

Anbar TS, El-Ammawi TS, Barakat M, Fawzy A. Skin pigmentation after NB-UVB and three analogues of prostaglandin F (2 alpha) in guinea pigs: a comparative study. J Eur Acad Dermatol Venereol 2010; 24: 28-31.

NB-UVB is a well known modality in increasing skin pigmentation through a variety of proposed mechanisms and release of prostaglandins PGE₂ and PGF_{2α} is one of them. This study aims to evaluate the local effect of three PGF_{2α} analogues, namely latanoprost, bimatoprost and travoprost on skin pigmentation. The role of combination of NB-UVB to each of these drugs was also evaluated. The study period was of four weeks. For the study, 18 guinea pigs with red/brown fur were taken; and the hair from four areas from the dorsal skin of each animal was shaved. These four test areas in each guinea pig were treated with either of three PGF_{2α} analogues, NB-UVB alone, NB-UVB in combination of these agents and no active treatment. The PGF_{2α} analogues were used in ophthalmic solution form, which were applied twice daily to test areas. NB-UVB irradiation was given biweekly in test areas. The results were evaluated clinically by changes of skin coloration in test areas and skin biopsies taken from each area before and after four weeks, stained with hematoxylin and eosin and masson fontana stain. The results showed that increased pigmentation was found in all areas with PGF(2alpha) analogues with and without NB-UVB. However, the former group had more effect both clinically and histopathologically.

Comments: There are various medical and surgical modalities available for the treatment of vitiligo and other hypomelanotic skin diseases, but none is universally effective. There is always a place for newer and better treatment with lesser side-effects for the same. The present study highlights the potential role of PGF_{2α} analogues (topical) in management of vitiligo and that combination of these agents with NB-UVB is more effective. The release of prostaglandins, primarily PGE₂ and PGF_{2α}, in the skin is one of the mechanisms of action of NB-UVB in vitiligo. PGE₂ is synthesized

in skin and affects keratinocytes, Langerhans cells and melanocyte functions and regulates melanocyte proliferation. Topical PGE₂ has been used with promising results and minimal side-effects in the treatment of localized stable vitiligo. PGF_{2α} analogues are the newer class of drugs among various topical ocular hypotensive medicines with proven safety and efficacy. Periocular pigmentation was reported as a side-effect of these PGF_{2α} analogues. Similarly, when these PGF_{2α} analogues were used in combination with NB-UVB irradiation, marked increase in skin pigmentation was seen. This can be explained by two possible mechanisms. Firstly, NB-UVB stimulates the release of prostaglandins and adding more exogenous prostaglandins may have an additive effect on skin pigmentation. Secondly, combination of exogenous prostaglandins with other factors, by which NB-UVB increases pigmentation. These factors consist of an array of paracrine and autocrine substances whose synthesis is stimulated by UVR e.g. endothelin-1, melanocortins, α- melanocyte stimulating hormone, adrenocorticotropin hormone (ACTH), stem cell factor and nerve growth factor. This study thus offers a newer modality to increase pigmentation, which can be used alone or in combination with NB-UVB in treatment of hypo pigmented and/or depigmented disorders like vitiligo.

Boer J, Jemec GB. Resorcinol peels as a possible self treatment of painful nodules in hidradenitis suppurativa. Clin Exp Dermatol Clin Exp Dermatol. 2010;35:36-40.

Hidradenitis suppurativa (HS) is clinically defined as a disease that causes a high degree of morbidity with painful abscesses, localized to apocrine sweat gland-bearing skin. The most important factor in patient's overall assessment of disease severity is pain and duration of inflamed lesions, which take days and weeks to subside. This study assess the efficacy of self treatment with topical 15% resorcinol cream used as monotherapy in cases with long standing HS, particularly focusing on extent of pain and duration of painful abscesses. Patients were instructed to apply

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the cream once daily to any persistent lesion that failed to heal and twice daily on acutely inflamed lesions. The patients were followed up for at least one year. The study results clearly showed marked decrease in pain as assessed by visual analogue scale and also decrease in mean duration of painful lesions. There was rapid response after starting topical treatment in half of the patients experiencing disappearance of the pain within two days. Side-effects in the form of desquamation and irritation were seen in all patients, whereas a few patients showed reversible brown discoloration developing during treatment.

Comment: Hidradenitis Suppurativa is a chronic relapsing inflammatory skin disorder, which is characterized by recurrence of inflammatory nodules, abscesses and often there is subcutaneous extension, scarring, destruction of skin and sinus tract formation. Treatment options for HS include systemic and topical antibiotics, intralesional corticosteroids, retinoids, surgical excision or careful lancing of inflamed abscesses in some cases. Pain management is of particular relevance to patients as this appears to be the key factor in patient's overall assessment of disease severity. Another factor which is very important in management of disease is greater self-care by the patient and their active participation in prevention and treatment of minor flares of the disease. This aspect highlights the importance of local hygiene and compliance of application of topical medications by the patient. Resorcinol, is a phenol derivative used in dermatology for almost 100 years, mainly because of its keratolytic properties. Its anti-inflammatory effect, by stimulating prostaglandin E₂ formation is also well known. Resorcinol has a concentration dependent peeling effect which is due to disruption of weak hydrogen bonds of keratin. This keratolytic and anti-inflammatory property of resorcinol was found to be helpful in HS by inducing an earlier resorption of inflamed lesions.

Madan V, August PJ, Chalmers RJ. Efficacy of topical tacrolimus 0.3% in clobetasol propionate 0.05% ointment in therapy-resistant cutaneous lupus erythematosus: a cohort study. Clin Exp Derm 2010; 35: 27-30.

Treatment of cutaneous lupus erythematosus (CLE) has always been a challenge for the treating dermatologist. There exists a wide range of topical and systemic treatment options for CLE and newer drugs are being developed for improved efficacy and safety. In this study, authors have used a combination

of higher strength 0.3% tacrolimus in 0.05% clobetasol propionate ointment (TCPO) for the treatment of recalcitrant CLE. It is a retrospective study that reviewed 13 patients of treatment-resistant CLE who have been treated with TCPO. Patients applied TCPO twice daily to active lesions. Patients who were treated only with topical 0.1% tacrolimus ointment were taken for comparison. The mean treatment duration in TCPO group was 20 months and in tacrolimus group, six months. Eight out of 13 patients (62%) applying TCPO twice daily achieved good or excellent improvement. The results of this retrospective study suggest that TCPO is more effective than either 0.1% tacrolimus or 0.05% clobetasol propionate ointment used as monotherapy in the treatment of recalcitrant CLE.

Comment: Lupus Erythematosus comprises a wide spectrum of skin and systemic manifestations. There is a variety of topical and systemic therapies available for CLE. Apart from sun protection measures, potent topical corticosteroids are the mainstay of treatment of CLE. Search for non-steroidal topical agents has led to the usage of topical calcineurin inhibitors in the treatment of CLE, but the thick scaly plaques of discoid LE may present as a barrier to adequate penetration of the active molecule. Thus, calcineurin inhibitors at commercially available concentrations have generally proved disappointing in CLE. Despite various topical and immunosuppressive systemic therapies, there is a subgroup of patients for whom disease control cannot be achieved. The present study, however, claims good to excellent response in recalcitrant CLE patients, who have been given topical combination of higher strength 0.3% tacrolimus with 0.05% super potent clobetasol propionate ointment. Authors even highlighted the success in treating one patient of resistant CLE with combination therapy, who was earlier unresponsive to tacrolimus 0.1% treatment alone. Similarly, of the 12 patients who have been unresponsive to 0.05% clobetasol propionate alone, 10 patients showed good to excellent response. Hence this study proves the edge of this combination over either the super potent topical steroids or topical tacrolimus ointments used alone in treatment of CLE. But, there are some questions regarding this combination therapy that need to be evaluated. Firstly, there is no published information on whether higher concentration of 0.3% of tacrolimus alone is efficacious in CLE. The other is, to what extent the efficacy as observed in the study might have been due to the higher concentration of 0.3% tacrolimus rather than to synergy between the

two ingredients of the compound preparation.

Elgoweini M, Nour El Din N. Response of vitiligo to narrowband ultraviolet B and oral antioxidants. J Clin Pharmacol 2009; 49: 852-55.

Narrowband ultraviolet B phototherapy (NB-UVB) is the most widely used and effective therapeutic option in vitiligo. Antioxidant supplementation has also been reported to be useful. The above mentioned study aimed to determine the efficacy of oral antioxidant, vitamin E with NB-UVB in the treatment of vitiligo. The study recruited 24 patients with stable vitiligo involving 15 to 50% of body surface area and divided randomly into two groups. In Group A, patients were treated with NB-UVB plus oral vitamin E (400 IU/day, started 2 weeks before NB-UVB) and in group B NB-UVB was used as a monotherapy. NB-UVB therapy was administered three times a week on non-consecutive days. Improvement was recorded according to the extent of re-pigmentation in existing lesions. Both plasma malondialdehyde (MDA; product of lipid peroxidation) and reduced glutathione (GSH) were measured before and after the treatment. Results of the study showed marked to excellent repigmentation in 72.7% and 55.6% of the patients in Group A and Group B, respectively. Of all patients, 70% in Group A and 85% in Group B experienced mild erythema. The mean number of treatments required to achieve 50% repigmentation was significantly less in Group A (16) than in Group B (20). After treatment, there was significant reduction in plasma MDA levels in Group A than in Group B, but the increase in GSH levels was not significant.

Comment: Vitiligo is an acquired idiopathic hypomelanosis characterized by the appearance of depigmented areas on skin, affecting 0.5% to 2% of the world population. Several factors have been recognized as possible determinants of the disease. Recently, oxidative stress has been shown to play an important role in the pathogenesis of vitiligo. Ultrastructural observations of the epidermis in vitiligo lesions have shown variable degrees of lipid vacuoles in both melanocytes and keratinocytes that could be indicative of lipid peroxidation. Serum MDA levels are raised in vitiligo patients and are directly correlated with degree of lipid peroxidation which is the hallmark of oxidative stress. There is also marked reduction in GSH activity in vitiliginous patches. Use of antioxidants as a combined approach to UV irradiations nowadays, helps to promote survival and migration of melanocytes as well as reduce side-effect

of UV exposure. Vitamin E, alpha tocopherol belongs to a group of efficient lipid soluble antioxidants in human epidermis. These act by scavenging reactive oxygen species generated during photo-oxidative stress, inhibit lipid peroxidation by free radicals and help to maintain membrane integrity. Antioxidants also have photoprotective effect as they absorb UV light in epidermis. The above mentioned study shows that combination of antioxidants with NB-UVB, halts depigmentation and improves the phototherapy benefits by reducing the number of treatment sessions associated with enlarged areas of repigmentation. In conclusion, oral vitamin E, as an antioxidant, may represent a valuable adjuvant therapy in preventing lipid peroxidation in cellular membrane of melanocytes and increasing effectiveness of NB-UVB in vitiligo.

Solivetti FM, Elia F, Teoli M, De Mutiis C, Chimenti S, Berardesca E, Di Carlo A. Role of contrast-enhanced ultrasound in early diagnosis of psoriatic arthritis. Dermatology 2010; 220: 25-31.

The remarkable success of biologic agents in the treatment of psoriatic arthritis (PsA) has fostered a great deal of hope and optimism among the patients who suffer from this potentially disabling and disfiguring condition. The various modalities for the diagnosis of PsA available are radiographic examination (X rays), ultrasound (USG) with or without contrast and magnetic resonance imaging (MRI). The purpose of this study is to evaluate the use of contrast-enhanced ultrasound (CEUS) in the early diagnosis of PsA. The assessment was made in comparison to basal USG and MRI, using latter as a gold standard for imaging diagnosis. The study included 22 patients of suspected clinical PsA, none of whom had undergone any prior treatment for joint involvement. Radiological scanning of one of the most active joints revealed evidence of PsA on X rays, USG and MRI in 5(22.7%), 12 (54.5%) and 17 (77.27%) patients respectively where as on CEUS, positive results were found in 20 (90.9%) patients. Thus, the results of the study clearly showed that CEUS amplified small alterations which were previously undetected by USG without contrast and CEUS appeared to have concordance of almost 100% with results of MRI with contrast enhancement. Hence, CEUS increases the diagnostic confidence in cases of suspected symptomatology.

Comment: PsA is a disabling, inflammatory arthritis, the incidence of which varies between 5 to 42% of psoriasis patients. Usually patients manifest disease

in skin several years before developing arthritis (70%). However, in 10-15% of patients PsA precedes the cutaneous manifestations and in another 15% of patients cutaneous and joint involvements appear simultaneously. PsA affects the peripheral joints and axial skeleton, causing pain, stiffness and swelling. The clinical suspicion of PsA is always confirmed by radiological scanning. Routine radiographic examination (X-ray) is the traditional gold standard for assessing joint damage by PsA, but structural changes can be seen months after the onset of disease, at an already advanced stage. These days MRI and USG are used for accurate and early diagnosis of PsA. The use of contrast enhanced MRI and USG enables us to recognize the reactive hyperemic stage of the disease and thus improve the sensitivity and specificity of these modalities in diagnosing PsA.

Although, globally, MRI is for diffuse examination of joint structures, which is more easily understandable and less operator dependent, it is not cost effective for many patients. The above mentioned study shows equivalent sensitivity of CEUS in comparison to MRI with contrast, in diagnosis of PsA. Thus, CEUS can be a low cost modality, acceptable to patients for accurate diagnosis of PsA at an early stage and helps to evaluate the effect of therapy for the same.

Rishu Sarangal, Sunil Dogra

Department of Dermatology, Venereology & Leprology, Postgraduate
Institute of Medical Education & Research, Chandigarh, India

Address for correspondence: Dr. Sunil Dogra, Department of
Dermatology, Venereology & Leprology, Postgraduate Institute of
Medical Education & Research, Chandigarh, India.
E mail: sundogra@hotmail.com