

VENOUS DYNAMICS IN LEG LYMPHEDEMA**D.I. Kim, S. Huh, J.H. Hwang, Y.I. Kim, B.B. Lee**

Division of Vascular Surgery (DIK,SH,YIK,BBL) and Department of Rehabilitation (JHH), Samsung Medical Center, College of Medicine, Sung kyun kwan University, Seoul, Korea

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 ($126.4 \pm 21.3\%$ and $156.9 \pm 44.5\%$) (mean \pm S.D.), respectively. The ambulatory venous pressure was also increased ($134 \pm 60.7\%$) as was the venous volume ($124.5 \pm 37.5\%$), and the venous filling index ($134.5 \pm 50.5\%$). The ejection fraction was decreased ($94.9 \pm 26.1\%$). 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.