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Distribution of Blood Groups Among Gujjars and Three Dogra Population Groups of Jammu District, Jammu and Kashmir, India

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ABSTRACT Genetic data on four polymorphic systems, namely A_1A_2BO, MNSs, Rhesus and Kell, are reported on Gujjars (Scheduled Tribe) and three Dogra population groups — Brahmans, Rajputs and Ramdasias (Scheduled Caste) of Jammu District, Jammu and Kashmir. Distribution of these markers do not show any difference among three Dogra population groups, though Gujjars are little different.

The various ethnic groups of the Jammu and Kashmir state have conspicuous geographical concentration and ramification. The main ethnic groups residing in Jammu and Kashmir, basides Kashmiri-Muslims and - Pandits, Ladakhis, and Kishtwaris are Gujjars, Bakarwals (Scheduled Tribes) and Dogras (Rajput, Brahman, Scheduled Castes) who reside mainly in different parts of Jammu division.

For the present work, four population groups — Gujjars (Scheduled Tribe) and three Dogra caste groups — Brahman, Rajput and Ramdasias (Scheduled Caste) - inhabiting Jammu district have been studied for the distribution of various serological genetic markers among them.

Gujjars

The Gujjars (Scheduled Tribe), the hill people of Kashmir, are mostly herdsmen by occupation, and are found in most parts of Jammu and Kashmir. Some of them have now settled down to agriculture. The major concentration of Gujjar tribe lies in Jammu region, Udhampur, Poonch, Uri and Ganderbal. The early history of Gujjars is obscure. According to one school of thought, under certain pull and push factors they left their habitat (Georgia — a territory situated between the Black Sea and the Caspian Sea in the former Soviet Union) and through Central Asia, Iraq, Iran and Afghanistan crossed the Khyber Pass to enter into the sub-continent of India. By making a southward march they reached Gujarat wherefrom they entered the green pastures of Siwaliks and the Himalayas. In the opinion of some of the the social anthropologists, Gujjars probably got their names form the sanskrit word, Gujjara - the original name of Gujarat. They were Hindus at the time they were first noticed in the sub-continent and later on embraced Islam (*cited from* Lawrence, 1985). They speak Indo-Aryan language.

Dogras

The Dogras are the inhabitants of the hilly regions bordering Punjab. Their major concentration lies between the two holy lakes, *i.e.* 'Saroinsar' and 'Mansar'. Some Scholars are of the opinion that the word Dogra is a corruption of the Rajasthani word 'Dungara' meaning hills and of the word 'Dugar' meaning the region of two holy lakes. Shastri (1976) however advocates that Dogra is a corrupt form of the Sanskrit term 'Dvigera' and the country

they inhabit is 'Dvigertdesh' meaning country of two hollows. The term Dogra is derived from 'Dugar' and refers to the people living in the region regardless of the clan or class to which they belong (Palit, 1972). The Dogras at best can be conceived of as a linguistic group with ethnic overtones. According to their physical appearance they can be regarded as Caucasoids (Drew, 1987). They speak the Dogri (Indo-Aryan) language, a mixture of Sanskrit, Punjabi, Persian and Urdu words which belongs to the Indo-European family.

The Dogras are divided into castes in the same way as are the Hindus of India, though with local variations. However in general, these are partly the remnant of race distinctions and partly the outcome of pursuing hereditary occupations. Among most important Dogra castes are the Brahmans, Rajputs, Khatris, Thakurs, Jats, Banias and Scheduled Castes. Investigation for the present study was carried out on numerically dominant Dogra Brahmans, Dogra Rajputs and the Dogra Ramdasias settled in Tawi valley.

Dogra Brahmans

They distinguish themselves from Mohyal and Kashmiri Pandits and form the largest population of the Jammu district. The Dogra Brahmans are traditionally the priestly caste - who rendered services to Rajputs in religious ceremonies and rituals. In recent times, the Dogra Brahmans have, to a large extent, left their hereditary occupation and taken to cultivation and other renumerative professions. In physical appearance they portray the same general cast of features as seen in Dogra Rajputs and can be scarcely distinguished from them, except that Dogra Brahmans are not so well built as Dogra Rajputs.

Dogra Rajputs

They claim their descent from the families of erstwhile Rajput rulers who reigned over this state for many centuries. Banerjee (1975) traces their origin from the Rajputs of plains. The Dogra Rajputs are broadly sub-divided into two classes, *viz.*, the Mian Rajputs and the Working Rajputs. The former belong to Kshatriya Varna and are a martial class, mostly serving in the army or employed in agriculture. The latter on the other hand, have taken to agriculture as their primary source of livelihood.

Dogra Ramdasias

Dogra Ramdasias (Chamars), constitute the second largest Scheduled Caste group, and are fairly largely distributed in all the districts of the state, especially in Jammu district. They do menial jobs and agricultural labour.

MATERIAL AND METHODS

The total number of blood samples collected for the present study was 529, out of which 113 samples were of Gujjars, 147 of Dogra Brahmans, 121 of Dogra Rajputs and 148 of Dogra Ramdasias. Samples were tested for four blood group systems—A_1A_2BO (tested with anti -A, -A_1, and -B), MNSs (tested with anti -M, -N, -S) Rhesus (tested with anti-C, -D, -E, -c and -e) and Kell (tested with anti-K) following the standard serological techniques and manufacturer's (Biotest, Germany and Associated Laboratories, Bombay) instructions enclosed with different blood grouping reagents. The gene and chromosome frequency calculations were made after Mourant et al. (1976).

RESULTS AND DISCUSSION

The distribution of phenotypes and gene/chromosome frequencies of blood group systems in the present material are given in tables 1 and 2, respectively.

high frequency of gene *O* (over 60 per cent) as compared to all Dogra population groups.

The Gujjars of present study - a transhumant group from Jammu are showing almost similar ABO frequencies as observed among the Muslim Gujjars of north India (Balgir and Sharma, 1988). As in the Western region of Himalayas, most of the caste groups settled in the southern portion of the region, particularly the foot hills, exhibit predominance of gene *B* over *A* -a serological picture akin to the plains of north India (Bhasin et al., 1992). The Dogra caste groups of present study, are exhibiting a pattern similar to that reported among Dogra Brahmins and Dogra Rajputs (Bhalla et al., 1980) and Mahajans, Brahmins, Rajputs and Khatri (Kashyap, 1976) of Jammu.

MNSs System

It has been observed that *Ms* is the most common chromosome among all the population groups investigated (range - 36.78 per cent among Dogra Brahmans to 48.41 per cent among Gujjars). The incidences of *MS* and *Ns* are almost identical. The frequency of *MS* varies between 20.94 (Gujjars) and 27.35 per cent (Dogra Ramdasias) and that of *Ns* from 23.43 (Gujjars) to 28.88 (Dogra Rajputs) per cent. The frequency of *NS* varies from 7.21 (Gujjars) to 12.31 (Dogra Brahmans) per cent. The Gujjars of present study are showing higher frequency of *Ms* and lower frequencies of other chromosomes as compared to that observed among different Dogra population groups. Thus, Dogra caste groups and scheduled tirbe Gujjars, with their high frequency of *Ms* as compared to that of other chromosomes and high incidence of gene *S*, show similarities with various caste groups and communities of Western Himalayas [Pangwalas (Bhasin et al., 1982); Gaddi-Brahmans of Chamba, Gaddi-Rajputs, Gaddi-Scheduled Castes of Kangra (Bhasin et al., 1982); Swangalas, Brahmans, Rajputs (Bhasin et al., 1983); Himachalis (Papiha et al., 1989)].

Rhesus System

In the present study, the chromosome *CDe* frequency varies from 36.28 (Dogra Rajputs) to 61.06 (Dogra Ramdasias) per cent and that of *cde* ranges in between 17.51 (Dogra Rajputs) and 36.22 (Gujjars) per cent. The frequency of chromosome *cDE* is about 10 per cent in all the groups and *cDe* ranges from 7.00 (Dogra Ramdasias) to 12.95 (Dogra Rajputs) per cent.

Among the Gujjars of present study, the frequency of *CDe* is low (38.90 per cent) as compared to that observed among the earlier reported Hindu Gujjars (56.1 per cent) and Muslim Gujjars (56.4 per cent) studied by Balgir and Sharma (1988) from North India, whereas the frequency of *cde* has been found high among the present sample (36.22 per cent). The incidence of chromosome *cDE* (10.41 per cent) in the present sample is similar to that observed among the Muslim Gujjars. Among the present Gujjars the chromosomes *Cde* and *cdE* are absent but are present among both Dogra Rajputs and Dogra Brahmans (Table 2).

Among the Dogra caste groups of Jammu studied here, the chromosomes *CDe* (36.28-61.06 per cent) and *cde* (17.51-22.43 per cent) are quite frequent, followed by *cDE* (9.62-10.27 per cent), *cDe* (7.0-12.95 per cent) and *CDE* (1.8-5.46 per cent). Therefore, in the distribution of Rh chromosomes they are exhibiting similarities with various caste groups of Middle and Lower Himalayas [Dogra Rajputs and Dogra Brahmins (Bhalla et al., 1980); Swangalas, Brahmans and Rajputs (Bhasin et al., 1983); Himachalis (Papiha et al., 1989)] and plains of north India [Meghwal of Rajasthan (Thukral and Bhasin, 1990) and Muslim Gujjars (Balgir and Sharma, 1988).

Kell System

Among all the Dogra caste groups of Jammu the gene *K* was detected, albeit with low frequencies (0.5 per cent among Dogra Ramdasias to 1.0 per cent among Dogra Brahmans). The gene was absent among the Gujjars.

In North India, gene *K* has been found among several population groups, but its frequency is quite low, ranging from 0.2 per cent among Gaddi-Rajputs (Bhasin et al., 1982) to 7.4 per cent among Kolis of Himachal Pradesh (Papiha et al., 1989). Thus, the frequencies of the gene observed among the present population groups of Dogras fit well within the range reported for North India, particularly the Himalayan region.

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