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SUMMARY

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Calendar

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- therapy (surgery, medicine, radiotherapy, physical)
- oncology (primary lymphatic system diseases, lymphonodal metastatic process)
- immunology
- post-therapeutic complications
- upper and lower limb edemas

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4. COMBINED DECONGESTIVE THERAPY IN GREECE: AN EFFECTIVE TREATMENT OF LYMPHEDEMA

E. DIMAKAKOS [1,3], J. KALEMIKERAKIS [2], Z. VARDAKI [2], G. FOUKA [2], G. ANTONATOS [1], K. KROUSIANOTAKI [1], EI. LYMPEROPOULOU [1], K. SYRIGOS [3]

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Aim of this work was to study the reduction of volume of the extremity after Combined Decongestive Treatment (CDT) twice a day for four weeks. CDT includes skin care, mld, bandage, exercises and education of the patient. **Method.** We treated 71 patients with either primary or secondary lymphedema (PL-SL) for four weeks **Results.** From 71 patients with lymphedema 20 patients had primary lymphedema (pl)and 51 secondary lymphedema (sl). 48 were females (13 pl – 35 sl) and 23 males (7pl – 16 sl). At the first measurement we found a mean Edema = 3025 ml, which was 46% over than the normal level of lymph. At the last measurement we found a mean Edema = 1099 ml, which was 14% over than the normal level of lymph. In all patients we had a mean reduction of volume of 65,09% in upper extremity lymphedemas and a mean reduction of volume of 69,96% of the lower extremity. In patients with lymphedema <12 months the reduction was about 72,5% whereas in patients with lymphedema <12 months the reduction was about 55,5%. **Conclusion.** The treatment of Lymphedema with CDT was successfully in all patients with almost the same results in both extremities Prevention of the onset of lymphedema is of extreme importance. However, a return to as normal a lifestyle as possible by the patient is also essential. The earlier treatment begins after the onset of lymphedema, the better the prognosis for the patient. Moreover the target of the treatment must be a reduction of the volume between 50%-70% of the initial oedema.

5. COMPRESSION THERAPY OF SWOLLEN LOWER LIMBS- TISSUE FLUID HYDRAULICS, CLINICAL EFFECTS

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Introduction. Removal of edema tissue fluid (TF) from swollen tissues is indispensable for prevention of limb volume increase, development of fibrosis and dermato-lymphangioadenitis. **Aim.** To apply mechanical compression enabling TF flow to overcome tissue resistance and create flow to non-swollen regions. **Methods.** Hydraulics of tissue fluid in swollen lower limb (lymphedema, venous insufficiency with ulcers, posttraumatic hematoma) were studied using sequential pump at various pressures with no deflation of distal segments and measuring subcutaneous tissue fluid pressure with wick-in-needle method, tissue fluid movement with plethysmography and tissue compliance with tonometry. **Results.** Minimum TF pressures enabling fluid flow ranged between 25 and 30 mmHg. Depending on the stage of lymphedema, to reach this pressure level, sleeve pressures had to be raised from 80 to above 120 mmHg. Much the same was necessary in edema in the postthrombotic syndrome with fibrotic skin. Tonometry measuring skin and subcutis rigidity was found indispensable for choosing proper inflation pressures. Tonometer force of <600g/cm^2 generated pressures of 40-70mmHg in stage II, however in stage IV tonometer force of 1500 600g/cm^2 produced pressure of only 40mmHg. This was an indication for sleeve pressures >120mmH. Continuous recording of circumference changes at 6 levels allowed to calculate centripetal tissue fluid movement. It ranged 13-120 ml at each sleeve inflation. **Conclusions.** In 10 advanced lymphedema cases stage III/IV treated with inflation pressure of 120mmHg, no distal chambers deflation, for 12 months 1 hour a day, a decrease in calf girth by 5-7 cm was obtained and no debulking surgery was needed.

6. FORMATION OF TISSUE FLUID CHANNELS IN LYMPHEDEMATOUS SUBCUTANEOUS TISSUE DURING INTERMITTENT PNEUMATIC COMPRESSION THERAPY

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Introduction. In advanced lymphedema of lower limbs of postinflammatory, posttraumatic or postsurgical etiology the collecting lymphatics are obstructed. Lymph flow is practically nil. Tissue fluid accumulates in soft tissues spaces. Pressures generated by muscular contractions and massage move fluid through spontaneously formed tissue channels. These irregular shape channels are seen along small vein tributaries, in the loose connective tissue and along collagen bundles. We tried to enhance formation of these channels by high pressure long-term pneumatic massaging. **Aim.** To observe formation of tissue channels during high pressure pneumatic therapy using lymphoscintigraphic and biopsy histochemical methods. **Material.** Ten patients with lymphedema stage II/III of lower limbs were investigated. An 8-chamber sequential pneumatic device was used for compression therapy. The parameters of compression were: inflation pressure 120-100mHg, sequentially from chamber 1 to 8, inflation time of each chamber 50'', daily for 1 h and for a period of 12 months. Lymphoscintigraphy with Nanocoll was performed before, after 6 and 12 months of treatment. Skin and subcutaneous tissue biopsies were taken before and after treatment. Specimens were injected with Paris Blue in chloroform and made translucent to visualize spaces filled with mobile tissue fluid and subepidermal lymphatics. **Results.** Lymphoscintigraphic imaging. After one year of massaging multiple wide channels filled with tracer could be seen in the subcutis on the internal aspect of thigh and along large blood vessels running to the groin. There were no channels around the hip, in the hypogastrium and buttocks. Immunohistochemistry of biopsies revealed presence in subcutis and around veins of open spaces not lined by cells, negative on staining with LYVE1 specific for lymphatic endothelial cells. These spaces were stained with Paris Blue and were of irregular shape with many interconnections. **Conclusions.** Long term high pressure pneumatic compression brings about formation of multiple fluid channels running to the groin and femoral channel but not to the lateral parts of the limb. These channels are not lined with endothelial cells.