The beta thalassemia trait (BTT) is a heterozygous state for B. Thalassemia gene. There is partial or complete (only in homozygote) suppression of B chain synthesis. The carriers of B Thalassemia for BTT have mild degree of enemia. Majority of the individuals with BTT are asymptomatic. The anemia is not amenable to treatment and these cases may present as refractory anemia. The asymptomatic group is detected during investigations for population survey or family study.

A variety of clinical syndromes result from the interaction of hemoglobinopathies and thalassemia; these syndromes are encountered in different parts of India like Maharashtra, Orissa, M.P., West Bengal etc.

Aims of the present work:

1. To assess the diagnostic value of various parameters which are usually used in the diagnosis of BTT.

2. The knowledge which will be derived can be utilised for mass screening of BTT and prevent the thalassemia syndroms by genetic counselling to the people at or before reproductive age in the long run.
3. In the light of derived knowledge antenatal screening for BIT can be done for immediate benefit to prevent the birth of children with thalassemia major.

Selection of Cases:

1. 100 consecutive patients attending the Haematology Department of K.S.M. Hospital with mild anaemia. Anaemia due to leukaemia or bleeding disorder will be excluded.

2. Family members of Beta Thalassaemia (homozygous and heterozygous) cases will be studied.

3. Survey of cases of Lohana community which has high incidence of Beta thalassaemia will be studied. As control, 20 apparently healthy subjects will be taken.

Tests to be done:

After the clinical examination under the specified proform the following tests will be undertaken for investigation.

A) The haematological investigations like.

Hb %
PCV
Reticulocyte count
TRBC
RBC indices like MCV
MCH
MCHC

After the indices various discriminant factors will be calculated.
Peripheral smear for RBC morphology like:

- Microcytosis
- Hypochromia
- Anisocytosis
- Poikilocytosis
- Basophilic stippling
- Schistocyte
- Target cell

Osmotic fragility at 0.4 concentration of buffered saline to be done.

If iron deficiency is suspected serum iron estimation to be done.

B) Hemolysate to be prepared for Hb electrophoresis and Hb F estimation.

Hb electrophoresis in paper electrophoresis to find A2 and other Hb bands like HbS, HbD.

If S band has come sickling test to be done.

HbF % estimation by Betke's method

Hb A2 estimation to be done by paper electrophoresis and elution as per Black et al.

Hb A2 estimation to be done by Micro chromatography from the same haemolysate.

If A2 is increased heterozygous Beta Thalassaemia is established.

Investigations may be modified, if necessary, in the course of study.

Countersign of the Guide.

(Dr. Upendra Nayak)