Record of the 9th meeting of experts in Engelberg from 17.09. – 19.09.1999

(Reports on the projects supported by the foundation of Dr.med.hc. Erwin Braun)

Scientific direction:

Prof.Dr.J.-O.Gebbers President of the foundation’s council  
(Pathological Institute, Canton hospital in Luzern)

Prof.Dr.P.Vaupel Member of the foundation’s council  
(Institute for Physiology and Pathophysiology, University of Mainz)

Prof.Gebbers opens the meeting by welcoming the participants.

Summaries of the scientific lectures and contributions to the discussion

6. L.Biland, Basel

Treatment of the Ulcus cruris by infrared-A-irradiation – final report of the study
First of all the new programme of treatment for the venous ulcus cruris was presented again during the lecture: Cleaning of the wound with isotonic sodium chloride solution, periulcerous treatment with gentian violet, irradiation with infrared-A for 30 min (distance of irradiator 30 cm), covering of the wound with antibacterial gauze and putting on a pressure bandage.
In total 40 patients have been included in the study; 20 patients have been treated with the standard therapy, whereas the wound of 20 further patients has been additionally irradiated with IR-A at each change of bandage. The objectives of the study were: (1) duration of healing process of the ulcus, (2) reduction of the ulcus and (3) reduction of the pain symptoms.
The healing process was clearly accelerated by the additional IR-A-irradiation so that the ulcus was completely healed within the IR-A-group after only 18 days whereas the healing process within the control group took approx. 42 days. Furthermore the pain symptoms could considerably be reduced within the IR-A-group with a significantly smaller consumption of anodynes. These patients hardly needed any additional pain medication from the second week of treatment. Due to these positive results Dr.Biland is additionally treating all patients with venous Ulcus cruris with Infrared-A-irradiation at the moment.

During the following discussion possible causes of the better wound healing by IR-A-irradiation were discussed. For this purpose histological investigations of IR-A induced changes of tissue within the wound would be of great interest. Furthermore the effective temperature in the wound during the Infrared-A-irradiation should be measured (e.g. by thermography).
The ulcus cruris – a new therapy programme:
Heat therapy with water-filtered infrared-A-irradiation
L.Biland, J.P.Barras

Objectives of study: Absence of pain, reduction of ulcer, shorter healing process

Method: 30 min. of irradiation three times a week additionally to the conventional therapy

Results: 24 patients have been included in the study. Half of the patients was conventionally treated with sodium chloride/compression. The other half was irradiated additionally.

The result is amazing:
- Absence of pain after three irradiations
- Healing of ulcer three weeks earlier compared to the conventional therapy.

Abridged version of the lecture of PD Dr.L.Biland, Basel on the 39th annual conference of the German Society for Phlebology (Bonn 01.- 04.10.1997)

Record of the 8th meeting of experts in Engelberg from 18.09. – 20.09.1998
(Reports on the projects supported by the foundation of Dr.med.hc. Erwin Braun)

L.Biland, Basel
The water-filtered infrared-A-therapy of the ulcer cruris – current results from the period of report:
At the beginning of the lecture a comprehensive presentation of the socioeconomic significance of the varicosis was given made. According to this, 23% of the patients are impaired by the symptoms of this disease, 17% even become unable to work. Besides conventional parts the therapy also includes invasive treatment as for example sclerosing and removal of the varicose veins, which causes considerable costs (e.g. the costs for the therapy of an ulcer cruris amount to approx. 8,300 Swiss francs).

The skin lesions, which are caused by a chronic venous insufficiency, show three different stages. During the early stages pigment disturbances and trophic skin lesions occur. In case of intensive congestion for a longer period of time a non-healing wound mostly in the area of the medial malleolus (ulcer cruris) occurs. The standard basic therapy of this ulcer consists of the cleaning of the wound with isotonic sodium chloride solution, periulcerous treatment with gentian violet, covering of the wound with antibacterial gauze as well as putting on a pressure bandage.

Objective of the current investigation was to confirm the positive results of the preliminary investigation regarding the influence of the infrared-A-irradiation on the wound healing of the ulcer cruris with a larger group of patients. For this, further 20 patients with venous or mixed ulcer cruris with a diameter between 1 and 3 cm were included in the study. An existing arterial or neuropathic ulcer was a criterion for exclusion. Apart from an extensive anamnesis the current ulcer state (size, composition of the wound, etc.) as well as the state of pain of all patients was recorded prior to the therapy. The initial state of each ulcer was recorded photographically. Afterwards the patients have been divided at random into two groups for treatment. One group has been treated with the standard basic therapy (cleaning of wound, disinfection, antibacterial covering, pressure bandage). In the second group the ulcer has additionally been treated with IR-A-irradiation for 30 min at each change of bandage. The objectives of the study were: (1) duration of healing process of the ulcer, (2) reduction of the ulcer and (3) reduction of the pain symptoms.
Due to the additional IR-A-irradiation the healing process of the ulcus was significantly accelerated. The average duration of the healing process within the control group was 34 days, whereas the healing within the IR-A-group only took 18 days. Furthermore the size of the ulcus of the IR-A-treated patients was clearly smaller (0.4 ± 0.3 cm²) than that of the control group (2.8 ± 0.6 cm²) after 42 days of treatment, although the ulcus of both groups nearly had the same size (5.5 – 6.0 cm²) at the beginning of the treatment. In addition the pain symptoms could considerably be reduced within the IR-A-group with a significantly smaller consumption of anodynes.

The following discussion of the lecture was considering the mechanisms of the IR-A-irradiation which could support the wound healing. Besides that all patients reported that they considered the IR-A-treatment as pleasant and relieving.