

Nonsurgical Laser & Light Therapy for Face and Body Rejuvenation and Cellulite & Fat Reduction: Benefit of Laser and LED Combination Therapy.

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Introduction

All of the face and body skin rejuvenation with laser or quasilaser noncoherent light source closely related with proper stimulation wound healing and enhanced circulation for blood supply in skin for rejuvenation. Recent trend of laser and light therapy is target cell stimulation accompany with RF, US for synergistic effect. For face and body and large surfaced area treatment simultaneously ,it is important to reduce manipulation time effectiveness ratio.

Background

The narrow band LED system is manufactured by in several company including PTL™ Omnilux and Medmix-Smartlux™ narrow band LED is polychromatic or monochromatic medium intensity near Infrared Therapy(MIMIRT) system, delivering 830nm ,developed specifically for application in plastic surgery and rehabilitation system. Photon energy ($E = hc/\lambda$, $h =$ Planck's constant = 6.625×10^{-34} J•s , $c =$ Speed of light = 2.998×10^8 m/s , $\lambda =$ Wavelength of the light in meters.

Material & Methods

300 patients with photoaging ,evaluation of skin quality and skin elasticity and color match after finished NSLSR(Non Surgical Laser Light Skin Rejuvenation) Energy for 633nm, 126 Joules/Cm² for 20 minutes ,830nm , 66 Joule/Cm² 20 minutes.

Results

Feedback on the narrow band LED body rejuvenation system was almost exclusively positive. Such as LLLT for laser lipoplasty .Because it can handled muscle as



Fig1. Narrow band LED Radiofrequency, Ultrasound ,Laser and Endermologie™ for Skin & Body Rejuvenation System. PTLTM Omnilux and Kim's Laser Research Project OPDRT Medmix-Smartlux™ Narrow Band Super LED, RF,US System. For cellulite reduction LED combination therapy is very useful.

well as fat tissue with other joined technology such as radiofrequency and ultrasound. Comments from therapists working with the narrow band LED system machine indicated the popularity of the unit, largely due to its ease of use and hands free operation, coupled with a early recognition of its potential to treat more deep-seated and intractable lesions and conditions. No patient complaint were received during or immediately after application and any adverse reactions were reported by literature and during procedures. Skin color tone unification and oxygen supply to skin is increased, collagen production and skin tightness is increased,. Stimulating preexisted fibroblast in photoaging in 633nm is very effective ,in deep wrinkle ,combination treatment of RF and ultrasound is promising.,no pain during the treatment of 830nm LED application.

When combination of super LED system we can save the time by photon energy transmission Time.

Discussion

Recent trend of combination therapy is reduce operation time and increase the effectiveness without complication. So many laser and light therapy introduce our plastic and aesthetic surgery field as well as in dermatology. About Light Therapy and Low Level Laser Therapy, It has been shown in over 50 years of independent research worldwide to deliver powerful therapeutic benefits to living tissues and organisms. The diverse tissue and cell types in the body all have their own unique light absorption characteristics. Skin and fat layers, because of their high blood and water content, absorb red light very readily, while calcium and phosphorus absorb light of a different wavelength. Depth of penetration is defined as the depth at which 60% of the light is absorbed by the tissue. Unlike Einstein's model unique LED invented by Nobel Prize winner Zores Alferof . This innovated technology emitting light enables only by organic chemical compound and plus, minus electricity and also enables produce parabolic coherent light source. And more recent development of the light technology developed new LED such as AMOLED, PMOLED and Flexible super thin OLED. Light Emitting Diodes (LEDs) are another form of light therapy like IPL. Light therapy can Increase



Fig2.Nonsurgical face and body rejuvenation by irradiation of laser and narrow band LED. Flexible LED.

circulation by increasing the formation of new capillaries, which are additional blood vessels that replace damaged ones. It is different mechanism of negative pressure therapy like Endermologie™. Endermologie™ increase lymphatic system activity. Edema and cellulites is the swelling or natural splinting process and pathologic process of the body, has two basic components. The first is a liquid part which can be evacuated by the blood system and the second is comprised of the proteins which have to be evacuated by the lymphatic system. The lymph vessel diameter and the flow of the lymph system can be doubled with the use of light therapy. For reduction of edema in periorbital area different technology LED is useful compare to Endermologie™. The venous diameter and the arterial diameters can also be increased. This means that both parts of edema (liquid and protein) can be evacuated at a much faster rate to relieve swelling. Increase RNA and DNA synthesis with increase of ATP. Red light 633nm and 635nm LED stimulating fibroblast which are capable of forming collagen fibers and aids in the repair process and essential process in skin rejuvenation. LED safety in cryolipolysis (0~4° C) when using the unit, basic safety precautions should always be followed to reduce the risk of fire, electric shock or personal injury. The following medicine are known to cause temporary photosensitivity. Chlorpromazine, grifulvin, tetracycline, methotrexate, amiodarone is potent photosensitizer. For eye safety, The output power of the narrow band LED penetrate tissue well therefore, to ensure that the eyes are completely protected, and operator also should wear tinted glasses supplied by manufacture.

Conclusion

The advantage of LED Combination therapy in NSLLR provide less pain, synergistic effect in postoperative wound healing, collagen production, skin tightening, cellulite reduction and combination use with lipoplasty procedures, bruising, swelling and erythema, faster reepithelisation, better patient follow up and care, less patient downtime. And combined combination wet condition has lot of advantages to asian patients who is more apt to be complicated like scarring and hyperpigmentation and hypopigmentation compare to western. Combination of various kind of laser or light

source and combined moisture dressing and spa is very effective in every patients for face and body skin rejuvenation and skin care including cellulites by increase circulation and collagen production. Treatment of 300 patients shows that the satisfaction rate is very high .Unlike ablating lasers, this non ablating laser and quasilaser light source LED therapy ,Flexible LED system reduced the down time and morbidity and operation risk. For reduce the complication and increase patient's satisfaction this combination treatment is one of the recent trend of face and body skin rejuvenation . Laser liposuction is very convinient for surgeon. However in large body surface area it may cause time consuming, by using super LED sysem , we can save the time and patient's safisfaction. Simultaneously using with minimal invasive hands free operation and less invasive procedure and NSLSR. OPDRT is promising now and future.

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