

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

A.U. Deore¹ and B.P. Urade²

¹Department of Zoology, RTM University, Nagpur, Maharashtra, India

²Department of Anthropology, University of Pune, Pune, Maharashtra, India

E-mail: ¹audeore@rediffmail.com, ²<druradebp@gmail.com>

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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

Table 1 shows the frequency of 17.27 per cent for sickle cell trait and 2.16 per cent for sickle cell

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

Address for correspondence:
Dr. B. P. Urade,
Assistant Professor,
Department of Anthropology,
University of Pune,
Pune 411007,
Maharashtra, India

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)

of sickle cell trait (HbS) among the Mahar in Vidarbha region of Maharashtra.

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