dehydration and fever to prevent end organ failure or any crisis and she should come to the hospital and treat every complain accordingly

THYROID DISEASE	INVESTIGATION	MANAGEMENT
HYPER – THYROIDISM	THYROID FUNCTION TEST High free T level Low TSH	Medical with carbimazole
HYPO – THYROIDISM	THYROID FUNCTION TEST Low free T level High TSH	Thyroxine replacement therapy.

Good luck 😊

