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**THE ACTION OF
VISIBLE POLARIZED LIGHT
ON SKIN DISEASES.**

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ABSTRACT

The theoretical and experimental experience of the biostimulation - effect of **polarized light** is being studied in certain skin diseases, where other therapeutical modalities show poor results. Stasis, decubitus, diabetic and small gangrenous ulcers responded well (scarring) to polarized light with or without any other therapeutic measures. Ulcerated sclerotic lesions of acral systemic scleroderma partially healed, while severe pain was reduced. As a result of the therapy, amputations of the suffering fingers can be well postponed or even avoided.

Vital capillaroscopy prior to and after the polarized light sessions, showed the magnitude of blood-supply improvement, in the above conditions.

Verrucae planae juvenilis of the face disappeared, after approximately twenty sessions. Burns as well as the Raynaud syndrom and frostbites reacted promptly. The beneficial effect of polarized light was obtained even in cases of hypertrophic scars and cheloids (reduction in size), Dupuytren's contracture, sebocysts, and acne lesions.

In conclusion, the use of linear polarized light which mobilizes mainly the cellular defense mechanisms must be regarded as a useful therapeutic method, free of side-effects, in the treatment of the above-mentioned diseases.

INTRODUCTION

The biostimulating effect of soft lasers (1, 2, 3, 4) has been known for more than two decades and their therapeutical use, especially on ulcers of different origin, has been well documented (3, 5). Lately, research has proved that the lineary polarized light (LPL) in the visible, as well as in the near infra-red spectrum has nearly the same biostimulating effects as the coherent laser light.

The effect of LPL on biological systems is not yet well understood. However, the hypothetical and experimental results lead to the conclusion that polarized (6) light modifies the quality of the membrane of living cells and influences the processes related to it. Clinical trials with LPL irradiation of ulcers, which had resisted conventional treatments, have shown that polarized light accelerates the cellular

and humoral mechanisms to heal the ulcers. After irradiation, the blood supply is improved, neutrophilic granulocytes increase and phagocytize the extracelular bacteria of the ulcers. Monocytes, plasma cells, lymphocytes and fibroplasts as well as immunoglobulins, are present to start granulation and all immunological healing procedures.

Taking into consideration the hypothetical and experimental available data of LPL, we studied the action of visible polarized light on different dermatological diseases, where other therapeutical modalities had shown limited or poor results.

METHOD

As visible polarized light sources we used Bioptron 1 and Bioptron 2 (fig. 1), a product from Harrier Inc. USA, created in Switzerland. The emission spectrum (fig. 2) of Bioptron ranges from 400-2000 nm and its polarization degree is 95%. The ultra violet rays are completely filtered out from the source. The average irradiation time for each session was five minutes at an operating distance of 4-8 cm, three to five times weekly.

Since the beginning of the nineties we have treated patients with a great variety of dermatological diseases with LPL beams with the view that biostimulation effects could help them. We used LPL irradiation as the main source of treatment with or without other therapeutic modalities, or where conventional treatments had failed or contradicted.

The diseases from which we have derived experience with LPL are the following in alphabetical order: acral systemic scleroderma, acne, burns, cheloids, herpes simplex rezidivans, herpes zoster neuralgia, necrobiosis lipoidica diabeticorum, psoriasis, Raynaud syndrom and frostbites, rosacea, sebocysts, ulcers of different aectiological factors and verrucae planae et vulgares.

The number of LPL sessions in each case were nearly twenty or even more. In severe diseases the treatment was scheduled much longer. In cases of ulcers, vital capillaroscopy before and after treatment was among the laboratory examinations.

RESULTS

Acroscleroderma 4 women, over 50 years old were treated with Bioptron. We used it for the cutaneous lesions of systemic scleroderma mainly limited to the face and hands. The irradiation reduced or temporarily healed the fingertip ulcers and the inflammation of the fingers. The patients noticed a softening feeling (tensile strength) of sclerosis of the face and hands, as well as a better movement of the contracted finger joints (fig. 3, 4, 5, 6.). The pain of the fingers (if present) was considerably reduced within the first twenty sessions and the results were obvious. Treatment is continued simultaneously with pharmaceutical therapy. Vital capillaroscopy showed, before and after the first twenty sessions, improvement of the microcirculation (fig. 7, 8) around the necrotic acral ulcers.

Verrucae planae et plantares. The lesions disappeared with about twenty LPL sessions in all three treated cases. One case had multiple small warts of the sole of the foot (fig. 9, 10) and another, together with the warts of the face had papulopustular acne as well. Both cases healed without recurrence for more than a year.

Stasis, diabetic (fig. 11, 12), small gangrenous and decubitus (fig. 13, 14) ulcers.

More than 30 cases of ulcers of different etiology responded well in general to LPL irradiations and healed with scarring. Two elderly patients with irregular and deep ulcers of the lower extremities of unclear aetiopathogenic mechanism showed limited healing (fig. 15, 16) in spite of medical support with diverse medication.

Burns of 1st and 2nd degree. We followed five cases which responded well to 5-30 sessions. The number of irradiations depended on the depth and extent of the lesions (fig. 17, 18, 19, 20). The application of antibiotic ointments locally avoided secondary infections.

Raynaud Syndrom and frostbites as well as inflamed seborrheic cysts reacted very well to Bioptron with few sessions. The vital capillaroscopy showed the magnitude of blood supply improvement.

Hypertrophic scars and cheloids. Eight cases showed a reduction of more than 50% in size. In cases of cheloids the touch-sensitivity was extremely minimized.

Lastly, LPL irradiation can heal or reduce the lesions of **rosacea, Dupuytren's contracture and the postherpetic neuralgic pains**, as we noticed in few cases, but it was not effective in cases of necrobiosis lipoidica diabetorum, psoriasis and herpes simplex reidicans.

DISCUSSION

Linear polarized light irradiation has been proven to be as an essential or supplementary method for the treatment of several dermatological diseases. Its action is based on the biostimulating effect on the cell-membranes and is independent of power density and wavelength.

Due to the 16 cm diameter of the LPL beam, it is possible to irradiate large areas of the skin without side-effects because it concerns the harmless visible light.

From our cases we can demonstrate that LPL can offer relief in acral systemic scleroderma. As a result of treatment, amputation of the fingers can be avoided or postponed and the severe pain is reduced.

Using the LPL beams for more than two years, we noted the healing effect on multiple warts, acne (fig. 21, 22), rosacea, frostbites and Raynaud syndrom. In cases of decubitus and ulcers of the lower extremities we could re-estimate the beneficial action of LPL, as stated in many publications.

Furthermore, in a few other conditions, such as cheloids, Dupuytren's contracture and postherpetic neuralgia, LPL could offer limitation of symptoms or relief of pain.

CONCLUSION

The lineary visible polarized light, due to its unexplained biostimulating effect, mobilizes the immune defence mechanisms and is used without side-effects as a main or supplementary treatment for different dermatological diseases.

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