LEPROSY: SUSCEPTIBILITY CONCERNING ABO BLOOD GROUPS AND STUDY OF VDRL REACTION

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Summary

The present study of 350 cases of leprosy, from the South-West belt (Bundelkhand Division) of Uttar Pradesh, was conducted at District Leprosy Control Unit, Jhansi, U. P. The incidence of clinically recognised leprosy was maximum in 15–40 years of age group (49.7%). Leprosy was more commonly seen in males (65%), but no such predilection was seen in tuberculoid leprosy. Lepromatous leprosy was more frequently encountered than any other type of leprosy (35.1%). No definite relationship was established between the incidence of leprosy and various blood groups. However, A group was more susceptible to lepromatous leprosy (50 cases) while B group to Maculo-anaesthetic leprosy (59 cases). Biologically false positive V.D.R.L. reaction was found in 51.4% and 7.7% cases of lepromatous and non-lepromatous leprosy respectively.

Is a person susceptible to some disease, because he is born with a particular blood group? This interesting question has been engaging the attention of physicians for the last 3–4 decades. Buchana and Heigley[1] from Mayo clinic are credited with description of relationship between disease and blood groups. Later on, this relationship with gastric ulcer, peptic ulcer, hypertension, diabetes, rheumatic carditis and various other diseases have been studied[2-4]. The susceptibility to leprosy of certain blood groups has also been studied[5-7].

There are many conflicting reports in ABO blood groups vis-a-vis leprosy. No report on this subject is available from the South-West belt (Bundelkhand Division) of Uttar Pradesh, where a good number of cases are seen. Therefore the present study was conducted in Jhansi.

Material and Methods

The ABO blood grouping was done in 350 cases of leprosy. The cases attending the District Leprosy Control Unit, Jhansi were selected at random. The control group consisted of 500 persons who were voluntary professional blood donors and expectant mothers referred from ante-natal clinic of female hospital, Jhansi.

Blood was obtained by venepuncture and blood grouping was done immediately after collection of blood. The

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diagnosis and clinical typing of patients was done by thorough clinical examination[8,9].

V.D.R.L. test was performed in 100 patients selected at random, by slide flocculation method and results were interpreted by the clump formation as follows :—[10,11]

1. No clump or slight roughness = Negative.
2. Small clumps = Doubtful or weakly positive.
3. Medium or large clumps = Positive.

Observations and Results

The majority belonged to the non-lepromatous leprosy group (64.9%) and lepromatous leprosy constituted 35.1% of all cases (Table 1 & 2 . Males predominated (65%) in the series and most of them were in 15-40 years of age group (49.7%). No sex predilection was seen in tuberculoid type of leprosy.

Of the 350 patients studied, the maximum number of cases (36%) were in B group (Fig. 1). However, among the different clinical types of leprosy, the lepromatous leprosy had A group in maximum number of cases (40.6%) and non-lepromatous leprosy had B group (40.1%). Among the non-lepromatous leprosy, the tuberculoid leprosy (41.4%) and maculo-anaesthetic leprosy (57.3%) were more commonly seen in A and B groups respectively. Polyneuritic leprosy was maximum in AB group (37.2%).

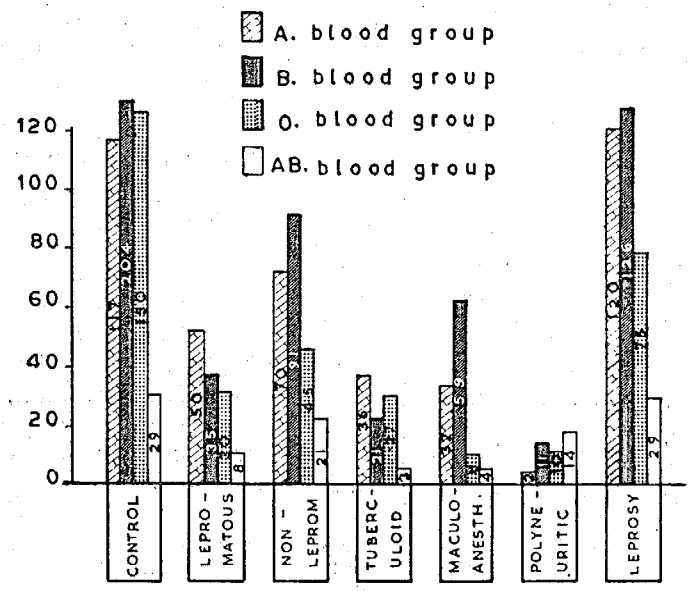

Fig I Distribution of Blood groups in Leprosy & Health.

TABLE 1

Age groups	No. of cases	Distribution of clinical types of leprosy: Lepromatous		Non-lepromatous	
		No. of cases	%	No. of cases	%
Below 15 years	79	28	8	51	14.5
15 — 40 years	174	56	16	118	33.7
Above 40 years	97	39	11.1	58	16.7
Total	350	123	35.1	227	64.9
Males	228	79	22.5	149	42.5
Females	122	44	12.6	78	22.4

TABLE 2

Non-lepromatous cases with their numbers in types and sex distribution

Clinical types	No. of cases	%	Males	Females
Tuberculoid	87	24.8	47	40
Maculo-anaesthetic	103	29.4	72	31
Polyneuritic	37	10.7	30	7

TABLE 3

Distribution of blood groups in number and percentage among normal healthy individuals and leprosy patients.

Clinical types	No. of cases	BLOOD GROUP							
		A		B		O		AB	
		No. of cases	%	No. of cases	%	No. of cases	%	No. of cases	%
Control	500	117	23.4	204	40.8	150	30	29	5.8
Leprosy :—	360	120	34.3	126	36	75	21.4	29	8.3
1. Lepromatous	123	50	40.6	35	28.4	30	24.8	8	6.5
2. Non-lepromatous	227	70	30.8	91	40.1	45	19.7	21	9.4
—Tuberculoid	87	36	41.4	21	24.1	27	31	3	3.5
—Maculo-anesthetic	103	32	31	59	57.3	8	7.8	4	3.9
—Polyneuritic	37	2	6.1	11	29.7	10	27	14	37.2

TABLE 4

VDRL Reaction in leprosy (100 cases)

Clinical types	No. of cases	VDRL Reaction		
		Positive	Doubtful positive	Negative
Lepromatous	35	18	4	13
Non-lepromatous	65	5	7	53
—tuberculoid	24	2	1	21
—maculo-anaesthetic	30	3	4	23
—polyneuritic	11	—	2	9
Total	100	23	11	66

23% of leprosy patients had positive V.D.R.L. test (Fig. 2 Page No. 78). (Table 3) 51.4% of lepromatous leprosy cases (18 out of 35 patients) and 7.7% of non-lepromatous cases (5 out of 65 cases) had positive V.D.R.L. test. Only 4 cases with lepromatous leprosy gave history of sexual contact. Their V.D.R.L. test became negative after treatment with Penicillin.

Discussion

It is evident from the above data that maximum number of cases of leprosy were in the 15–40 years age group (49.7%). There was a predominance of males (65%). The predilection of this age group i.e. 20–40 years in leprosy is observed by many workers[8,9,12]. Lepromatous leprosy is more common in males (22.5% or 79 cases). No such predilection of sex is observed in tuberculoid leprosy. Sobhanadri and Nath[12] observed uniform distribution of cases in lepromatous tuberculoid and maculo-anesthetic types of leprosy and much less prevalence of polyneuritic type, whereas we observed more lepromatous (35.5%) cases than maculo-anaesthetic (29.4%) and tuberculoid (24.8%) leprosy. In our series we too observed the small number of cases of polyneuritic type.

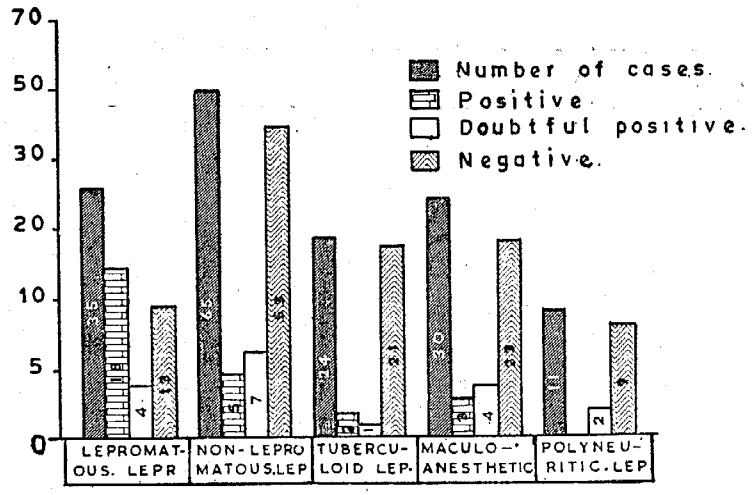

Fig. II. V.D.R.L. Reaction in Leprosy.

Wiener[18] is strongly against the concept of distribution of blood groups among various diseases and he himself doubts the accuracy of data and believes that apart from Erythroblastosis foetalis, no other disease has any definite association with a particular ABO blood group or Rh type. In leprosy the relationship of the disease to blood groups is a highly controversial subject and conflicting reports are given by different workers[5-7,12-15,17].

In the present series we have observed the susceptibility of A group to lepromatous (50 cases) and tuberculoid (36 cases) leprosy and B group to maculo-anaesthetic leprosy (56 cases). This increased susceptibility of A group to leprosy is reported in the literature[5-7]. Husen et al[14] Ghosh and Mukherji[15] observed the increased susceptibility of O group and resistance of B group to lepromatous leprosy. The observation of Beigueman[7] and others[15-17] of increased susceptibility of O group to tuberculoid and A group to lepromatous leprosy, favours our findings. In our study as a whole, we find increased susceptibility to B group to non-lepromatous (91 cases) and A group to lepromatous leprosy (50 cases), similar observations were made by most of the other workers[9,18-20].

In our series of 100 patients selected at random, 51.4% (18 out of 35 cases) of lepromatous leprosy and 7.7% (5 out of 65 cases) of cases of non-lepromatous leprosy had blood V.D.R.L. positive without any clinical evidence of syphilis. It may be inferred that these figures represent biologically false positive reaction which has been reported in 10–40% of leprosy patients by various workers[8-12]. This positive V.D.R.L. is mainly noticed in advanced cases of lepromatous leprosy (51.4%). The concurrent infection with syphilis (4%) should be considered in cases with strongly positive V.D.R.L.[8,10,11] which can be confirmed by specific test for spyhilis like T.P.I., FTA–ABS tests and therapeutic response to antisyphilitic treatment.

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REFERENCES

1. Buchana JA and Highley ET : ABO Blood groups and diseases, Brit J, Exp Path, 2 : 247, 1921.
2. Beasley WH : Blood groups and diseases, Brit Med J, 1 : 1167, 1960.
3. Clarks CA, Evans DAP. and Maconnel RB : Blood groups in diseases, Brit Med J, 1 : 603, 1959.
4. Clarks CA : Progress in medical genetics Ed AG Steinberg, Grun and Strtum, New York, 1961.
5. Ali L : Leprosy and blood groups (cited by 17) J Egypt Med Ass, 14 : 119, 1931.
6. Lechat MF, Thomas B and Enrico R : Blood groups in leprosy. Int J Leprosy, 15 : 488, 1967.
7. Bellgeman B : ABO Blood groups in leprosy. Rev. Brazil Lepr. 31 : 34, 1961.
8. Dharmendra : Notes on Leprosy, Govt. of India, Ministry of Health, New Delhi, 1967.
9. Benett IL Jr : Leprosy, Harrison's Principles of Internal Medicine 6th Ed. McGraw Hill Co Ltd 1974.
10. Heyman A : Spirochaetal Diseases, Harrison's Principles of Internal Medicine, 6th Ed, McGraw Hill Co Ltd, New York, 1974.
11. Rao NV : Syphilis, Behl's Practice of Dermatology, 2nd Ed. Oxford Printcraff India Pvt Ltd, 1972.
12. Sobhanadri C and Nath KL : Serological changes in leprosy, Ind J Derm Vener, 30 : 108, 1972.
13. Weiner AS : Distribution of blood groups among various diseases, Lancet, 1 : 813, 1962.
14. Husen J Thomas E and Jesuduam G : ABO Blood groups in leprosy, Leprosy Rev, 34 : 143, 1963.
15. Ghosh S and Mukerji A : Leprosy and blood groups, Leprosy Ind, 2 : 35, 1970.
16. Shah KC, Mehta NR and Shah AP, et al : ABO blood groups and susceptibility to leprosy, Ind J Derm Vener 38 : 250, 1972.
17. Saxena H, Pratap VK and Chaterji SN, et al, ABO Blood groups and susceptibility in leprosy, Clinician, 37 : 497, 1973.
18. Lowe J : Blood groups in leprosy, Leprosy Ind 14 : 23, 1942.
19. Verma AS and Dongre AV : Leprosy and ABO Blood groups, Leprosy Rev. 36:211, 1965.
20. Singh G and Ojha D : Leprosy and blood groups, J Med Genet, 4 : 107, 1967.

Biopsy was done in 2 areas and both showed similar picture. There was severe band of inflammatory infiltrate in the superficial dermis with focal hydropic degeneration of the basal cells and dropping down of pigment. Epidermis was markedly hyperkeratotic and acanthotic. Histological features were compatible with either hypertrophic DLE or Lichen Planus. Nail clippings in KOH showed filaments suggestive of dermatophytes infection.

Final Diagnosis : Chronic Disseminate DLE (Hypertrophic and Verrucous type) with Onychomycosis.