ANAEMIA AND PREGNANCY

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INTRODUCTION

- MAJOR PUBLIC HEALTH PROBLEM WORLD-WIDE

DEFINITION

- ↓ CIRCULATING Hb BASED ON THE AGE AND SEX OF THE INDIVIDUAL

INTRODUCTION - 2

NORMAL VALUES (g/dl)

- Adult female	11.5 – 16
- Adult male	13.0 – 18
- Neonate	17.0 – 22
- Children (3-12M)	10.5 – 12
- Children (>1 yr)	12.0 – 13

CLASSIFICATION

1. **AETIOLOGY**

MAINLY:

- **EXCESSIVE BLOOD LOSS**
- **EXCESSIVE DESTRUCTION OF RBC (HEMOLYSIS)**
- **PROBLEMS WITH FABRICATION**

CLASSIFICATION - 2

2. MORPHOLOGY

- **MACROCYTIC**
  - **MEGALOBLASTIC**
  - **NON-MEGALOBLASTIC**

- **HYPOCHROMIC, MICROCYTIC**
- **NORMOCYTIC, NORMOCHROMIC**

PATHOPHYSIOLOGY

- ROLE OF Hb= O_2 TRANSPORT FROM LUNGS TO TISSUES, THUS, DECREASE CAUSES TISSUE HYPOXIA, RESPONSIBLE FOR ALL MANIFESTATIONS OF ANAEMIA

CASE OF IRON DEFICIENCY ANAEMIA

- TOTAL IRON: 3,5 – 5g NORMAL ADULT
- DAILY LOSS: 1 mg (men) & 2mg/day (Women)
- DAILY NEEDS: 1mg/day
- ↑NEED DURING PREGNANCY/BREASTFEEDING
- ↑ ABONDANT MENSTRUATION
- ↑ DURING GROWTH (Fe levels low at birth b/c only cumulated during the 3e trimester)
- Fe INGESTED AS FERRIC IRON
- BUT, REDUCED TO FERROUS FORM
- THEN ABSORPTION UPPER INTESTINE
- BINDS TRANSFERRINE, TRANSPORT

CASE OF IRON DEFICIENCY ANAEMIA - 2

SITUATIONS LEADING TO Fe DEF.:

- NUTRITIONAL DEFICIENCY IN Fe
- MALABSORPTION OF Fe
- ↑ NEED FOR Fe (Growth; Pregnancy)
- EXCESSIVE LOSS OF Fe (Hemorrhage)
- INADEQUATE UTILISATION OF Fe (sideroblastic.; Hbinopathies, chronic diseases; parasitic infections -ankylo…)

CASE OF FOLATE DEFICIENCY

Physiology

- TOTAL FOLATE = 10mg (MAINLY AS POLYGLUTAMATE FORM)
- DAILY NEEDS = 100ug
- DAILY LOSSES = 13ug
- ALL FORMS ABSORBABLE - DUODENUM AND UPPER JEJUNUM; ABSORPTION NORMAL IN ABSENCE OF GIT DISEASE

CASE OF FOLATE DEFICIENCY2

SOME SITUATIONS LEADING TO DEF.:

- NUTRITIONAL DEFICIENCY
- MALABSORPTION
- INCREASED NEED (PREGNANCY, HAEMOLYSIS)
- INCREASED LOSS (HEMODIALYSIS, HEART FAILURE…)
- ANTI-FOLATES (DRUGS, ALCOHOL)

ANAEMIA & PREGNANCY

Physiology:

- IMP. IN PLASMA VOL. > 6 WEEKS
- MAXIMUM VOL. AROUND 24th WEEK
- ↑ RESULT = DILUTIONAL ANAEMIA
- ↑ ALSO OF RBC MASS BY 17 -25% DUE TO ACCELERATION OF ERYTHROPOIESIS DURING PREGNANCY
- PLASMA VOL. NORMALIZES 1-3 WEEKS > DELIVERY

ANAEMIA & PREGNANCY - 2

IRON & PREGNANCY:

- PROGRESSIVE ↓ IN SERUM IRON
- - DURING NORM. PREGNANCY, 750mg Fe LOST:
    - 400mg=FOETUS
    - 150mg=PLACENTA
    - 200mg=DELIVERY & BREASTFEEDING
    - In addition to normal Fe loss each day
- THUS, CLOSE PREGNANCIES…beware!!!
- ↑ RBC MASS→ ↑NEED FOR Fe, ↑↑↑ IN PREMATURE
- THUS, IF Fe DEF.+ DILUTION → SEVERE ANAEMIA

ANAEMIA & PREGNANCY - 3

PREVENTION OF Fe DEF. ANAEMIA

- Fe requirement in pregnancy = 2.5 mg/day
- In 3rd trimester = 3 – 7.5 mg/day
- Fe loss from lactation: 0.5 –1mg/day

These cannot be obtained from food absorption alone, thus:

Fe SUPPLEMENT NEEDED:

- 200mg elementary Fe each day (Fe sulphate; gluconate or fumarate)

ANAEMIA & PREGNANCY - 4

FOLATE DEFICIENCY & PREGNANCY

DURING PREGNANCY:

- ↑ FOETAL REQUIREMENTS
- NUTRITIONAL DEF.(CAPRICES WITH FOOD, LOW SOCIO-ECON. LEVEL…)
- INCREASED NEED IN 3rd TRIMESTRE & AFTER DELIVERY

ANAEMIA & PREGNANCY - 5

PREVENTION OF FOLATE DEFICIENCY

- **FOLATE NEED = ↑ BY 100 – 300 ug/day**
- **THUS, SUPPLEMENTS IMP.**
- **SEVERAL SCHOOLS:**
  - TO ALL WOMEN DURING 3rd TRIMESTER
  - TO ALL WOMEN THROUGHOUT PREGNANCY
  - ONLY TO WOMEN WHO BECOME VERY ANAEMIC

ANAEMIA & PREGNANCY - 6

DOSES FOR FOLIC ACID

2 SCHOOLS:

- 100ug/day
- AT LEAST 5mg/day

IMPACT OF ANAEMIA ON PREGNANCY & FOETUS

- **MAY AFFECT THE PREGNANCY OUTCOME, WITH ↑ INCIDENCE OF:**
  - **ABRUPTIO PLACENTA**
  - **UTERINE BLEEDING**
  - **RARELY ERYTHROBLASTOPENIA**
  - **BACTERIURIA**
- **MAY AFFECT FOETAL OUTCOME:**
  - **PREMATURITY**
  - **LOW BIRTH WEIGHT**
  - **FOETAL MALFORMATIONS**

WHAT TO RETAIN

- ANAEMIA VERY FREQUENT HERE
- PHYSIOLOGICAL IN PREGNANCY, BUT SUPPLEMENTS NEEDED B/C I NEEDS
- PREGNANT WOMEN ARE NOT EXEMPT FROM OTHER CAUSES OF ANAEMIA IN NON- PREGNANT WOMEN NE QU'UNE MANIFESTATION DE MALADI. CAUSES SHOULD BE DIAGNOSED AND MANAGED APPROPRIATELY
- IMPACT ON FOETUS MAY BE SEVERE
- BUT, AS SEEN, THE NUTRITIONAL ANAEMIAS ARE PREVENTABLE.

THANK YOU FOR YOUR ATTENTION