V. D. R. L. TEST POSITIVITY IN BLOOD DONOR
(A retrospective surveillance for six years)

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Summary

Retrospective surveillance VDRL Test reactors was carried out on 1298 professional blood donors over a period of 6 years. 207 of them showed positivity. The minimum number of times the VDRL Test was done on these subjects is 2, maximum being 29 times. In view of the fact that the positive donors showed wide fluctuations of titres and because of their age group and response to anti-luetic treatment, they were considered as syphilitics. Blood groupwise break up of these donors showed a preponderance of "B" group subjects.

Syphilis is a disease of multiple manifestations and poses an equal number of questions. Inspite of the enormous strides made in the fields of epidemiology, bacteriology, immunology, and treatment of this condition, there are many areas where doubts continue to exist. It is still not known why some victims develop typical Hunterian chancre, while in certain others, syphilis manifests either as an erosion or as balanoposthitis, whereas some might altogether escape this stage. It is equally not known why a few suffering from secondary stage, develop skin manifestations while certain others develop affection of the musculoskeletal system. Similarly one cannot explain the rapid progression of early lesions to late ones and precocious occurrence of tertiary manifestations in certain individuals.

There is also no adequate explanation for the variegated progression of latent syphilis that while in some spontaneous regression occurs and in others persistent reagin positivity, some unfortunately develop tertiary manifestations. Even now we are not certain what makes some develop neurosyphilis, and some others cardiovascular and benign tertiary syphilis. In the field of congenital syphilis there are far too many of such unsolved problems to be enumerated here.

Obviously the answers for all these riddles do not lie within the usually mentioned constellations of infectivity, inoculum or contact. The suggestion is, though it might appear preposterous, the possibility of predisposition, or inheritance cannot be altogether ruled out.

In a social disease like syphilis in which vast numbers of the populations

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are involved, with all its clinical ramifications, associated ostracism, tendency to maintain secrecy, absenteeism and abscondence, precise genetic studies are not only difficult but well nigh impossible. One possible and easy method of investigating the hereditary nature of any condition is through the study of blood groups.

Association of blood groups, with certain diseases like carcinoma stomach, pernicious anaemia[1], gastric ulcer, duodenal ulcer, stromal ulcer, rheumatic fever and tumours of salivary glands[2] is well known. There are also published works of this nature in diseases like infection with influenza virus A2, psoriasis[3] and leprosy[4]. In the field of venereology too there are available some data concerning A B O blood groups amongst patients attending venereal diseases clinics with granuloma venereum[5] and blood donors and antenatal cases[6]. However, a fresh assessment was felt necessary and hence this work was carried out.

Methodology of Retrospective Study

The material for this study was drawn from the follow up records of professional blood donors who attended the Government General Hospital, Kurnool from the beginning of 1970 to the end of 1975 i.e. a total of 6 years.

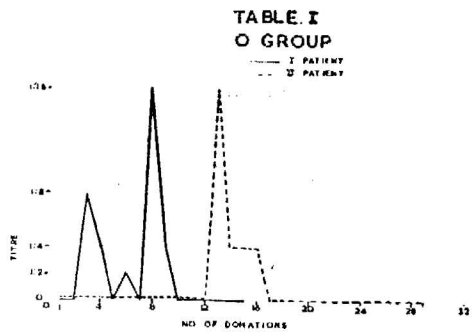
The procedure adopted for each donation by a professional donor, is as follows: Whenever these subjects come to donate blood, which is usually every 3 months but sometimes much longer, a thorough physical examination is carried out; all systems are examined and their weights are recorded. If they are found to be in good general condition, Hb% is assessed. After that the blood is collected in 3 bottles. 1st quantity is small and is for carrying out cross-matching and blood grouping if the person is reporting for the first time; 2nd is for VDRL test and 3rd one is for transfusion.

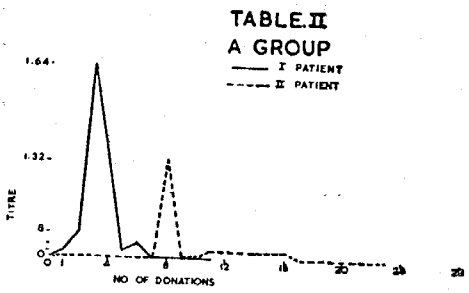
When the same person returns for next donation, the same routine is carried out; and if the VDRL test is found to be reactive above 1 : 8 dilutions on earlier examination or if the titres are found rising on successive examinations, he is referred to V. D., O.P.

In the V.D., O.P. department detailed elicitation of history and physical examination for any evidence of syphilis are carried out. VDRL test is repeated and if found to be positive in low dilutions, the titres are followed. If the titre is in significant dilutions, the subject is appropriately and adequately treated for syphilis and titres are followed thereafter. The subject is sent back to the blood bank only if the serologic status by the VDRL test is satisfactory; exhibiting negativity, stationary nature or a downward trend of titres. No fresh offer of donation is acceptable without certification as to its fitness or suitability by the venereologist.

Blood taken for transfusion is generally not transfused immediately but is left in the refrigerator for 72 hours as a precaution so that treponemes, if there be any in the sample, might perish.

The records of clinical finding and of the fluctuations of VDRL titres of these professional donors are maintained in the venereology department as well as in the blood bank. (The fluctuations of titres in 8 donors, 2 from each group are given in graphs I, II, III and IV).





Incidence and Prevalence

The total number of subjects involved in this study are 1298. All these are males. With very few exceptions, all belong to the age group of 20--40 years and the same socio - economic strata. Blood - groupwise distribution of these subjects and of others from other institutions of this State with percentages are given in Table 1.

TABLE 1

Distribution of donors blood groupwise with percentages and values from other institutions

Group	Govt. Genl. Hospital Kurnool Total 1298 No.	%	Andhra Pradesh Thayuman 2:,000 %	Govt. Genl. Hospital Guntur 3,156 %
O	484	37.3	38	44
A	249	19.2	22	21
AB	84	6.5	7	4
B	481	37	33	32

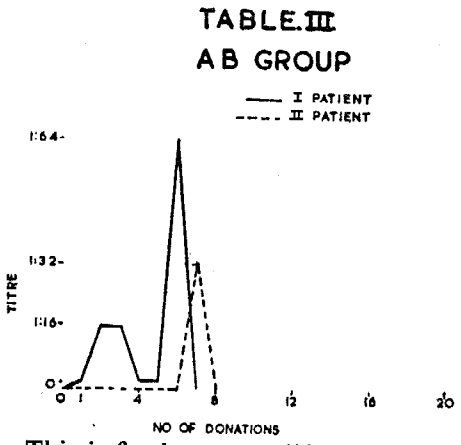
Of these 1298 subjects, 207 were found to be positive by the VDRL slide test for syphilis, once or more number of times during a follow up study of 6 years. Blood groupwise distribution of these 207 subjects with percentages worked out among them is given in Table 2.

TABLE 2

Distribution of positive blood donors blood groupwise with percentages

Group	Positive donors	Percentage
O	53	25.6
A	45	21.7
AB	7	3.3
B	102	49.3
	Total 207	

Comparison of Table 1 and 2 shows two important features: While the blood groupwise break up of all donors of this institution is in rough agreement with that of other works of this State or in the general population, it is different among VDRL positive donors. VDRL positivity is disproportionately high among 'B' Group subjects (49.3%).



This is further exemplified in Table 3 where percentage positivity is calculated among each blood group. VDRL positivity by this calculation is 21.25 in blood group 'B' which is higher than in other groups.

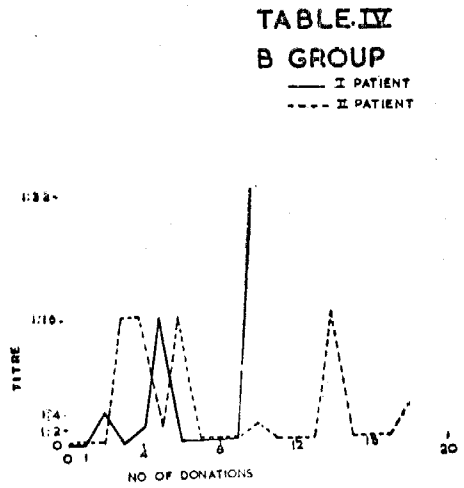
TABLE 3

Breakup of 1298 subjects blood groupwise showing the VDRL positives in each group and percentages

Group	Total donors	VDRL positive donors	Percentage
O	484	53	10.9
A	249	45	18
AB	84	7	8 3
B	48	102	21.25
Total	1298	207	16

Follow up

During the retrospective surveillance of 207 VDRL Test positive professional blood donors for 6 years, it has been found that the minimum number of times a person had donated blood is 2 and maximum 29. The VDRL test was done on them every 3 months i.e.,



whenever they reported for donations. However, the tests were repeated at shorter intervals accidentally when a donor reported with two different names. Though this was generally prevented by identification or by tallying of 'Follow up' cards, it became impossible at times. This also explains the 29 donations by one individual though 24 could be expected during six years. Minimum number of times the VDRL test has been performed on a subject at blood bank is 2, maximum being 29. The total follow up of these subjects ranged from 3 months (some absconded after 2 donations) to 6 years.

Biologic False Positive (BFP) Reactions

There are many conditions which are known to produce BFP reactions. These are broadly classified as acute and chronic. Acute reactions come down within 6 months, chronic reactions persisting. 207 positive subjects of this study are all males. With the exception of one person all are in the age group of 20 – 40 years ; sexually a most active group. With the exception of few christians and muslims, all are hindus and all belong to the same socio-economic strata. All are otherwise healthy. Their clinical records are followed up in both venereology and blood bank departments. All these subjects were constantly under surveillance for 6 years. Consequently the possibility of their suffering from any disease which would have led to B.F.P. reactivity is remote, as detection of any other disease, automatically disqualified them for further donations.

Minimum number of donations by these subjects were two; maximum being twenty nine. VDRL test surveillance on them ranged from 2 to 29 times, in the blood bank. Their VDRL test was checked at each donation i.e., every 3 months. Their VDRL reactivity showed wide fluctuations and such phenomena are not known to occur with B.F.P. reactors. Most of them on persuasion or after searching interrogation gave history of fresh exposure or of development of some other manifestations like sore genitalia or joint pains. The serologic titres invariably came down after antisyphilitic treatment. Consequently the presence of B.F.P. reactors among these subjects is very remote ; and even if they had been present, they would have been such an insignificant number that it would not have materially altered the outcome of this investigation.

Comparison with other susceptible groups

TABLE 4

VDRL positivity among patients attending VD, OP and percentages

Year	Total No of STS done	No. of reactives (8 dilutions and above)	No. of partially reactives (4 dilutions and below)	% positivity
1970	3415	48	139	14.3
1971	3073	458	126	18.5
1972	2490	349	129	19.1
1973	2359	237	182	17.7
1974	2786	260	178	14.6
1975	2980	355	206	18.7
Total	17103	2007	967	17.3

The VDRL test positivity of blood donors in this study is 16%. Table 4 gives the VDRL positivity among the patients attending the V.D., O.P. with percentages for the corresponding years of 1970–1975 (total 6 years). This consists of some suffering from venereal diseases and some in whom the blood is tested as a routine procedure. The percentage positivity of patients attending the V.D., O.P. ranged from 14.3–19.1%. If the whole period is taken as a single unit the percentage positivity is 17.3%. In addition most of the people attending the V.D., O.P. department are males, of poor socio-economic strata, and belong to the age group of 20 – 40 years. Thus the percentage prevalence of VDRL positivity among blood donors is same as any other susceptible group.

Comment

This work was done only on professional blood donors. There was a preponderance of "B" group donors among those with V.D.R.L. test positives. We do not want to generalise this view but make the observations that either "B" group individuals are more promiscuous or that they are more susceptible to syphilis ; and further work in this direction might throw better light on many riddles of syphilis.

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