A Clinical Study of the Unani Formulation UNIM-045 for Anti-Vitiligo effect

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Abstract

Leucoderma, a Latin word, meaning "white skin" is caused by the destruction of melanocytes; the cells responsible for skin colour. Out of 23 patients studied, 6 patients showed 40% pigmentation, 8 patients showed 41 to 70 % pigmentation, 8 patients showed 71 to 90 % pigmentation and 1 patient showed complete pigmentation affected on different parts of the body. All the biochemical and haematological parameters were done by the standard methods referred in the text. In biochemical studies a significant reduction on the levels of Serum Total Protein ($P<0.001$) and Serum Albumin ($P<0.01$); however UNIM-045 significantly increase the levels of Serum Globulin ($P<0.01$); and A/G ratio ($P<0.01$) in different follow-up in Bars patients (Table-1). UNIM-045 significantly reduced the levels of Serum Glutamate Pyruvate Transaminase (SGPT) ($P<0.001$) and Serum Glutamate Oxaloacetate Transaminase (SGOT) ($P<0.001$) whereas a significant increases in the levels of Serum Alkaline Phosphatase enzyme, within normal level ($P<0.001$) (Table-2) were observed when compared with pre-treatment to the different follow-up. In haematological studies a significant decrease in the levels of Erythrocyte Sedimentation Rate (ESR) ($P<0.01$), Red Blood Corpuscles (RBC) ($P<0.01$) (Ist and IInd Follow-up) and Total Leucocytes Counts (TLC) ($P<0.05$) (IInd follow-up) (Table-3) were observed, when compared with pre-treatment to different follow-up in bars (vitiligo) patients. Thus test Unani formulation is suggested to have anti-Vitiligo effect (As shown in Fig-1 photographs).

Key Words: Unani Medicine, Bars, Vitiligo

Introduction

Bars (vitiligo) is an idiopathic acquired depigmenting disorder characterized by circumscribed dipigmented macules due to loss of functional melanocytes from the epidermis, the cells responsible for skin color (Suman *et. al.,* 2009). The cause of vitiligo is unknown but research suggests that it may arise from auto-immune (Suman *et.al.,* 2009), genetic (Xue *et. al*., 2005), oxidative stress (Eskandani *et. al*., 2010), neurological (Dutt, 1984), or autocytotoxic (Han & Chun, 2000). The vitiligo is becoming a common social as well as dermatological problem which has affected 1.0 to 4.0% of the world's population and approximately 3.0% of the Indian population (Handa & Dogra, 2003). Vitiligo can develop at any age but several studies report that 50%

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of cases appear before the age of 20 (Halder and Nootheti, 2003). As for a possible hereditary link, approximately one third of cases report a family history (Majumder *et. al.*, 1993). The most commonly affected areas of the body are the sun-exposed tops of hands and face and hyper-pigmented areas of the body (Halder *et al.,* 1987). . People affected with vitiligo generally experience depression (Mattoo *et. al.,* 2002), sleep disturbances (Ongenae *et*. *al*., 2006), suicidal attempts (Cotterill & Cunliffe, 1997), and anxiety (Al-Abadie *et. al*., 1994).

Although, currently available modern anti-vitiligo drugs are effective in the treatment of Vitiligo (Bars) but also produce certain adverse side effects and have high cost (Ference & Last, 2009; Kovacs, 1998). Now attention is diverted to herbal and Unani formulations due to their versatile role in the treatment of Bars (Vitiligo) with no or negligible side effects and being cost effective. Keeping in view the above facts, the efficacy of Unani coded drug UNIM-045 was evaluated in the management of Bars (Vitiligo) at Regional Research Institute of Unani Medicine; Aligarh during the period from 2008-2010 and results are presented in this communication.

Materials and methods

Subjects Selection

UNIM-045 capsule and UNIM-045 cream were obtained from Central Council for Research in Unani Medicine, New Delhi. Forty seven patients attending in the out patients department (OPD), Regional Research Institute of Unani Medicine (RRIUM), Aligarh of either sex, age (10-60 yrs) were screened to assess the different biochemical and haematological parameters. Out of forty seven patients, twenty three patients were selected for clinical trial. Criteria for selection of patients were based on inclusion and exclusion criteria. They were informed about the nature and objectives of trial and a written consent was obtained before enrolling them into the trial.

Inclusion Criteria

Patients suffering from Bars (Vitiligo) belonging to both sex and different age group (10-60 years) were selected for study. White patches on surfaces of skin neither elevated nor depressed having no exudation or scaling and no itching with hyperpigmented/ hypopigmented margin was taken as Vitiligo patches without loss of sensitivity. Bars (Vitiligo) cases free from other systemic diseases, skin diseases and intestinal infestation were included in the study.

Exclusion criteria

Pregnant mother and patients with hepato-renal, cardiac and pulmonary malfunction, patients on active vitiligo treatment with other drugs, subjects with other skin diseases such as Leprosy, Pityriasis and albinism, subjects with known allergies, subjects who were unwilling to come for regular follow-up for the entire duration of the study and non-cooperative patients were excluded.

Diet restriction and recommendation

Diet plays an important role according to the Unani System of Medicine. As Unani classics relate Bars as a phlegmatic disorder which is attributed to cold and wet, hence any food articles which produces coolness and moistness in the body qualities were strictly prohibited.

Restricted Food Articles

Articles which produce Balgham (Phlegm) are milk and milk products, lemon and lime, tamarind, orange/ citrus fruits, parsley, custard apple, guava, prunus, cashew nuts, melon, water melon, Chinese dates, sour tomatoes and amla e.t.c. and articles which are supposed to bring changes in blood and make blood impure (Fasad-ud-dam) are egg, fish, beef, brinjal and heavy and light mixed food was restricted.

Recommended Diet

Recommended food articles included Wheat, Indian Millet, Pulses, pure ghee obtained from butter, broad beans, French beans, Spinach, Bitter gourd, Onion, Beet root, Carrot, Chillies, Black pepper, Maize, Figs (fresh and dry), Almond, Walnut, Dates, Mango, Apricots, Grapes, Potatoes, Rice, Papaya, Turnip, Mutton, Bird's flesh. Finally the diet was prescribed according to the patients need.

Collection of blood serum

Blood samples were collected by puncturing the vein at each investigation. 1.0 ml of blood with ethylene diamine tetra acetic acid (EDTA) was used for various haematological parameters and other 2.0-2.5 ml of blood samples were allowed to clot and serum was separated by centrifugation, which was used for various biochemical parameters. Biochemical and haematological investigations were carried out as follows.

Biochemical analysis

Biochemical parameters carried out are as follows. Serum Total Protein, Serum Albumin and Serum Globulin, Serum Glutamate Pyruvate Transaminase (SGPT, E.C. 2.6.1.2) and Serum Glutamate Oxaloacetate Transaminase (SGOT, E.C. 2.6.1.1.), Serum Alkaline Phosphatase enzyme (ALP). The serum total protein is included because some authors had reported that there might be increased auto-antibody formation (Song *et.al*.; 1994) and rise in gamma globulin fraction (Kemp *et. al*.; 2007). Liver function tests were studied for possible side effects. Post-treatment elevated Alkaine Phosphatase enzyme values are within normal limit and were correlated by Chowdhury and Banerjee (1967).

Haematological analysis

Haematological parameters include: Haemoglobin (Hb %), Erythrocyte Sedimentation Rate (ESR), Total Leucocytes Counts (TLC), Red Blood Corpuscles (RBC) and Differential Leucocytes Counts (DLC): Polymorphs, Lymphocyte and Eosinophil Counts. Haemogram is included to see whether there was any change in Hb%, RBC count, TLC, polymorphs, lymphocytes, eosinophil count and ESR. Some author had reported that decrease in ESR (Husain *et. al*., 1991).

Drug, Dose and mode of administration

Compound Unani formulation coded drug UNIM-045 capsule, two capsules each twice daily was given orally with water after meal to the patient.UNIM-045 cream was locally applied on affected area with exposure of early morning sun rays for 2-7 minutes daily.

Duration of treatment and follow-up

Duration of treatment of patients was 12- months. After registration of patients, a pre-treatment (0 days) and follow-up (3-months, 6-months, 9-months and 12-months) observations were made by investigating Serum Glutamate Pyruvate Transaminase (SGPT), Serum Glutamate Oxaloacetate Transaminase (SGOT), Serum Alkaline Phosphatase enzyme (ALP), Serum Total Protein and Serum Albumin, Serum Globulin and A/G ratio were done in biochemical investigations and Haemoglobin (Hb %), Erythrocyte Sedimentation Rate (ESR), Total Leucocytes Counts (TLC), Red Blood Corpuscles (RBC) and Differential Leucocytes Counts (DLC): Polymorphs Lymphocyte and Eosinophil Counts were done in haematological investigations.

Statistical analysis

Data were analyzed statistically by one-way analysis of variance (ANOVA) followed by Dennett's' test. The values were considered significant when the P- value was less than 0.01.

Results and Discussion

Pigmentation response

At the end of treatment with Unani coded drug UNIM-045 (IVrth follow-up or 12 month) 6 (26 %) out of 23 patients showed 40% pigmentation, 8 (35%) patients showed 41 to 70 % pigmentation, 8 (35 %) patients showed 71 to 90 % pigmentation and 1 (4.0 %) patient showed complete pigmentation affected on the different parts of the body in vitiligo patients.

Biochemical Studied

Serum Proteins

UNIM-045 significantly reduced the levels of Serum Total Protein 12.0% ($P<0.001$), 14.0% ($P<0.001$) and 17.0% ($P<0.001$), Serum Albumin 11.0% ($P<0.01$), 10.0% ($P<0.01$), 15.0% ($P<0.01$) and 13.0% ($P<0.05$) (Table-1), when compared with pre-treatment to the different (Ist to IVth) follow-up. A significant increase in the levels of Serum Globulin 16.0% ($P<0.01$), 18.0% ($P<0.001$), 11.0% ($P<0.05$) and 14.0% ($P<0.01$) and A/G ratio 14.0% ($P<0.05$), 32.0% ($P<0.01$) and 24.0% ($P<0.01$) (Table-1) were observed in Ist, IInd and IIIrd follow-up in Bars (Vitiligo) patients. Verma *et. al.,* 2011 had reported similar type of observations in vitiligo patients treated with Unani coded drug UNIM-044. An increase of IgE count was found in 22% of vitiligo patients (Perfetti *et al,* 1991). This could be due to disease condition of patients.

Liver Function Tests

A significant reduction in the level of the Serum Glutamate Pyruvate Transaminase (SGPT) 34.0% ($P<0.001$), 33.0% ($P<0.001$), 32.0% ($P<0.001$) and 31.0% ($P<0.001$) and Serum Glutamate Oxaloacetate Transaminase level (SGOT) 24.0% ($P<0.001$), 20.0% ($P<0.001$), 21.0% ($P<0.001$) and 27.0% ($P<0.001$) were observed, when compared with pre-treatment to the different follow-up (Ist to IVrth) (Table-2). UNIM-045 significantly increased but within normal level of Serum Alkaline Phosphatase enzyme, 39.0% ($P<0.001$), 44.0% ($P<0.001$), 47.0% ($P<0.001$) and 55.0% ($P<0.001$) were observed when

compared with pre-treatment to the different (Ist to IVth) follow-up (Table-2) in bars (vitiligo) patients.

Haematological Studies

In haematological studies UNIM 045 significantly decrease the levels of Erythrocyte Sedimentation Rate (ESR) 28.0% (P<0.01), 33.0% (P<0.01), 18.0% (P<0.05) and 32.0% (P<0.01) and Red blood corpuscles (RBC) 8.0% (P<0.05) and 9.0% (P<0.01) (Ist & IInd follow-up) and Total Leucocytes Counts (TLC) 17.0% (P<0.05) (IInd follow-up) (Table-3) were observed, when compared with pre-treatment to different follow-up in bars (vitiligo) patients. Verma *et. al.,* 2011 had reported similar type of observations in vitiligo patients treated with Unani coded drug UNIM-044. In conclusion: Thus test Unani formulation is suggested to (as shown in photograph fig-1) have anti-vitiligo effect in Vitiligo (Bars) patients. Further studies are warranted.

Table 1: Effect of Unani coded drug UNIM- 045 (Oral and local) on the level of Serum Total Protein, Serum Albumin, Serum Globulin and A / G ratio in Bars (Vitiligo) patients.

Group → Parameter ↓	0th Day (Pre-treatment)	3 -Month (Ist follow-up)	6-Month (IInd follow-up)	9-Month (IIIrd follow-up)	12-Month (IVrth follow-up)
Serum Total Protein (gm/dl)	7.20 ± 0.18	6.85 ±0.15▪	6.33 ±0.16***	6.23 ±0.14***	5.98 ±0.11***
Serum Albumin (gm/dl)	4.05 ± 0.09	3.60 ±0.08**	3.63 ± 0.08**	3.46 ±0.09**	3.51 ±0.08*
Serum Globulin (gm/dl)	3.02 ±0.12	3.49 ±0.14**	3.57 ±0.10***	3.36 ±0.10*	3.43 ±0.11**
A/G Ratio	1.32 ± 0.06	1.50 ±0.08*	1.74 ±0.10**	1.63 ± 0.12**	1.44 ±0.07▪

*P<0.05 significant **P<0.01 significant, ***P<0.001 highly significant and ▪P not being <0.05

Table 2: Effect of Unani coded drug UNIM- 045 (Oral and local) on the levels of SGPT, SGOT and Serum Alkaline Phosphatase in Bars (Vitiligo) patients.

Group Parameter	0th Day (Pre-treatment)	3-Month (Ist follow-up)	6-Months (IInd follow-up)	9-Month (IIIrd follow-up)	12-Months (IVth follow-up)
SGPT (IU/L)	33.58 ± 1.74	22.65 ±0.72***	22.48 ±0.90***	22.72 ±0.97***	23.15 ± 0.50***
SGOT (IU/L)	32.95 ± 1.45	25.14 ±0.91***	26.33 ±1.04***	26.15 ± 1.07***	24.13 ± 0.74***
Serum Alkaline Phosphatase (IU/L)	78.99 ±6.47	109.39 ±6.39***	113.43 ±5.83***	116.12 ±6.57***	122.19 ±4.52***

***P<0.001 highly significant

Table 3: Effect of Unani coded drug UNIM- 045 (Oral and local) on the levels of Haemoglobin (Hb %), Erythrocyte Sedimentation Rate (ESR), Total Leucocytes Counts (TLC), Red Blood Corpuscles (RBC) and Differential Leucocytes Counts (DLC): Polymorphs, Lymphocyte and Eosinophil Counts in Bars (Vitiligo) patients.

Group Parameter	0th Day (Pre-treatment)	3-Month (Ist follow-up)	6- Month (IInd follow-up)	9- Month (IIIrd follow-up)	12-Month (IVrth follow-up)
Haemoglobin (gm %)	12.70 ± 0.25	12.27 ±0.25▪	12.33 ± 0.30*	12.38 ±0.20▪	12.48 ±0.15▪
ESR (mm/hr)	25.87 ± 1.41	18.65 ±0.96 **	17.26 ±1.87 **	21.30 ±2.08*	17.70 ±0.69**
R.B.C. (10 6 /mm3)	4.16 ±0.11	3.85 ±0.10*	3.79 ±0.10**	4.03 ±0.08 ▪	4.10 ±0.08 ▪
T.L.C. (103/mm3)	6.94 ±0.46	6.20 ±0.28▪	5.76 ±0.28*	6.31 ±0.38▪	6.58 ±0.26▪
Polymorphs (%)	62.17 ±1.24	61.48 ±0.98▪	63.22 ±1.54▪	63.13 ±1.06▪	63.35 ±1.21▪
Lymphocyte Counts (%)	34.87 ±1.06	32.48 ±1.47▪	32.78 ±1.13▪	33.70 ±1.10▪	32.70 ±1.10▪
Eosinophil Counts (%)	3.65 ±0.34	4.13 ±0.28▪	4.26 ±0.51▪	3.35 ±0.26▪	4.09 ±0.33▪ *

*P<0.05 Significant, **P<0.01 significant, and ▪P not being <0.05

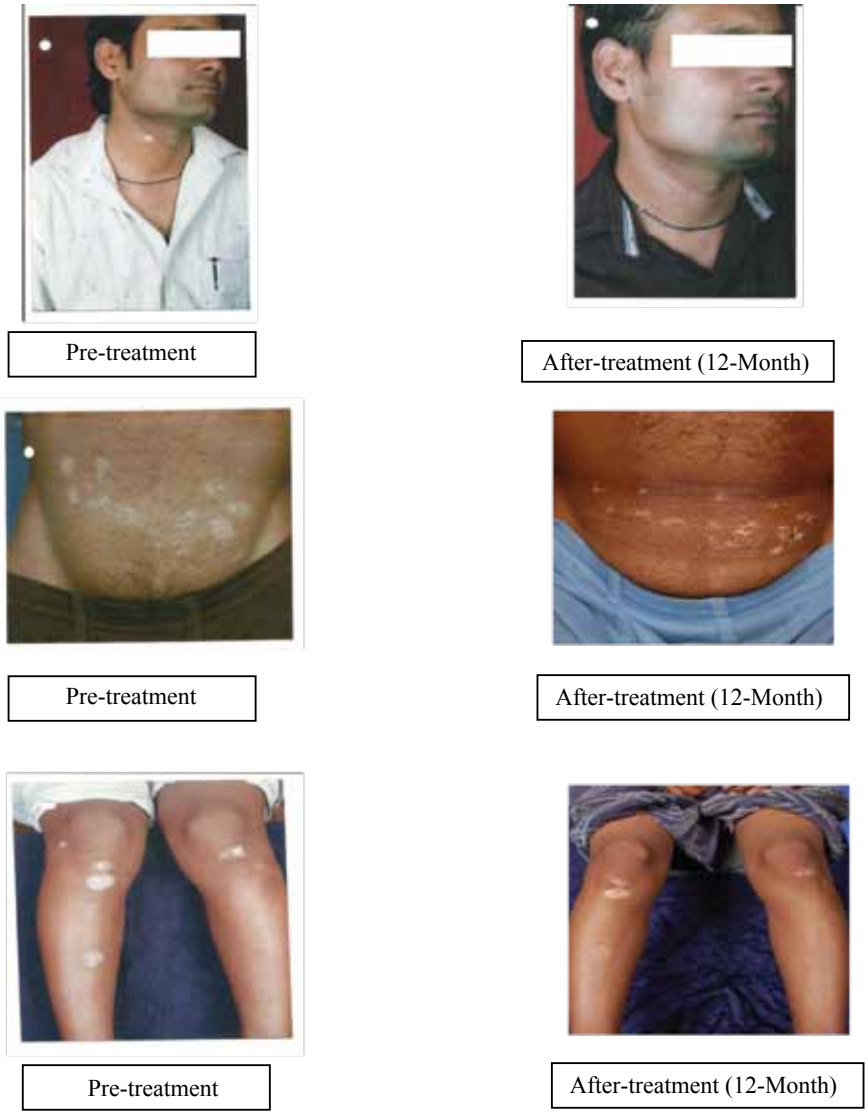

Fig. 1: Photographs showing response to the Unani coded Drug UNIM-045 in Bars (Vitiligo) lesions.

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