VENOUS DYNAMICS IN LEG LYMPHEDEMA

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ABSTRACT

To determine whether there is anatomical and/or functional impairment to venous return in patients with lymphedema, we examined venous dynamics in 41 patients with unilateral leg lymphedema. A Volometer® was used for computer analysis of leg volume, a color Duplex Doppler scanner was used to determine deep vein patency and skin thickness, and Air-plethysmography was used to assess ambulatory venous pressure, venous volume, venous filling index and the ejection fraction.

In the lymphedematous leg, volume and skin thickness were uniformly increased (126.4 ± 21.3% and 156.9 ± 44.5%) (mean ± S.D.), respectively. The ambulatory venous pressure was also increased (134 ± 60.7%) as was the venous volume (124.5 ± 37.5%), and the venous filling index (134.5 ± 50.5%). The ejection fraction was decreased (94.9 ± 26.1%). Greater leg volume correlated with increased venous volume and venous filling index (values = 0.327, 0.241, respectively) and decreased ejection fraction (r = -0.133). Increased subcutaneous thickness correlated with increased venous filling index and venous volume (r = 0.307, 0.126, respectively) and decreased ejection fraction (r = -0.202).

These findings suggest that soft tissue edema from lymphatic stasis gradually impedes venous return which in turn aggravates the underlying lymphedema.