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Physiology

PREVALENCE OF HEMOGLOBINOPATHIES IN THE ETHNIC GROUPS OF ASSAM.

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ABSTRACT **Introduction:-** Haemoglobinopathies are the commonest hereditary disorders in India and pose a major health problem, most of the carrier of hemoglobinopathies are asymtommatic. Therefore this study was carried out to find the prevelence of hemoglobinopathies in the ethnic tribes of assam. **Materials and method:-**Agarose gel electrophoresis was used to study the haemoglobin typing in 118 individuals. **Result and observation:-**HbA/E and HbE/E was common among ahoms and Hb A/S and Hb S/S was common among tea tribes. **Conclusion:-** Hb typing screening and genetic counselling will lead to a decrease in the burden of hemoglobinopathies.

KEYWORDS : hemoglobinopathies, ethnic community

INTRODUCTION:-

The population of India is extremely diverse comprising of more than 3,000 ethnic groups who still follow endogamy. Haemoglobinopathies are the commonest hereditary disorders in India and pose a major health problem. 1These genetic disorders represent an important health care threat in tropical low income countries due to the high prevalence of hemoglobin variants in these areas. It has been estimated that between 300.000 and 400.000 babies are born with haemoglobin disorders each year(most of them in low income countries.2. In many countries, facilities for the control of these conditions are extremely limited. The awareness of this relatively rare Hb variant in this part of India may help in the clinical diagnosis and management of these patients, and may also help in prenatal diagnosis and genetic counseling3.

MATERIALS AND METHODS:-

In this cross sectional study 118 young individuals in the age group of 9-19 years were selected from the general population of Dibrugarh randomly. The ethical committee clearance and an informed consent of the subjects were taken. Subjects with a history of blood transfusion within last four months and age group outside the defined age range were excluded. The study was conducted in the department of Physiology, Assam Medical College, Dibrugarh.

4 ml of venous blood were collected in the EDTA vacutainer from each subject. The hemosylate is prepared fresh on the same day the electrophoresis is performed. The sample is prepared by washing the red blood cells lysing the cells and pipetting the hemosylate. The hemosylate is made to run on Agarose gel electrophoresis.Hb S was confirmed by sickling test using 2%sodium metabisulphite.The foetal haemoglobin was estimated by alkalidenaturation technique.

The population studied was divided into groups based on their ethnic origin.

Result and Observation:-

The table 1 shows the division of population into different ethnic group and number and percentage of individuals in each group.The different ethinic groups are Ahom, Kachari, Tea garden tribe, Assamese muslims, Kalita, Koch, Brahmin, Bengali, Chutia , Koibarta, Deori, Bihari, Kayastha and Mising.

Figure 1 shows the number of individual in each group.It is seen that the study population contained largest percentage of Ahom group and least percentage of Kayastha and Mising.

Table 2 shows the distribution of different Hemoglobinopathies in the different ethical group.There were 31 ahoms and of them 17 cases(54.84%) had HbA/A,9 Cases (29.03%)had HbA/E,4 cases(12.9%)had Hb E/E and one case had Hb E/E (3.23%).Of the 19 cases of kachari community,7cases(36.84%)showed A/E and 3 cases(15.79%) had HbE/E.10 cases(66.67%) of tea tribe showed Hb A/A,and HbA/S and Hb S/S showed only 2 cases(13.33%).Out of 8 kalitas 7 cases had Hb A/A and 1 case of HbA/E.In the Koch community.4 cases of Chutia community had Hb E/E.In Brahmin, kayasthas, Bengalis and biharis no abnormal Hemoglobin was detected.

Table 1:- showing the division of population into different ethnic group

S. No	Ethnic Group	Number Of Cases	% Of Cases
1.	Ahom	31	26.27
2.	Kachari	19	16.10
3.	Tea garden tribe	15	12.71
4.	Assamese muslims	9	7.63
5.	Kalita	8	6.78
6.	Koch	6	5.1
7.	Brahmin	6	5.1
8.	Bengali	6	5.1
9.	Chutia	5	4.23
10.	Koibarta	3	2.5
11.	Deori	3	2.5
12.	Bihari	3	2.5
13.	Kayastha	2	1.69
14.	Mising.	2	1.69

Figure 1 showing the percentage of individual in each group

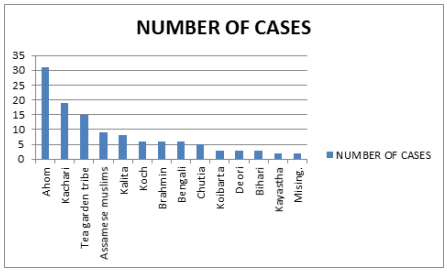

Table 2 :-showing the distribution of different Hemoglobinopathies in the different ethical group

Ethnic community	Total no of case	HbA/A	HbA/E	HbE/E	HbE/F	HbA/S	HbS/S
Ahom	31	17	9	4	1		
Kachari	19	9	7	3			
Tea garden tribe	15	10	1			2	2
Assamese muslims	9	8	1				
Kalita	8	7	1				
Koch	6	5	1				
Brahmin	6	6					
Bengali	6	6					
Chutia	5	4		1			
Koibarta	3	2	1				
Deori	3	1	2				

Bihari	3	3					
Kayastha	2	2					
Mising.	2	1	1				

DISCUSSION:-

The present study shows that there is a high prevalence of Hb A/E(20%) and HbE/E(6.7%)among the mongoloid community of dibrugarh, this finding is inconsistent with the findings of Maisham Rushtam Singh et al4 and findings of Das B et al5. High prevalence of haemoglobin E (>50%) were observed among the Soui, Thai Khmer, So, Yor and Puthai populations inhabiting the region near Cambodia and Laos, higher frequency of HbE in the Phayeng (a Chakpa) of Manipur can be taken as a favour on the hypothesis of association of Austroasiatic race and HbE. 7 The study also shows a high prevalence of Hb A/S and Hb S/S among the tea tribe community, the finding are similar to findings of Balgir RS et al 6.The tea tribe is considered to be migrants from Orissa, and this may explain this higher prevalence rate in our study.

CONCLUSION:-

Data and knowledge on hemoglobinopathies in assam is still limited, considering there are more than 1000 variantsof hemoglobin described so far,8. Even though all the participants of the study who had hemoglobin variants were asymptomatic carriers, the present study showed that these variants are found in high frequencies in some populations. so with increasing awareness and with this simple screening procedure, it may be possible to eradicate or at least lessen the present community burden of thalassemia in foreseeable future.

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