

암재활

게시일시 및 장소 : 10 월 18 일(금) 08:30-12:20 Room G(3F)

질의응답 일시 및 장소 : 10 월 18 일(금) 10:00-10:45 Room G(3F)

## **P 1-82**

### **Bioelectrical Impedance Analysis of Mild to Moderate Degree Breast Cancer-Related Lymphedema**

Ji-Ho Park<sup>1,1\*</sup>, Woo-Jin Kim<sup>1,1†</sup>, Hwan-Kwon Do<sup>1,1</sup>

Inje University Haeundae Paik Hospital, Department of Rehabilitation Medicine<sup>1</sup>

#### **Background and aims**

Bioelectrical Impedance Analysis(BIA) is recently been adopted to calculate volume of Breast Cancer Related-Lymphedema(BCRL). Bioelectrical impedance Phase Angle(PhA) can be an indicator of cellular integrity in terms of cellularity, cell membrane integrity and cell function. The purpose of this study is to investigate the clinical feasibility of segmental Multi Frequency BIA(s-MFBIA) for lymphedema severity assessment compared with Tape circumference Volume Measurement(TVM), as well as to evaluate the association between lymphedema severity and cellular integrity of the affected arm by segmental PhA values in subjects with mild to moderate BCRL, especially in Asian population with a small volume difference.

#### **Methods**

InBody S10<sup>®</sup>, a s-MFBIA device was used to measure the segmental PhA and ECW/TBW ratio of bilateral arms in 128 BCRL patients. Inter-limb volume ratio was measured using TVM. The inter-limb ECW/TBW ratio by s-MFBIA was correlated with inter-limb volume ratio by TVM using Pearson's correlation analysis. Inter-limb ECW/TBW ratio and inter-limb volume ratio were correlated with inter-limb PhA ratio to demonstrate association between lymphedema severity and arm cellular integrity. <br> <br>Results <br>The inter-limb ECW/TBW ratio and inter-limb volume ratio were positively correlated( $r=0.654$ ,  $p<0.001$ ) and the same result was obtained when age, BMI, duration of after surgery and duration of lymphedema were adjusted( $r=0.636$ ,  $0.653$ ,  $0.652$  and  $0.648$ ,  $p<0.001$ ). The inter-limb PhA ratio demonstrated significant negative correlations with inter-limb ECW/TBW ratio and inter-limb volume ratio( $r=-0.896$ ,  $-0.562$ ,  $p<0.001$ ).

#### **Conclusions**

In mild to moderate degree BCRL in smaller built Asian patients, the s-MFBIA seems to be clinically feasible with high consistency with the conventional TVM method. Use of s-MFBIA for assessment and monitoring of lymphedema severity, and its relation to cellular integrity by segmental PhA enables better understanding of the cellular state of the affected-limb in mild to moderate degree BCRL.

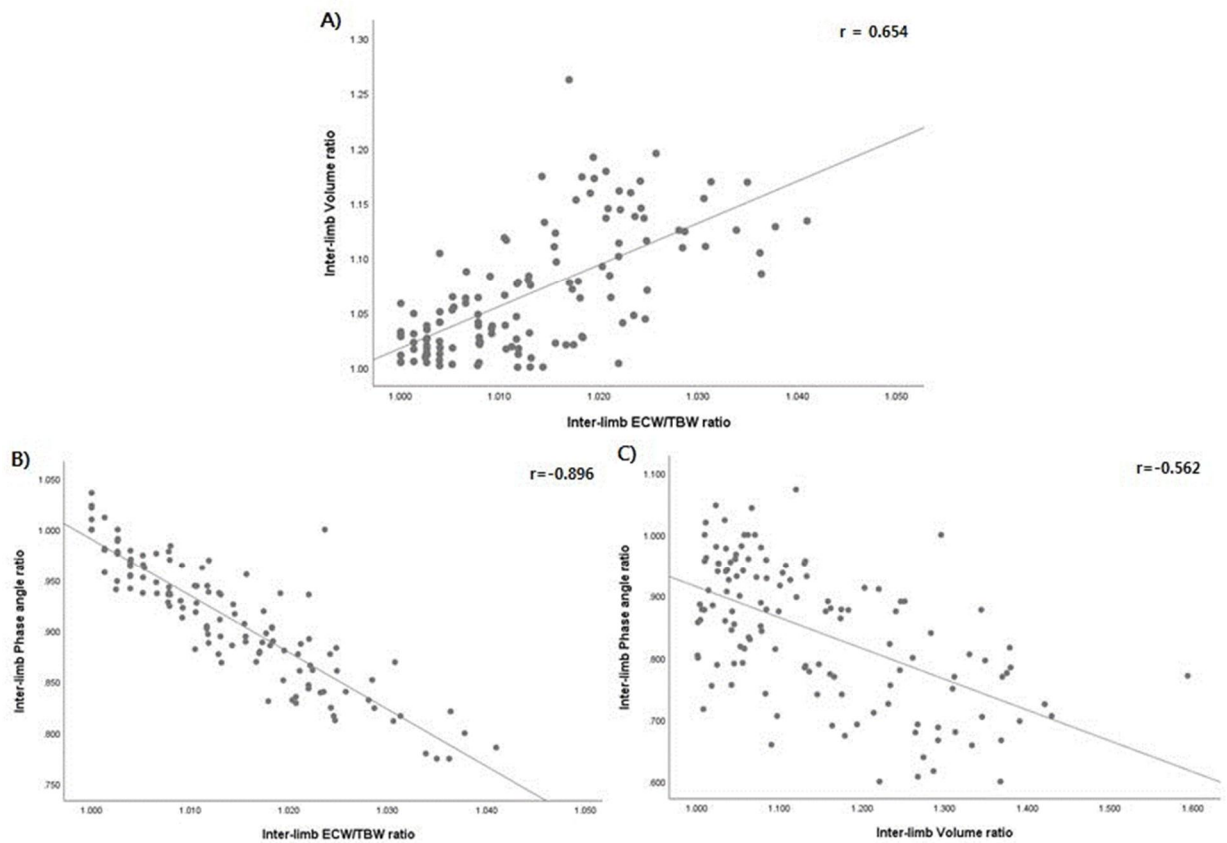


Figure 1. Correlations between the inter-limb ECW/TBW ratio, PhA ratio and volume ratio

Table 1. Values of Bioelectrical impedance analysis and Tape circumferential volume measurement

Factors		Values
Segmental ECW/TBW ratio (Mean $\pm$ SD)	Affected arm	0.39 $\pm$ 0.01
	Unaffected arm	0.38 $\pm$ 0.01
	Inter-limb ECW/TBW ratio	1.03 $\pm$ 0.02
Phase angle (Mean $\pm$ SD)	Affected arm	3.94 $\pm$ 0.76
	Unaffected arm	4.67 $\pm$ 0.67
	Inter-limb PhA ratio	0.84 $\pm$ 0.11
Tape circumferential volume (Mean $\pm$ SD)	Affected arm(cc)	375.16 $\pm$ 90.18
	Unaffected arm(cc)	327.46 $\pm$ 68.63
	Inter-limb volume difference(cc)	47.69 $\pm$ 42.86
	Inter-limb volume ratio	1.15 $\pm$ 0.12