

Sickle-Cell Haemoglobin in Vadabalijs and Yadavas of Coastal Andhra Pradesh

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KEY WORDS Sickle Cell Haemoglobin. Caste Population. Andhra Pradesh.

ABSTRACT The distribution of sickle-cell haemoglobin in Vadabalijs and Yadava caste populations of Andhra Pradesh is reported and compared with the data available on other caste populations of the state.

INTRODUCTION

Haemoglobin is an important genetic marker in molecular, clinical and population genetic studies. Many hereditary variants of this marker have already been found, some of which are found relatively frequently in certain human populations. These include HbAS in populations of tropical Africa and in the Scheduled tribes and Scheduled Castes of India. Hb AC in West Africa, Hb AE in South east Asia and Hb AD in North India (Livingstone, 1967).

The present paper reports the incidence of sickle cell haemoglobin (Hb AS) in two endogamous populations of Visakhapatnam city of Andhra Pradesh viz. Vadabalijs and Yadavas. Vadabalijs occupy the lowest position in the social hierarchy and are grouped under 'Scheduled Castes'. Their main profession is fishing. Yadavas are one of the predominant caste groups of Andhra Pradesh. Originally they were nomadic with pastoral economy, but presently they are mainly settled as cattle herds. Yadavas are included in the list of backward class communities and now many of them are working in various Government jobs.

MATERIAL AND METHODS

A total of 190 blood samples (100 of Vadabalijs and 90 of Yadavas) was collected

by finger pricking in sterile test tubes containing ACD solution as anticoagulant. These were screened for variants of haemoglobin by starch-agarose gel electrophoresis, following the method of Dash (1976). The gene frequencies were estimated by direct gene counting method.

RESULTS AND DISCUSSION

The phenotypes and allele frequencies of haemoglobin in Vadabalijs and Yadavas are shown in table 1.

Table 1: Distribution of phenotype and allele frequencies of haemoglobin in Vadabalijs and Yadavas

Population	Haemoglobin phenotype	Number observed	Allele frequency
Vadabalijs (n = 100)	Hb A	97	HB*A 0.9850
	Hb AS	3	HB*S 0.0150
	Hb S	0	
Yadavas (n = 90)	Hb A	90	HB*A 1.0000

Three Vadabalijs were found to be heterozygous for HB*S allele giving a frequency of 0.015% for this allele. On the other hand, HB*S allele was completely lacking in Yadavas. Lakshmi (1986) reported a value of 1.87% for HB*S allele among Yadavas.

Among caste populations of Andhra Pradesh, the frequency of Hb AS trait varies from 0.40% in Madiga (Ramaswamy, 1984) to 16% among Rellis (Ramesh, 1992). Thus the HB*S allele in general is absent or present in low frequencies in caste populations of this state except among Relli groups where relatively

higher incidences were reported (Murthy, 1971; Naidu and Mathew, 1978 and Ramesh, 1992).

On the other hand, among tribes of Andhra Pradesh, the frequency of the Hb AS trait range from 0.72% in Chenchus (Ramesh et al., 1980) to about 34.71% in Pardhans (Rao and Goud, 1979), while some tribes such as Raj Gond, (Blake et al., 1981), Yanadi (Reddy et al., 1982) and Naikpod (Muralidhar et al., 1989) exhibit total absence of this trait.

The tribes inhabiting the North-West and Eastern parts of Andhra Pradesh have shown high frequencies of sickle cell trait, whereas in the caste populations of the same region the trait was lacking (Sukumaran, 1975; Goud and Rao, 1975). Saha and Benerjee (1973) and Sukmaran (1975) while reviewing the incidence of sickle cell trait in Indian populations concluded that the *HB*S* gene is mostly present in Scheduled Tribes and Scheduled Castes and very rarely in caste groups. This study provides further support for such a contention.

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