Use of a wood's lamp as a Ultra-Violet light source to improve the speed and quality of suction blister harvesting

Sir,

Suction blister grafting (SBG) is an established modality of treatment for stable vitiligo. One of the major limitations of SBG is the time taken for the blister production. Different options have been tried to improve the speed and quality of blisters created – like cryo, ultraviolet (UV) light,[1] Infrared light[2] and injection of local anesthetic over the donor site.[3] We aimed to study whether a relatively cheap and handy instrument like a Wood's lamp can be used as a UV source to improve suction blister harvesting. Eight patients with stable vitiligo were selected for blister harvesting and grafting. All the blisters were raised using 20 cc syringes with the same vacuum pressure (350 mm of Hg, with a microdermabrasion machine used to create the vacuum[4]) and the antero-lateral aspect of both thighs was used as the donor site in all cases. In all patients one of the thighs was exposed to a Wood's lamp for 20 min (without the UV tubes touching the skin). The vacuum was released simultaneously at both test and control sites when sufficient number of blisters of an adequate size were produced. Complete blisters[5] were further scored for quality of blisters – based on uniformity and size, arbitrarily from 1 to

3. Suction blisters were attempted to be raised at 58 sites, eight sites did not produce any blistering (three irradiated and five non-irradiated sites), of the rest, complete blisters were formed in 37 sites of which 24 were from the UV-irradiated site while 13 were from the non-irradiated site. For the blister quality -65 points were obtained for the irradiated sites (average 2.7), and 30 points for non-irradiated sites (average 2.3). Another interesting incidental observation was that time taken for uniform pigmentation in the recipient site was lesser for sites in which the graft was taken from the irradiated sites only. (This was only a casual observation as we found complete pigmentation within two months in at least two cases where the graft used was only from the irradiated site. We agree that it might have been only coincidental). A Wood's lamp, we suggest, might be a handy and effective modality to speed up blister formation as well as to improve the quality of the formed blisters.

One of the major limitations of SBG for vitiligo is the time taken for blister formation. The patient has to remain with the suction syringes/cups kept on for at least 2-3 h. Various methods have been tried in the past to reduce the time taken for blister formation. Hanafusa *et al*, have reported that the injection of local anesthetic sub-epidermally can not only reduce the blister production time but also ensures that the patient feels much more comfortable and pain-free. The injection of local anesthetic in the blister site is routinely done in most centers, though the site is often not sub-epidermal.[3] According to Gupta *et al,* the Suction Blister Induction Time (SBIT) is directly proportional to the diameter of the suction syringe. The other important factors mentioned in their article include – the site of the suction blister, age of the subject, amount of vacuum created, temperature, intradermal injection of saline, corticosteroid-induced atrophy, and pretreatment of the site with PUVA (Psoralens with Ultra-Violet-A). Use of 10 or 20-ml syringes as suction cups and 300 mmHg pressure were considered optimum by Gupta *et al.*[1] As mentioned earlier, in our study too temperature might have had a role as all the patients felt some amount of heat when Wood's lamp was applied. Laxmisha *et al*, have interestingly mentioned the use of an infrared lamp for improving SBIT. Possibly here too heat might have played a role.[2]

UV irradiation is known to result in marked changes in skin connective tissue, such as degeneration of collagen, and abnormal elastosis. The mechanism of connective tissue damage and blister formation by UV has not been clarified in detail. Both both UVB and PUVA increase the levels of gelatinases in human skin which might have a role in inducing secondary connective tissue damage and blistering.[6]

The incidental finding of better pigmentation we mentioned in our study might possibly be explained by the Immediate Pigment Darkening (IPD) induced by UV light. When human skin is irradiated with UV radiation (340-400 nm) there is an immediate pigment response, termed Immediate Pigment Darkening (IPD). Proposed mechanisms of IPD are controversial. They include photooxidation of "premelanin," changes in the distribution pattern of microfilaments and microtubules, movement of melanosomes to melanocyte dendrites, increased transfer of melanosomes to keratinocytes, and changes in the melanosome distribution pattern in keratinocytes.[7,8] Could it be that UV exposure may thus actually increase the yield in terms of melanin production over the recipient site?

Wood's lamp was used basically because it is a cheap and handy device (compared to something like Narrow B and UV-B tubes). The only aim was to study whether something cheap and handy like Wood's lamp can actually help in improving suction blister harvesting.

The major limitation of the study, apart from being a pilot study, is that we could not rule out the effect of heat, which all patients had felt when they were exposed to Wood's lamp, which itself might have contributed to improving blister formation.

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