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Efficacy of Methotrexate in Vitiligo

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Abstract*: Vitiligo is a disorder of depigmentation resulting from the destruction of melanocytes in the epidermis.Autoimmunity is currently recognized as one of the most likely pathogenic mechanism.Mainstay of treatment in unstable vitiligo are systemic steroids and phototherapy.As steroids have many complications and phototherapy being cost prohibitive methotrexate is tried as steroid sparing therapy in present study.**Objective**: To study the efficacy of methotrexate in unstable vitiligo.**Methodology**:It is a prospective Institutional study conductedfrom January 2017 to September 2017 in individuals diagnosed(clinically) as unstable Vitiligo at DVL OPD.**Results**: A total of 20 patients were enrolled in the study.Fourteen[70%]patients involving hair bearingareas showed moderate re pigmentation.**Conclusion**: Methotrexate can be given as steroid sparing agent inunstable vitiligo*

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I. Introduction :

Vitiligo is defined as a specific, common, often heritable, and acquired dermatological disorder characterized by well-circumscribed, milky-white cutaneous macules and patches devoid of identifiable melanocytes[1]. Vitiligo affects 0.1–2% of the world's population. It usually begins in childhood or adolescence,with peak onset at 10 to 30 years, but it may occur at any age. Both sexes are equally affected[2]. It is believed that vitiligo is a multifactorial polygenic disorder with a complex pathogenesis. Although several theories (that include autoimmune, auto cytotoxic, biochemical, neural, and genetic mechanisms) have been proposed to explain the loss of epidermal melanocytes in vitiligo, the precise cause remains unknown[2]. At present, the autoimmune theory is most plausible[3]. Over the years there have been various reports.Mainstay of treatment in unstable vitiligo are systemic steroids and phototherapy.Some studies provided evidence that in vitiligo skin a significantly higher expression of TNF-α was detected, compared with perilesional, non-lesion and healthy skin [4]. Thus, it seems that TNF-α is a key step in the development of vitiligo .As steroids have many complications,phototherapy being cost prohibitive and loss of patient compliance due to regular visit to hospital twice or thrice weekly. Methotrexate is tried as steroid sparing therapy in present study. Methotrexate is an antimetabolite and anti-folate used to treat certain cancers, Rheumatoid arthritis, Pemphigus and other autoimmune diseases[5].Methotrexate results in decreased number of T cells capable of producing TNF alfa[6]. Therefore, it may help in stopping progress and bringing down the diseaseprocess under control. Hence, we undertook this study to look the efficacy of methotrexate in unstable vitiligo who are resistant and failureto other modalities of treatment.

II. Material and Methods:

Study Design: Prospective Institutional study
Study Period: January 2017 to September 2017
Study Subjects: Individuals diagnosed (clinically) as Unstable Vitiligo
Inclusion Criteria:
Unstable vitiligo
Willingness
Exclusion criteria:
Any contraindication to methotrexate
Pregnancy and lactation
Not willing to enrol in the study
Informed consent: Was taken for recording the details, examination, taking photographs and publishing data in his/her own vernacular language

III. Methodology

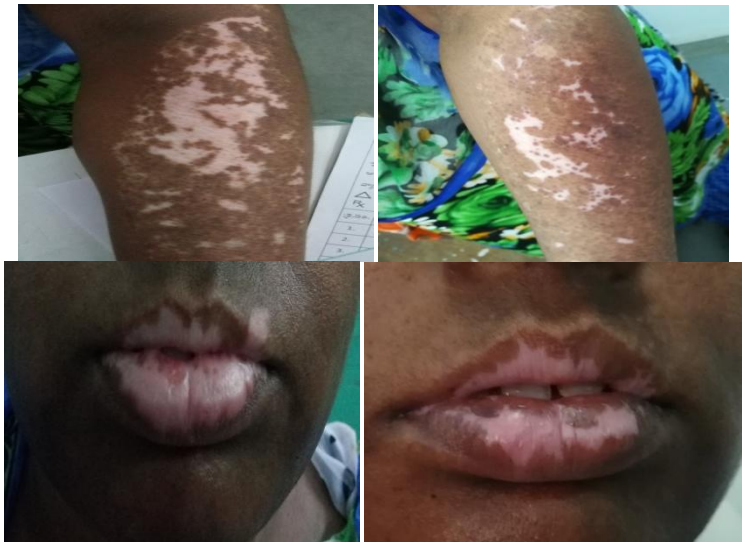
A total of twenty patients diagnosed as unstable vitiligo attending DVL OPD were enrolled into the study. Pre-treatment blood tests (full blood count, Liver and kidney function tests), Chest X ray and Ultrasound abdomen were done.Clinical and photographic assessments were done.Low-dose methotrexate was started and gradually escalated to 15mg per week along with folic acid supplements. The patients were monitored with regular follow up and required blood investigations.

IV. Results :

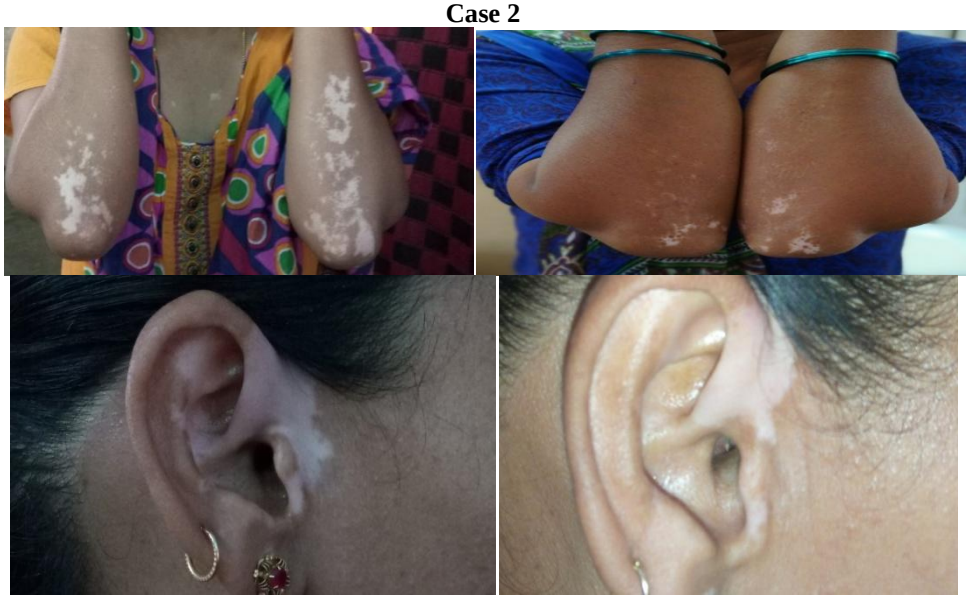
Out of 20 cases regimentation is seen in fourteen patients[70%]mainly involving hair bearing areas except leucotrichia [Table1]. Four patients[20%] involving palms,soles did not show any results.One patient[5%] lost to followup.One patient[5%] did not show any responsein spite of taking methotrexate.Disease activity gradually decreased in 90% of the patients.No adverse effects were reported.

Case 1

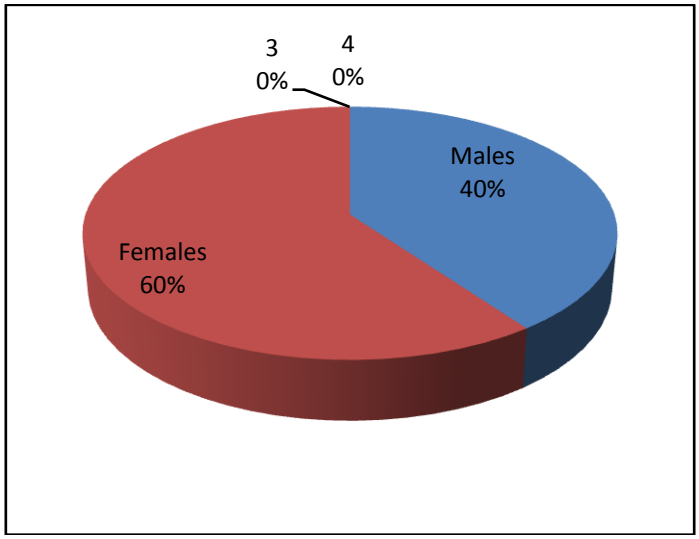
Before **After**



Case 2



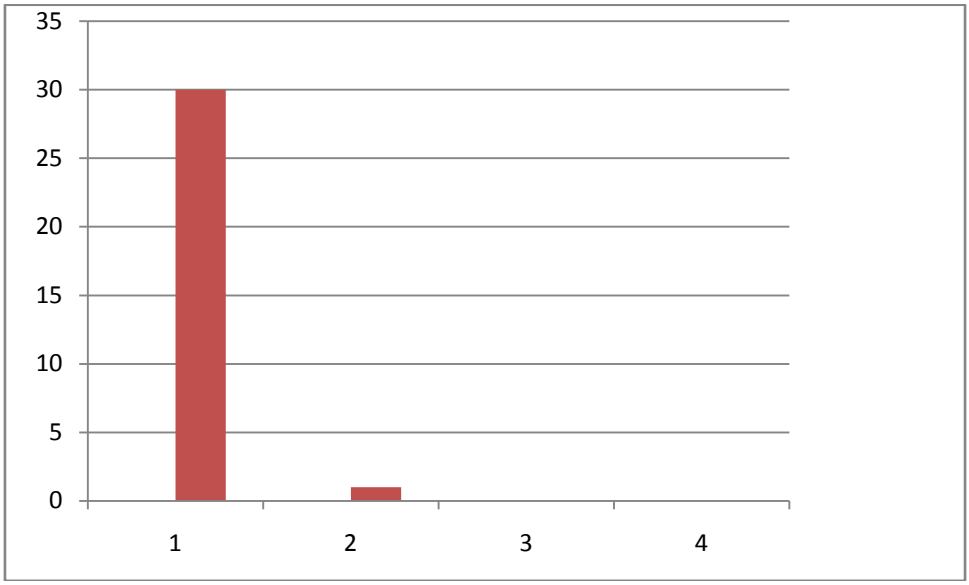
Age distribution



Calculation of decrease in body surface area:

Percentage of involvement is calculated on rule of nine basis.Each palm area corresponds to 1%.

% of decrease in BSA:



Maximum response- 30% decrease in BSA
Minimum response- 0-1% decrease in BSA

Table1: Patient	Age (years)	Gender	Duration of Vitiligo (months)	Location of Vitiligo	Decrease in %BSA of vitiligo	Response
1	33	F	72	F,UL,LL,T	30%	YES
2	34	F	36	F,UL,LL,T	20%	YES
3	56	F	60	F,UL,LL,T	15%	YES
4	43	F	36	F,UL,LL,T	15%	YES
5	26	F	72	F,UL,LL	20%	YES
6	35	M	72	UL,LL	15%	YES
7	28	F	36	F,UL,LL,T	20%	YES
8	30	M	180	F,UL,LL	10%	YES

9	32	F	60	T	10%	YES
10	31	M	120	Palms	0	NO
11	43	F	48	Palms, Soles	0	NO
12	55	M	24	F,UL,LL,T	20%	YES
13	17	F	12	F,LL	15%	YES
14	24	M	36	Palms, Soles	0	NO
15	20	F	11	UL,T	25%	YES
16	42	M	18	UL,T	20%	YES
17	28	M	24	F,UL,LL,T	18%	YES
18	56	M	36	F,UL,LL,T	30%	YES
19	35	F	12	Palms, Soles	0	NO
20	29	F	35	Palms, Soles	0	NO

F=Face,T=trunk, UL=Upper Limb, LL=Lower Limb

V. Discussion:

The two most frequently used modalities in the treatment of vitiligo are PUVA and corticosteroids [7]. In actively spreading vitiligo, PUVA therapy is not an ideal treatment.Corticosteroids and narrow-band UVB seems to be the most effective and safest therapies for localized and for generalized vitiligo respectively[8], but it may cause unwanted side-effects, such as skin atrophy, telangiectasia and striae distensae, acne and local hypertrichosis. There have been a few reports on the use of methotrexate in vitiligo therapy.In a study conducted by Sandra et al a patient having both rheumatoid arthritis and unstable vitiligo responded well to methotrexate[9].Another study was conducted by Benerjee K with methotrexate showed no response in patients with unstable vitiligo.So,in our study we observed moderate re pigmentation in 70% of the patients and disease activity ceased in 90% of the cases.With regard to the site of the vitiligo sun exposed areas yielded better response[face and upperlimbs&upper trunk] .Patients with short duration of vitiligo got better results. Palms,soles and mucosa had poor outcome.Maximum response we observed is decrease in the body surface area by 30% and minimum was 0-1%.

VI. Conclusion :

Methotrexate can be considered as a promising treatment inducing re pigmentation and maintaining stability as an alternative to steroids and phototherapy.

Limitations: Study sample taken was too small and follow up period is not sufficient to predict response.However similar studies carried out for longer periods with large number of population may yield better results.

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Conflict of interest: Nil

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