"SHINE BRIGHT LIKE A DIAMOND"? = EmoLED, LET PHOTOBIOMODULATION LEADS THE WAY TO WOUND HEALING

MR Mohamad Helmi, L Azura
Wound Unit Hospital Ampang, Department of Orthopedic Hospital Ampang

Figure 2: Wound progress at the initial starting of EmoLED

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Starting of EmoLED
13CM WIDTH
12CM LENGTH

3 weeks post EmoLED
8.6CM LENGTH
7.6CM WIDTH

5 weeks post EmoLED
8CM LENGTH
8CM WIDTH

Figure 3: Application of EmoLED to a patient

INTRODUCTION

Firstly discovered in Hungary, year 1967, Photobiomodulation was initially known as Laser Biostimulation and the inital research was to see the effect of laser therapy to a shaved lab mice will leads to formation of cancer cells. However, a new discovery was made whereby it actually helps in enhancing the growth of hair, hence, the technology is now used by Italy to promotewound healing and tissue repair.

Therefore EmoLED technology sets in. It emits blue light (410 - 430nm) and already beneficial enough to modulate tissue healing and wound repair. This blue light absorbs by chromophores, that will promote chemical reactions and changed biomolecule and modulate fibroblasts activity. These fibroblast secretes collagen proteins for maintaining tissue structure and enhanced rapid wound healing and prevent excessive scarring and keloid.

Apart from that, few International studies concluded that the blue light actively biomodulate healing for lower imb ulcers (venous, arterial or mixed), inflammatory ulcers, DFU'S, burn wounds and dermatological wound.[1,2,3,4]

METHOD

In this case report, a 36-years-old female patient, with underlying medical illnesses of Systemic Lupus Erythematosus, Deep Vein Thrombosis, Antiphospholipid Syndrome, Major Depressive Disorder and Hypertension. She was diagnosed with chronic wound over left lower limb since the past 2 years whereby the wound had stop any healing process from then till now, despite of all the dressing effort.

At first presentation to wound clinic, the left leg was swollen from foot until mid thigh area, wound was located circumferentially over the calf region with size of 26cm width x 16cm length. Presence of suspected biofilm over the wound bed, pain upon palpation, no pus, slight erythematous and no epithelial changes at all.Patient had been doing daily wound dressing by herself however, no compression therapy had been introduced before.

Patient main concerned at that time was, prolonged wound healing, very tender wound, wetwound and disturb her quality of life during working hours and while at home.

For her wound, EmoLED therapy was decided as it has multiple therapeutic effect, as well as analgesic effect. Blue LED therapy was conducted once a week, as an added procedure apart from the standard treatment wound dressing twice a week, with usage of super-oxidized solution, RTD foam, Nanogen Actigel, superabsorbent pad and compression therapy.

Treatment was done concurrently for 4 weeks and on going and result are as follows.

RESULT

Within 4 weeks of EmoLED therapy, added together with standard care of dressing treatment, wound bed showed reduction of biofilm, contraction of wound can be seen, epithelial tissues starts to settle in, leg edema improves and the wound size defenitely reduced by at least 50% from its original size. Apart from that, what extremely satisfied patient was that the ability to reduce dependence towards analgesia, and improves her quality of life.

CONCLUSION

In managing chronic wound, there are multiple aspects or holistic approach need to take into cosideration. Text books may taught us the bread and butter of managing wound from A to Z and the adjunct therapy to it. Nevertheless, many people forgot that with a simple blue light therapy of few minutes a day in a week, will shortened the wound healing rapidly, and the analgesic effect will trumendously helps in dependency towards anagesia especially in vascular related wound.

DISCUSSION

As discussed earlier, a chronic wound that showed non healing progress, usually stucks at a phase inflammation. At this phase, wound can remained there for years if no jump start or intervention to be made. Inflammation phase can be either the wound gets infected, or the wound has colonization of biofilm and stunned the healing process. Therefore, inflammatory reaction need to be stop and the causative factors need to be detained. This is why treating wound is not just to treat the hole or wound bed, but to treat as a whole. EmoLED technology helps in correcting the inflammation phase, and other technicalities need to be ascertained as well. If only applying state of the art therapy, but basic wound management not being conducted, wound will still however stuck at a phase of no return.

Reference

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