

## ABO and Rh (D) Blood Groups Among the Vishwakarmas of Mysore District, Karnataka

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**KEYWORDS** Genetic Markers. Variation. Artisan Caste. South India

**ABSTRACT** Base line data are presented on frequency distribution of the ABO and Rh (D) blood groups among the Vishwakarma population of Hosahundi village Mysore district, Karnataka. In the ABO blood system O recorded the highest incidence, followed by B group. The Rh negative frequency was found 3.19%.

### INTRODUCTION

The Vishwakarmas are also called Panchalas. The term is applied to gold smith, brass, iron, and copper smiths, carpenters and the sculptures. Vishwakarmas are largely found in Mysore district. Some of them wear linga, but do not associate themselves with the Lingayaths; they conduct upanayana for their boys and wear the sacred thread. Marriages are conducted under vedic rituals by the caste priests. In Vishwakarmas family is generally nuclear, patriarchal, patrilineal and patrilocal type. Consanguineous marriages are freely encouraged in this population. They observe defilement both at birth and death. They worship their instruments on new moon days.

### MATERIAL AND METHODS

The investigation was carried out among Vishwakarmas of Hosahundi village, eight km away from the Mysore city. Blood samples consist of 94 unrelated, healthy subjects of both sexes selected randomly and analysed for the ABO and Rhesus blood groups. Serological tests were performed using standard techniques advocated by Race and Sanger (1962).

### RESULTS AND DISCUSSION

The results of the analysis of the ABO and Rh (D) blood groups of the present study have been summarized in the Tables 1 and 2, respectively. In case of ABO blood group system, phenotype O predominated in distribution with the highest frequency (31.91%), followed by B (28.72%) and then closely A (26.60%). The

**Table 1: Distribution of the ABO blood groups among the Vishwakarma population**

| Pheno-type | Observed No. | Expected No. | Allele frequencies |
|------------|--------------|--------------|--------------------|
| O          | 30 (31.91)   | 28.26        | A = 0.2189         |
| A          | 25 (26.60)   | 27.09        | B = 0.2326         |
| B          | 27 (28.72)   | 29.08        | O = 0.5485         |
| AB         | 12 (12.77)   | 9.57         |                    |
| Total      | 94 (100.00)  | 94.00        |                    |

$\chi^2 = 0.0112$ ,  $D/\sigma = .09509$  ( $< \pm 2$ )

Figures in parentheses are percentages

**Table 2: Distribution of the Rh (D) blood groups among the Vishwakarma population.**

| Phenotype | No. | %      | Allele frequencies |
|-----------|-----|--------|--------------------|
| Rh (D)+   | 91  | 96.81  | D = 0.8214         |
| Rh (D)-   | 3   | 3.19   | d = 0.1786         |
| Total     | 94  | 100.00 | 1.0000             |

frequency of allele B was high (0.2326) as compared to A (0.2189), whereas the frequency of allele O was 0.5485. The Chi-square value (0.0112) as well as  $D/\sigma$  value (lower than  $\pm 2$ ) indicate that this caste is in Hardy-Weinberg equilibrium for the ABO blood groups.

The ABO allele frequencies of the Vishwakarmas are compared with some other populations of Karnataka. The ABO\*O group is more prevalent among Brahmins 0.7729 and Shettys 0.5612 (Srivastava, 1980). Banerjee et al (1988), who observed more ABO\*O than ABO\*A in Jenukurubas (0.5256) and Lingayats (0.7021). The allele frequencies among Soligas (ABO\*O = 0.6185), Yeravas (ABO\*O = 0.6117)

(Sastri, 1990) and the population of Adikarnataka ( $ABO*O = 0.6265$ ) (Gangadhar, 2001) observed more  $ABO*O$ .

The Chi-square test showed statistically significant difference of the present population ( $p > 0.05$ ) with Brahmins ( $\chi^2 = 9.9370$ , 3 *df*), Jenukurubas ( $\chi^2 = 11.3862$ , 3 *df*), Lingayats ( $\chi^2 = 8.5691$ , 3 *df*), and Adikarnatakas ( $\chi^2 = 8.4912$ , 3 *df*).

Testing with anti-D serum revealed that 96.81 percent of the individuals were Rh positive, the allele frequency being 0.8214 for the *D* and 0.1786 for *d*.

The Rh (D) blood group of Vishwakarmas is compared with some other populations of Karnataka. Jenukurubas  $RH*D$  frequency 0.8586 and Lingayats  $RH*D$  frequency is 0.7836 (Banerjee et al. 1987). Gangadhar (2001) observed  $RH*D = 0.8222$  in Adikarnatakas. The above comparison reveals that the frequency of  $RH*D$  allele predominants among the populations of Karnataka.

When the results of the present population

were compared with results of some of the earlier studies from Karnataka, no significant ( $p < 0.05$ ) variation was encountered with Jenukurubas ( $\chi^2 = 0.2710$ , 1 *df*), Lingayats ( $\chi^2 = 0.2862$ , 1 *df*) and Adikarnatakas ( $\chi^2 = 0.0002$ , 1 *df*).

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