J. of Obst. & Gyn. of India Vol. 51, No. 4 : July/August 2001 Pg 43-45

Reproductive Performance in Beta Thalassemia Traits

Shammi Bhasin, Anupam Nidhi

Department of Obstetrics & Gynaecology, Deen Dayal Upadhyay Hospital, Hari Nagar, New Delhi

Summary

Randomly selected 446 antenatal cases were studied for detection of prevalence of beta thalassemia trait at Deen Dayal Upadhyay Hospital, New Delhi between December, 1997 to September, 1998. Out of them, 29 (6%) were Beta Thalassemia Traits and rest 417 (94%) were normal cases as diagnosed by hematological parameters and Hemoglobin variant estimation. Anemia was found to be more frequent in Beta Thalassemia Traits (93%) in comparison to non-Beta Thalassemia traits (56%). No significant difference was observed among the two groups in respect of pregnancy induced hypertension, Intra uterine growth retardation, Preterm labour, Labour complication and Foetal outcome.
Awareness of presence of Beta Thalassemia Traits in society especially among the asymptomatic cases should be increased and proper counseling of these cases is of utmost importance for eradication of Beta Thalassemia Homozygous state.

Introduction

Beta Thalassema is a group of autosomal recessive inherited disorders. This is characterised by impaired rate of Beta globin chain synthesis. Beta Thalassemia is found in the broad belt extending from Mediterranian basin to India and the Orient. In India, Beta Thalassemia is found frequently in West Bengal, Uttar Pradesh, Chennai, Punjab, Gujarat, Bihar, Orissa and Kerala (Sukumaran, 1974). The overall incidence of Beta Thalassemia Trait varies between 1-15%, depending on the various ethical groups (Marwaha & Lal, 1994).

Beta Thalassemia Traits are usually asympomatic and are therefore, unaware of his/her condition until marrying with another carrier produces a severely affected child. There is no impairment of fertility in these patients. Pregnancy is primarily complicated by an increase in severity of anemia. Occassionally, patients become severely anemic requiring blood transfusion to prevent serious complications (Fleming, 1973).

This paper focuses on the course of pregnancy and its outcome in 29 Beta Thalassemia Traits and compare them with normal cases.

Material & Methods

446 cases were selected randomly, irrespective of their community, place of origin, age, parity and previous obstetric history from antenatal clinics from

December, 1997 to September, 1998. Out of them, 29 patients were Beta Thalassemia Traits diagnosed by Hematological parameters and Hemoglobin variant estimation and 417 were normal cases. An analysis of antenatal complication, intrapartum, postpartum complication and foetal outcome was done. Past obstetric history was also analysed. Patients with hemoglobin less than 11gm% were considered as anemic. Patients were sub-divided into mild with hemoglobin between 8.0-10.9gm%, moderate between 6.5-7.9gm% and severe with hemoglobin less than 6.5gm%. (WHO Standard).

Observation

All the 29 Beta Thalassemia Traits were primigravidas with no significant past obstetric history. The various antenatal complications in Beta Thalassemia traits are listed and compared to normal patients in Table I.

Table I

Pregnancy complications	BTT N=29	Normal Cases N=417
Anemia (Hemoglobin less than 11gm%)	27 (93%)	234 (56%)
Pregnancy induced hypertension	3 (10%)	40 (9.6%)
Intrauterine growth retardation	0 (0%)	13 (3.2%)
Preterm Labour	3 (10%)	41 (9.9%)

The above data shows that during the course of pregnancy, anemia was more frequent in Beta Thalassemia Traits than normal case. Rest of the complications between the two groups showed no significant difference. The distribution of anemia according to severity in two groups is given in table II.

Table II

Hemoglobin in gm%	BTT N=29	Normal Case N=417
> 11	2 (5%)	184 (44%)
Mild (8.0-10.9)	17 (59%)	204 (49%)
Moderate (6.5-7.9)	10 (34%)	29 (7%)
Severe (< 6.5)	0 (0%)	0 (0%)

Table III shows mode of delivery and neonatal outcome in two groups. Beta Thalassemia Traits did not show any increase in complications related to labour and delivery. There was no increase in incidence of foetal distress or low birth weight babies in these patients. There was no case with still birth, neonatal death or material death in the present series, immediate postpartum period was uneventful in Beta Thalassemia Traits.

Table III

Mode of delivery	BTT N=29	Normal N=417
Spontaneous Vaginal	24 (83%)	338 (81%)
Forceps	0 (0%)	8 (2%)
Caesarean Section	5 (17%)	71 (17%)
- Foetal distress	2 (7%)	29 (7%)
- Non-foetal distress	3 (93%)	42 (93%)
Birth Weight		
< 2.5kg	3 (10%)	92 (22%)
2.5 – 3.5kg	26 (90%)	321 (77.1%)
> 3.5kg	0	4 (0.9%)

Discussion

Beta Thalassemia Traits were associated with increased frequency and severity of anemia during pregnancy. There was no other increase in incidence of maternal or foetal morbidity or mortality as compared to normal patients in this study. Pakes (1970) studied 9 similar pregnancies and showed no increase in complications of pregnancy. There was no evidence of an increased foetal distress and perinatal death in these cases (Pakes et al, 1970). Fleming studied 15 Italian pregnancies. He did not observe low birth weight babies or any other neonatal complications (Fleming, 1973). Alger (1979) studied 42 pregnancies and showed no difference between previous abortions, still births and neonatal deaths between Beta Thalassemia Traits and control population. There was no difference in mode of delivery, birth weight, placental weight and foetal placental ratio in two groups (Alger et al, 1979). Cooley studied 29 women with similar pregnancies and showed that pregnancy outcome and complications did not differ from general population (Cooley & Kitay, 1984). White et al (1985) studied 233 pregnancies and showed that the frequency and severity of anemia was more frequent in Thalassemia group. They did not find any abnormality of placental function or foetal development in this group. They also found no increase in maternal or foetal morbidity in pregnancy (White et al, 1985).

Our findings in this study group were similar to the observation of these workers.

Conclusion & Summary

Beta Thalassemia Traits do not show any increase in incidence of complications during pregnancy but should be kept under close observation for early detection and management of complications.

Hence, the awareness of this asymptomatic state should be increased and proper counseling of all cases is of utmost importance to eliminate avoidable severely

affected child. Delhi Government has started mass screening for Beta Thalassemia Traits in its major hospitals which is a great step towards eradication of Homozygous Beta Thalassemia State.

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