Multicentric Clinical Trial Of Active Fragment of Basic Fibroblast Growth Factor

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Abstract: *Vitiligo is an acquired de-pigmentary disorder characterized by patchy de-pigmentation of the skin that tends to become more progressive over time. It is associated with progressive elimination of melanocytes perhaps caused by their reduced survival from the epidermis, the mucous membrane and other tissues. It affects about 1% of world population. The incidence is higher in India. Objective of the study is to evaluate the efficacy and the safety of the bFGF (BASIC FIBROPLAST GROWTH FACTOR) derived peptide in patients of Vitiligo. A Multi-centric trail of 250 patients of varying ages and duration with maximum of 20 percent of the body surface area affected. This is a multicentric trial of use of DECA peptide – derived from basic Fibroblast Growth Factor, a new molecule in the treatment of Vitiligo. After taking written informed consent of the patient and satisfying inclusion and exclusion criteria, the patients were enrolled for study.A detailed clinical history and clinical examination [general and systemic examination] was taken and recorded in CRF. The observation was recorded in CRF at Baseline and every follow up visit till the completion of the study.Blood investigations are carried out before and after study. From the foregoing it is obvious that bFGF has place in therapy of management of vitiligo. Topical bFGF is very useful if proper dispensing of medication along with proper mode of administration is followed. It requires patient education and persistent compliance. It thus offers a safe, effective and economical option for the management of Vitiligo cases both as monotherapy and as adjunctive therapy.*

I. Introduction

Vitiligo is an acquired de-pigmentary disorder characterized by patchy de-pigmentation of the skin that tends to become more progressive over time. It is associated with progressive elimination of melanocytes perhaps caused by their reduced survival from the epidermis, the mucous membrane and other tissues. It affects about 1% of world population. The incidence is higher in India.

Basic Fibroblast Growth Factor (bFGF) is a polypeptide which has 146 amino acid residues in the complex primary structure of bFGF. It was originally purified from the human placenta, using its property to bind heparin. The amino acid sequence is also established. It is produced by variety of body cells. It stimulates the growth of wide spectrum of target cells derived from the primary and secondary mesenchyme as well as from the neural crest. Halavan et all demonstrated that it is mitogenic to melanocytes from baby fore skin and from adult skin.

II. Objective of the study

Objective of the study is to evaluate the efficacy and the safety of the bFGF (BASIC FIBROPLAST GROWTH FACTOR) derived peptide in patients of Vitiligo. A Multi-centric trail of 250 patients of varying ages and duration with maximum of 20 percent of the body surface area affected.

III. Materials and Methods

This is a multicentric trial of use of DECA peptide – derived from basic Fibroblast Growth Factor, a new molecule in the treatment of Vitiligo. The duration of treatment is one year. Patients shall apply the study drug locally at night and give sun exposure for 10 minutes next day. Each 2 Ml vial contains deca peptide [0.1%],isopropyl alcohol, myristate and glycol.

Method of study: 40 Patients are enrolled with satisfactory inclusion and exclusion criteria from the MGM Research centers specialty OPD for Vitiligo and MGM's medical college OPD Aurangabad, Maharashtra State.

<u>BNR Skin Hospitals special vitiligo clinics</u>

- Hyderabad centre: 60 patient
- Visakhapatnam centre: 30 patients
- Vijayawada centre: 20 patients
- Delhi centre: 30 patients
- Bombay centre : 25 patients
- Calcutta centre: 10 patients
- Chennai centre: 15 patients
- Bangalore centre: 10 patients
- Jamshedpur centre :10 patients

Trial Procedures

After taking written informed consent of the patient and satisfying inclusion and exclusion criteria, the patients were enrolled for study. A detailed clinical history and clinical examination [general and systemic examination] was taken and recorded in CRF. The observation was recorded in CRF at Baseline and every follow up visit till the completion of the study. Blood investigations are carried out before and after study

Inclusion Criteria

- Cases of vitiligo of face, trunk, limbs and with mucosal involvement
- Age ranging from 10 to 60 of either sex
- Without serious cardiovascular, renal and cerebral manifestations
- Patients with Normal blood investigations
- Has not received any systemic treatment of vitiligo
- Those who agree to comply with protocol and agreed to give written consent.

Exclusion criteria

- Evidence of spontaneous repigmentation in any of the lesions
- Pregnancy or planning for pregnancy where written consent for this point is separately taken and mentioned in CRF
- Lactating mothers
- Atopic eczema, ,nummular eczema, Diabetes mellitus, Bronchial asthma, thyroid disease, any other specific condition which can precipitate vitiligo

Concomitant treatment: No concomitant therapy, Allopathic or Aayurvedic drugs indicated for treatment of similar condition of vitiligo during trial treatment. If any other treatment not related to the study was recorded in the CRF.

IV. Study assessment

Every subject enrolled and treated was evaluated for efficacy and safety. Repigmentation of lesion is observed objectively by the evaluator and graded on visual analogue scale as 0 = no pigmentation, 1,2,3 and 4 for 25,50,75,100% pigmentation respectively.

Safety Assessment: The patient was observed at every follow up for adverse clinical events such as topical allergic reaction, complete blood picture [hb, Rbc count,Wbc count, differential count, ESR, LFT, KFT] was carried out before and end of the trial drug treatment.

End of study: The study drug therapy ended on 365th day from the day of initiation of the study and number of visits were 24 . The investigator ensured completion of study as per the protocol and recorded objective observations in the CRF.

Drug information

- The drug is safe and approved by DCGI (Drug Controller General of India). This is already existing in the market.The details are as under,
- Name of the manufacturer : lssar Pharmaceuticals Pvt. Limited.

V. RESULTS

Table 1

EFFECT OF LOCAL APPLICATION OF ACTIVE PEPTIDE ON REPIGMENTATION OF ALL TYPES OF VITILIGO PATCHES OF VOLUNTEERS

Quality of Improvement	At 12 weeks	% of total	End of treatment	%of total	%significant repigmentation at end of treatment
Marked	15	15.3	**49**	50	80
Moderate	**31**	**31.6**	**29**	**30**	
Minimal	**52**	**53**	**20**	**20**	
Nil	**0**		**0**		
Total	**98**	**98**			

TABLE 2

EFFECT OF LOCAL APPLICATION OF ACTIVE PEPTIDE ON REPIGMENTATION OF FOCAL VITILIGO PATCHES OF VOLUNTEERS

Quality of Improvement	At 12 weeks	% of total	End of treatment	%of total	%significant repigmentation at end of treatment
Marked	10	21	21	45	81
Moderate	17	36	17	36	
Minimal	20	43	9	19	
TOTAL NO. OF PATIENTS	47		47		

Table 3

EFFECT OF LOCAL APPLICATION OF ACTIVE PEPTIDE ON REPIGMENTATION OF PATCHES OF VITILIGO VULGARIS OF VOLUNTEERS

Quality of Improvement	At 12 weeks	% of total	End of treatment	%of total	%significant repigmentation at end of treatment
Marked	20	39	20	39	78
Moderate	20	39	20	39	
Minimal	11	22	11	22	
TOTAL	51		51		

Table 4

EFFECT OF LOCAL APPLICATION OF ACTIVE PEPTIDE ON REPIGMENTATION OF PATCHES OF SEGMENTAL VITILIGO OF VOLUNTEERS

Quality of Improvement	At 12 weeks	% of total	End of treatment	%of total	%significant repigmentation at end of treatment
Marked	10	24	29	70	83
Moderate	18	43	5	13	
Minimal	14	33	8	17	
TOTAL	42		42		

Table 5

EFFECT OF LOCAL APPLICATION OF ACTIVE PEPTIDE ON REPIGMENTATION OF PATCHES OF ACROFACIAL VITILIGO OF VOLUNTEERS

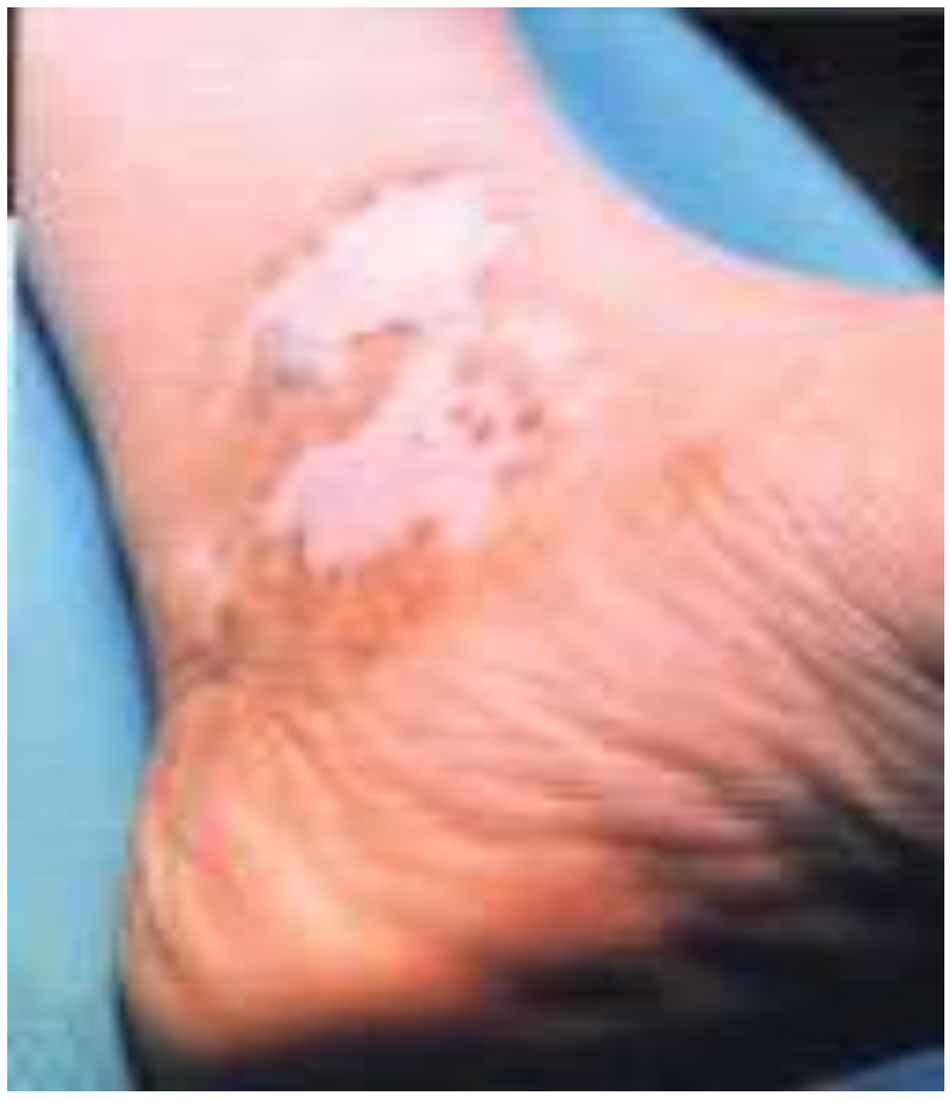
Quality of Improvement	At 12 weeks	% of total	End of treatment	%of total	%significant repigmentation at end of treatment
Marked	1	8.3	5	42	75
Moderate	4	33	4	33	
Minimal TOTAL	7 12	58	3 12	25	

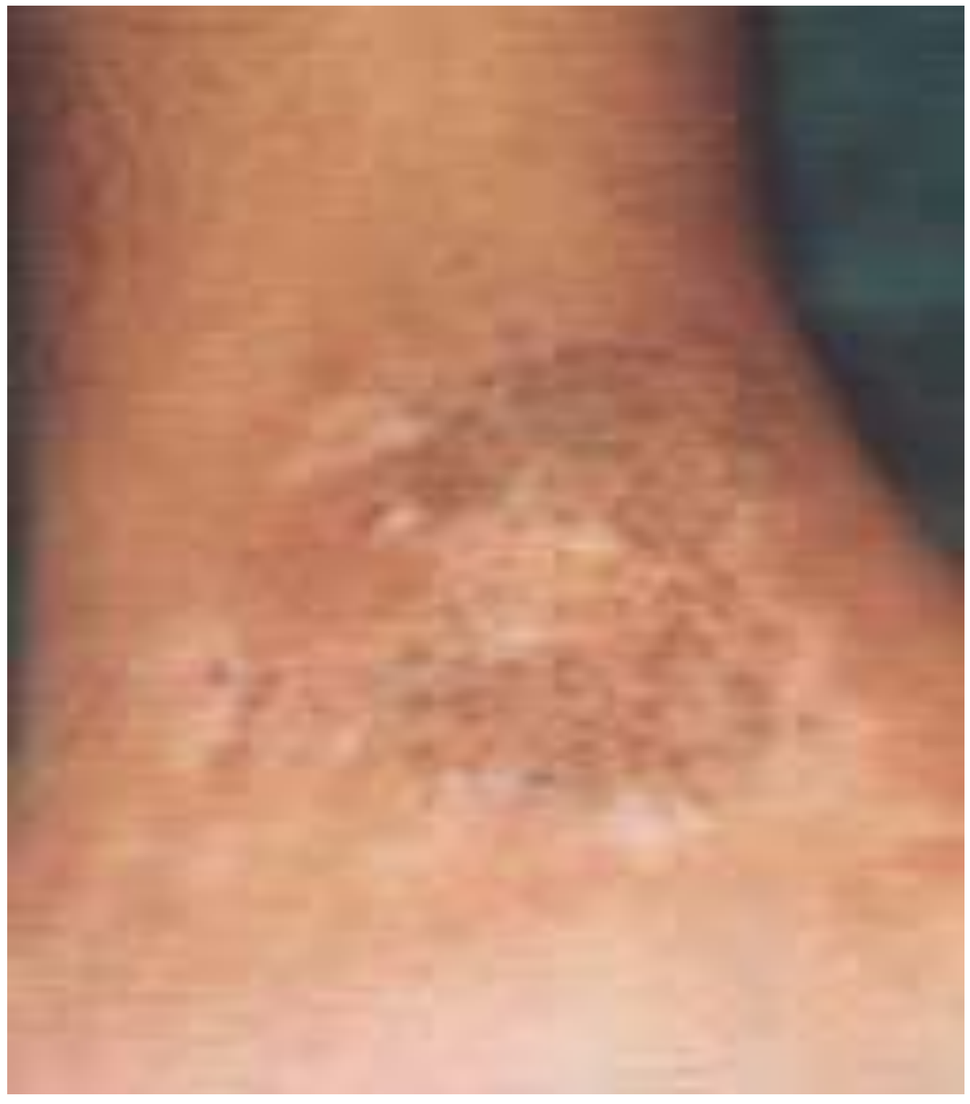
VITILIGO

BEFORE & AFTER

VITILIGO

BEFORE & AFTER





VITILIGO

BEFORE & AFTER

CONCLUSION

From the foregoing it is obvious that bFGF has place in therapy of management of vitiligo. Topical bFGF is very useful if proper dispensing of medication along with proper mode of administration is followed. It requires patient education and persistent compliance. It thus offers a safe, effective and economical option for the management of Vitiligo cases both as monotherapy and as adjunctive therapy.