



Prevalence of latent iron deficiency in early pregnancy in a tertiary care hospital in Sri Lanka

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INTRODUCTION

Maternal iron deficiency can affect morbidity and mortality of pregnant women. It increases the risk of iron deficiency in newborn leading to impaired psychomotor or mental developments. Thus early detection of iron deficiency is vital for an optimum pregnancy.

Latent iron deficiency (LID) is when serum ferritin level (SFL) is < 30 µg/l, while haemoglobin (Hb) is at its normal level. If LID is not diagnosed early in pregnancy, it could lead to iron deficiency anaemia.

Screening for LID by Hb alone is insufficient. Serum ferritin level is a better test, yet for high cost is not a routine procedure.

RESULTS

- Study consisted of 355 women with 192 in LID group and 163 in normal group.
- **Prevalence of LID was 54%.**
- Majority (56%) were between 21-30 years.
- Majority (72%) of subjects was well educated to G.C.E. ordinary level or above, yet 89.6% of them were unemployed.
- Nearly half were of low income families with monthly earnings <278 USD.
- Statistical significance (P=0.006) for the gap between pregnancies being <2 years was observed but not for women's age, parity, POA, income and education.
- Blood film morphology depicted statistically significant (P=0.001, 0.007) presence of hypochromic microcytic red cells and pencil cells.
- The RDW was markedly significant (P=0.001).
- In LID group, 25% had ferritin level in iron deficiency range (<15 µg/l).
- ROC was constructed for red cell indices to identify predictive values. Significant AUC and P values (P=0.0001) were noted only for RDW.

Table 1 Morphology data from blood film analysis

Morphology	Status	LID		Normal	
Normal red cells	0	1	0.50%	1	0.60%
	1	191	99.50%	162	99.40%
Hypochromic microcytic red cells	0	101	52.60%	117	71.80%
	1	91	47.40%	46	28.20%
Acanthocytes	0	169	88.00%	148	90.80%
	1	23	12.00%	15	9.20%
Pencil cells	0	82	42.70%	93	57.10%
	1	110	57.30%	70	42.90%

AIM

This study aimed at:

- Estimating prevalence of LID among pregnant women,
- Assessing LID in relation to parity, age, education level and household income,
- Finding correlations between LID and red cell indices, red cell distribution width (RDW) and red cell morphology; in order to suggest cost effective screening procedure for LID

METHOD

- A cross sectional study was conducted at obstetrics and gynaecology units of North Colombo Teaching Hospital, Sri Lanka.
- All women booked for antenatal care <20 weeks of gestation having normal Hb level (≥11 g/dl in <12 weeks and >10.5 g/dl in 13-20 weeks of gestation) were the potential study subjects.
- Among them, those with haematological diseases, active infections, liver diseases, chronic connective tissue disorders, malignancies and haemoglobinopathies were excluded.
- Written informed consents were obtained from the selected subjects.
- Data were gathered through interviews and antenatal records.
- Blood film report was from three independent observers.

CONCLUSIONS

- Study results revealed high prevalence of LID in early pregnancy.
- One in four of women have ferritin in iron deficiency region. They are at high risk of developing iron deficiency anaemia.
- Presence of raised RDW, hypochromic microcytic red cells, pencil cells and <2 years gap between pregnancies were indicators of LID.
- To identify LID, blood film, Hb and RDW could be recommended as basic tests.
- Among such identified, Ferritin test could be recommended as a follow-up and as an affirmative test.
- The suggested step-wise testing is a cost effective procedure.

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