DO MOTHERS WITH HEMOGLOBINOPATHIC ANAEMIA REQUIRE IRON SUPPLEMENTATION DURING PREGNANCY ?

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SUMMARY

710 pregnant anemic subjects were screened for hemoglobinopathies. 60 of these (8.45%) were found to have these conditions. Of these 38 were studied for iron status by Serum Iron (SI) and Serum Iron Binding Capacity (SIBC). 68.9% were having low SI and increased SIBC whereas the other 31.1% were normal. It is therefore concluded that iron supplementation is a must in all hemoglobinopathically anemic pregnant subjects.

INTRODUCTION

Hemoglobinopathies like sickle cell anemia and Thalassemia are not very common. However, in clinical practice when an obstetrician has to deal with pregnant mothers having anemia due to hemoglobinopathies, the common doubt that creeps in his mind is regarding iron supplementation in these mothers who are obviously not suffering from iron deficiency anemia but from hemoglobinopathies. This querry gets all the more stronger with reports like that of Abudu (1992) who showed that pregnant mothers with sickle cell disease have significantly higher serum ferritin levels than those with other groups. However, Akinyanju (1987) concluded in his study that there is a need to clearly establish the necessity of iron supplementation before iron supplementation is instituted.

In this paper a search for such a need of iron supplementation in pregnant mothers suffering from hemoglobino pathies is carried out and an attempt is made to answer the lingering querry as to whether iron supplementation be rou-

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tinely given in these mothers.

MATERIAL AND METHODS

This is a prospective study carried out at the dept. of Obstetrics and Gynaecology, Medical College and SSG Hospital, Baroda from 1st August 1991 to 31st January 1993. Clinically anemic pregnant subjects coming for antenatal care or admitted in the obstetric ward were screened to detect the presence of hemoglobinopathies during the study period. In all of these subjects, hemoglobin estimation was done by colorimetry, sickle cell testing was done by the standard technique and a thorough peripheral blood smear examination, done.

In subjects with microcytic hypochromic picture on peripheral smear, iron therapy was given for three weeks and the response noted. In subjects with refractory microcytic hypochromic anemia - blood indices, naked eye red cell osmotic fragility test and serum iron as well as serum iron binding capacity was estimated. These values were then used to evaluate microcytosis as shown in Table I. In any of the subjects with refractory microcytosis even if one of the screening methods tested positive, Hb A_2 estimation was done.

Levels of Hb A_2 more than 3.5 percent were considered as diagnostic of ß-thalassemia minor.

Those subjects diagnosed as having hemoglobinopathies were followed up. However some of these subjects were received in situation wherein emergency blood transfusion were a must to save life. Except in these, in all other subjects with hemoglobinopathies in pregnancy, Serum Iron (SI) and Serum Iron Binding Capacity (SIBC) were evaluated. SI values of less than 50 mgm% were considered cut-off for iron deficiency anemia. Blood samples were essentially taken before starting iron therapy or after stopping it for 72 hours, if already started, prior to blood collection for this estimation. On this basis the results for associated iron deficiency/excess in hemoglobinopathic subjects were obtained and conclusion for the need for iron deficiency in these subjects, if any drawn.

RESULTS

During this study period a total of 710 pregnant subjects with anemia were screened for hemoglobinopathies. A total of 60 subjects were found to be having hemoglobinopathies. This brought the overall incidence of hemoglobinopathies in pregnant anemic subjects in our study to 8.45%.

Of these 60, 22 had to be given emergency blood transfusion and were thus not included in the rigid criteria for the present study. Of the 38 subjects the SI and SIBC values were as shown in Table II.

As shown in this table 68.9% hemoglobinopathically anemic subjects suffered from obvious iron deficiency concurrently. Also, 31.1% had SI & SIBC just within the normal range. With advancing pregnancy and therefore increasing iron demand these precariously balanced iron status would fall to the deficient iron status levels. None of the subjects had excess iron status.

Table I

Screening for HbA_2

		Formula	Thalassemia	Iron Deficiency anemia
1.	Discriminant function	M.C.V. - (5xHb) - RBC - 3.4	< 1	> 1
2.	—	$\frac{MCV}{RBC}$	< 13	> 13
3.	—	$(MCV)^2$ x MCH	< 1530	> 1530
4.	RBC count	—	> 5 x 1012/L	< 5 x 1012/L
5.	Osmatic Fragility	½ hour 2 hours	No line visible Red Cell Sediment present	Line visible absent
7.	Serum Iron	> 10 mg/L	< 10 mg/L	

Table II

SI / SIBC

	Number	Percentage
Normal SI/SIBC	12	31.1
Increased SIBC Decreased	25	68.9
Increased SI	00	00

DISCUSSION

A clear answer to the querry that formed the basis of this study seems to be emerging from the results. Iron deficiency in hemoglobinopathic pregnant anemic subjects remain many a times unattended. Akinyanju (1987) found that as regards the birth weight and pain crisis there was no difference between non hemoglobinopathic and hemoglobinopathic pregnant subjects. He therefore suggested that a clear need should be established before iron supplementation in hemoglobinopathic subjects. Such a clear need is established in the present study. With an incidence of 68.9% subjects having iron deficiency status and the other 31.1% also precariously balanced with normal iron status, it is obvious that with advancing pregnancy nearly all hemoglobinopathic pregnant subjects would also be rendered iron deficient. It is therefore obvious that iron supplementation is a must even in hemoglobinopathically anemic pregnant mothers. Turnbull (1989) recommended a prophylactic iron and folate supplementation in thalassemia minor cases. Oral iron, for a limited period will not result in significant iron loading, even in presence of replete iron stores, but parenteral iron should not be given.

The presence of chronic hemolytic

anemia often means that these patients start pregnancy with depleted iron stores and they are usually able to with stand the pregnancy requirement poorly (Tuck & White 1981). We not only concur but would like to go a step ahead and suggest that there is a need to assess iron status of all hemoglobinopathically anemic pregnant mothers. They are likely to have a deficient iron status more often than not. In these subjects, iron supplementation should not be in a routine prophylactic doses but if required in therapeutic doses.

CONCLUSION

The answer to the question raised for this study as to whether hemoglobinopathically anemic pregnant subjects require iron supplementation, as well as an emphatic and consistent "yes".

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