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EFFECT OF SEQUENTIAL INTERMITTENT PNEUMATIC COMPRESSION ON BOTH LEG LYMPHEDEMA VOLUME AND ON LYMPH TRANSPORT AS SEMI-QUANTITATIVELY EVALUATED BY LYMPHOSCINTIGRAPHY

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ABSTRACT

Sequential Intermittent Pneumatic Compression (SIPC) is an accepted method for treatment of peripheral lymphedema. This prospective study evaluated the effect in 11 patients of a single session of SIPC on both lymphedema volume of the leg and isotope lymphography (99Tc dextran) before SIPC (control) and 48 hours later after a 3 hour session of SIPC. Qualitative analysis of the 2 lymphoscintigrams (LS) was done by image interpretation by 3 physicians on a blind study protocol. The LS protocol attributed an index score based on the following variables: appearance, density and number of lymphatics, dermal backflow and collateral lymphatics in leg and thigh, visualization and intensity of popliteal and inguinal lymph nodes. Volume of the leg edema was evaluated by measuring limb circumference before and after SIPC at 6 designated sites.

Whereas there was a significant reduction of circumference in the leg after SIPC ($p<0.05$),there was no significant difference in the index scores of the LS before and after treatment. This acute or single session SIPC suggests that compression increased transport of lymph fluid (i.e., water) without comparable transport of macromolecules (i.e., protein). Alternatively, SIPC reduced lymphedema by decreasing blood capillary filtration (lymph formation) rather than by accelerating lymph return thereby restoring the balance in lymph kinetics responsible for edema in the first place.