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Incidence of Sickle Cell Trait among the Mahar of Raipur, Chhattisgarh

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ABSTRACT The wide variation of genetic markers in different groups of people could be attributed to socio-environmental conditions where diseases play a vital role in the form of natural selection. In the present paper an attempt has been made to see the incidence of sickle cell anaemia trait in the Mahar of Raipur, Chhattisgarh. With this aim a sample of 139 (68 males and 71 females) has been screened by Solubility Test. The study reveals 17.27 % positive for the trait and 2.16 % for disease. The magnitude of sickle cell trait was found to be alarming in tribal populations of central and western parts of India followed by scheduled caste and other communities as revealed by earlier studies.

INTRODUCTION

WHO (2006) has reported an estimate of about 20-25 million homozygous individuals for sickle cell disease worldwide of which 5-10 million are in India (Serjeant 2006). The general incidence of haemoglobin variants has been observed about 0.5 per cent from the Indian region. The frequency of HbS is high in Central India followed by South, West and North India but in East India it is quite low. Sickle cell present in high frequency among the scheduled tribes as compared to other ethnic groups- castes, scheduled castes and communities. The trait is reported to be present among scheduled castes and communities, who are living in close proximity with tribal populations. Therefore, the trait has been transmitted among these groups due to admixture with tribal groups (Bhasin 2006). The aim of the present study was to see the distribution of sickle cell gene among the Mahar of Chhattisgarh.

MATERIAL AND METHODS

Sickle Cell Solubility Test (WHO 1995) was performed on 139 unrelated individual with their consents. 20 ml blood samples were drawn from finger prick for each test and mixed thoroughly with solutions and reading was noted down. 2ml intravenous blood sample was drawn in B.D. vacutainer for further analysis. Laboratory investigations were carried out following standard procedure as described by Dacie and Lewis (1977). All the samples were subjected to haemoglobin electrophoresis using cellulose acetate membrane in alkaline TEB buffer at pH 8.9 for pattern confirmation. The known samples (control) of HbS along with present samples were run for electrophoresis.

RESULTS AND DISCUSSION

Table1 shows the frequency of 17.27 per cent for sickle cell trait and 2.16 per cent for sickle cell disease among the Mahar of Chhattisgarh. Earlier researchers have reported a little higher frequency of sickle cell anaemia among the Mahar caste from Bastar region of Chhattisgarh and Vidarbha region of Maharashtra (Das et al. 1961; Negi 1976; Tiwari et al. 1980). Whereas Urade (2012) observed a low frequency (11.81 per cent)

Table 1: Distribution of frequency of sickle cell trait among the Mahar of Chhattisgarh

Population	*Place*	*Category*	*No.*	*Phenotypes*			*Allele frequency*	
				AA	*AS*	*SS*	*A*	*S*
Mahar	Raipur	SC	139	112	24	3 (2.16)	80.57	17.27

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REFERENCES

Bhasin MK 2006. Genetics of castes and tribes of India: Glucose-6-phosphate dehydrogenase deficiency and abnormal haemoglobins (HbS and HbE). *Int J Hum Genet*, 6(1): 49 – 72.

Dacie JV, Lewis SM 1977. *Practical Haematology*. Edinburgh: Churchill Livingstone.

Das SR, Kumar N, Bhattacharjee PN, Sastry DB 1961. Blood groups (ABO, MN and Rh), ABH secretion , sickle cell, PTC taste and colour blindness in the Mahar of Nagpur. *J Roy Anthrop Inst Gr Bri and Ire*, 91(2): 345 - 355.

Negi RS 1976. *Population Dynamics of Sickle Cell Traits Distribution in India*. Ph.D. Thesis, Unpublished. Calcutta: University of Calcutta.

Serjeant GR 2006. Geograhpy and clinical picture of sickle cell disease. DOI:10.1111/ J.1749-6632.1989 tb 24157.x

Tiwari VK, Pradhan PK, Agarwal S 1980. Haemoglobins in scheduled castes and scheduled tribes of Raipur (M.P.): A preliminary report. *Ind J Med Res*, 71: 397-401.

Urade BP 2012. Incidence of sickle cell anaemia and thalassaemia in Central India. DOI:10.4236/ ojbd.2012.24014.*OJBD*, 2: 71-80.