VALIDITY AND INTRA- AND INTEROBSERVER RELIABILITY OF AN INDIRECT VOLUME MEASUREMENTS IN PATIENTS WITH UPPER EXTREMITY LYMPHEDEMA

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ABSTRACT

We investigated a method of indirect volume measurement that utilized surface measurements and a simplified formula derived from the formula for a frustum (Sitzia’s method) to determine limb volumes in patients with breast cancer-related lymphedema of the upper extremity. Repeated measurements of upper-extremity limb volume were obtained by two observers on both upper extremities of 30 women with unilateral lymphedema. Volume was calculated using a simplified formula and compared with water displacement method as a gold standard. Indirect volume determination using Sitzia’s method is comparable with the water displacement method, has comparable intra- and interobserver reliabilities, and can be used for diagnosis and follow up measurements of lymphedema. Indirect volume determination using surface measurements at 8 cm intervals is only suitable for follow up measurements. The methods should not be used interchangeably.