

# KSN 2016 Abstract Submission

## *Dialysis*

KSN2016ABS-1555

### Association of Vascular Access Flow and Volume Status on Fistula Arm by Bio-impedance Analysis in Hemodialysis

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**Background:** Multi-frequency bioimpedance is a tool of body composition measure and can monitor changes in extracellular volume during dialysis. Arterio-venous fistula(aVF) could potentially affect fluid retention in the arm. We investigated whether multi-frequency bio-impedance could detect AVF stenosis or association of AVF with fluid retention in the AVF arm.

**Methods:** We measured the extracellular water(ECW) and total body water(TBW) in AVF arm following hemodialysis by multi-frequency bio-impedance (Inbody S10<sup>®</sup>) using an eight-electrode contact technique. We measured AVF or AVG flow by transonic ultrasonography using an ultrasound dilution technology (HD 03<sup>®</sup>) in hemodialysis.

**Results:** Total 73 patients (male 39 patients) were enrolled and the mean age of  $58.20 \pm 13.74$  years. ECF/TBW ratio of fistula arm was significantly higher than ECW/TBW ratio of non-fistula arm ( $0.387 \pm 0.01$  vs  $0.379 \pm 0.01$ ;  $p < 0.05$ ). ECW/TBW ratio of fistula arm was a significantly negative correlation with access flow level (mL/min) on fistula ( $p < 0.05$ ). The 5kHz reactance of fistula arm was a significantly positive correlation with access flow level (mL/min) in fistula ( $p < 0.05$ ).

**Conclusion:** Absolute and also relative extracellular fluid volumes are increased in the fistula arm of hemodialysis. We thought that extracellular fluid volumes in the fistula arm were associated with access flow level (mL/min) and/or relative fistula stenosis. We suggest that multi-frequency bio-impedance can be a useful assistant tool of vascular access flow measure.

**Keywords:** bioimpedance, Hemodialysis, Vascular access, arteriovenous fistula, arteriovenous graft, patency, elderly