IMMUNOLOGICAL STUDY IN VITILIGO AND CONTACT DEPIGMENTATION

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Tuberculin response, *peripheral T-lymphocytes counts and serum immunoglobulin levels* were studied in 28 cases of vitiligo and 27 cases of contact depigmentation (CD). There were 50% reactors in vitiligo versus 92.6% in CD. Peripheral T-lymphocyte counts were low in vitiligo (38.1%) versus normal (55.8%) and in CD (53.4%) and the difference was statistically highly significant ($p<0.001$). Immunoglobulins were abnormal except in 3 cases of vitiligo and 2 cases of CD and difference in immunoglobulin levels in both conditions was statistically non-significant. IgA alone was decreased in 3 cases of vitiligo. It is concluded that there is suppression of cell mediated immune response in vitiligo versus normal in CD.

Key Words : Vitiligo, Contact depigmentation, Immunology

Introduction

Comparative immunological studies were carried out in vitiligo and contact depigmentation as both diseases present with depigmented macules and at times co-exist. Both sexes are affected equally in vitiligo and sex incidence in CD can vary according to nature of contactants.[1] Immunoglobulins were altered in vitiligo and specific decrease in IgA has been reported.[2] In vitiligo autoantibodies[3], antimelanocyte antibodies,[4] more of organ specific antibodies[5] and its association with other autoimmune disorders[6] point towards role of humoral immunity in vitiligo in comparison to normal control.[7] Where as other studies reported that T-lymphocytes were within normal range in vitiligo.[8]

Materials and Methods

A total of 28 patients of vitiligo and 27 cases of CD were collected from the dermato-venereology department of Rajendra Hospital, Patiala. Thorough history and detailed systemic and dermatological examination was carried out in all cases. All patients had received BCG vaccination in childh
Delayed hypersensitivity skin tests
performed using purified protein deriv
(PPD) 0.1 ml of tuberculin from BCG va
laboratory, Madras. It was inje
intracutaneously on the front of forear
the normal skin using a tuberculin syringe.
test was read after 48-72 hours and gra
was done. A diameter of 6-10 mm was
11-20 mm (2+), 20 mm vesiculobul
lesions (3+). Cases with positive reaction
'reactors' (No other dilutions of tuberculin
used in the non responders).

Peripheral T-lymphocyte counts
done using Thompson technique (1979).

Results

Out of 28 cases of vitiligo, 3 cases
segmental vitiligo, 21 cases had local
disease upto 10 lesions and 4 cases
extensive wide spread disease. There wer
males and 13 females. The duration o
disease was less than 1 year in 11 ca
between 1-5 years in 9 cases and more th
years in 8 cases. At the time of study o
the patients was under treatment and dis
was active in all cases.

Out of 27 cases of CD, 15 cases
due to footwear, 11 due to bindi and 1

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was due to both bindi and chappal. There were 4 males and 23 females. The duration of the disease was less than 1 year in 19 cases, between 1-5 years in 7 cases and in 1 case was more than 5 years. No patient of CD was taking treatment at the time of study.

Half (50%) cases of vitiligo and 44.5% cases of CD were in age group of 11-30 years. Both sexes were almost equally affected in vitiligo vs 85.2% females in CD as bindi is used only by females. Delayed hypersensitivity reactions with tuberculin revealed that 50% cases of vitiligo and 92.6% cases of CD were reactors. Out of positive cases 78.57% had 1+ and 21.5% had 2+ reaction in vitiligo, whereas in CD 36% had 1+, 60% had 2+ and 4% had 3+ response. Thus there was marked difference in number and degree of positivity of tuberculin tests in CD vs vitiligo. Peripheral T-lymphocyte count in vitiligo was 38.1% and in normal controls it was 55.8% and this difference was statistically highly significant ($P<0.001$). The counts were not influenced by duration of disease or number of lesions. Peripheral T-lymphocyte count in CD was 53.4% while in normal controls it was 55.8%. The difference was statistically insignificant. Difference in peripheral T-lymphocyte count in vitiligo vs CD was statistically highly significant ($P<0.001$).

Only 3 cases of vitiligo and 2 cases of CD had normal immunoglobulin levels. 71.4% had raised and 17.85% had low levels of one or more class of antibodies in vitiligo. IgA levels alone were decreased in 3 cases of vitiligo. In CD, 81.48% had raised and 7.4% had low levels of one or more class of antibodies. Difference in immunoglobulins (IgG, IgM and IgA) in vitiligo vs CD was statistically insignificant. On comparison it was seen that antibody levels were not influenced by duration of disease or number of lesions in both vitiligo and CD.

Discussion

Vitiligo and CD both are diseases of young though vitiligo developed at younger age than CD. Sex ratio is almost equal in vitiligo and it varies significantly in CD according to the profession and nature of the contactant. In this stuy 85.2% of CD were females as in 12/27 contactant was bindi. Differences in the immunoglobulin levels in vitiligo and CD were statistically non-significant. However 3 cases of vitiligo had

Table I. Showing serum antibody profile in cases with vitiligo and contact depigmentation

Name of disease	Raised serum antibodies								Decreased serum antibodies							
Number of Patients	IgA	IgG	IgM	IgM & IgG	IgM & IgA	IgG & IgA	All Three	Total %	IgA	IgG	IgM	IgM & IgG	IgM & IgA	IgG IgA	All Three	Total %
Vitiligo (28)	0	4	6	6	0	0	4	71.4	3	1	0	0	0	1	0	17.85
Contact depigmentation (27)	0	3	6	6	3	0	4	81.48	0	0	0	0	0	2	0	7.4

only decrease of IgA levels and it could be specific for vitiligo as reported earlier. It was observed in this study that CD patients had normal peripheral T-lymphocyte counts and 92.6% were reactors on tuberculin testing. Whereas in vitiligo statistically significant low peripheral T-lymphocyte counts and only 50% reactors on tuberculin testing were seen. So it could be concluded that there seems to be an abnormal and suppressed cell mediated immune mechanism in vitiligo.

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