

# KSN 2016 Abstract Submission

*Volume, Acid-Base & Electrolyte*

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## NUMERICAL EXPRESSION OF VOLUME STATUS USING ONLY BIOIMPEDANCE RATIO IN CONTINUOUS AMBULATORY PERITONEAL DIALYSIS PATIENTS

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**Background:** Volume overload results in a higher mortality rate in patients on continuous ambulatory peritoneal dialysis (CAPD). Regardless of age, sex, body size and race, there is a need of numerical index suggesting the volume status to adjust individual dry body weight (DBW) correctly. The ratio of bioimpedance (RBI) may be a helpful parameter in adjusting DBW in CAPD patients. We performed this study to confirm whether we could distinguish the euvolemic status from the hypervolemic status in CAPD patients with only RBI.

**Methods:** The RBI was calculated as follows:  $RBI = \text{impedance at 50 kHz} / \text{impedance at 500 kHz}$ . The RBIs of 86 CAPD patients (M: F=37:49, median age 49.1 (range 19~77 years)) were measured from the right wrist to the right ankle (rw-raRBI) by bioimpedance spectroscopy (BCM<sup>o</sup>, Fresenius Medical Care) before and after emptying their peritonsol. Among them, 64 patients (M: F=28:36; median age 48.7 (range 19~77 years)) had their RBIs from the right side anterior superior iliac spine (ASIS) to the same side ankle (rasis-raRBI), in order to escape from the electro-physiologic effect of peritoneal dialysate.

**Results:** The median rw-raRBI of euvolemic patients is higher than that of hypervolemic patients in the presence (1.142 (range 1.088~1.228) vs. 1.122 (1.075~1.154),  $p < 0.01$ ) and in the absence (1.140 (1.078~1.183) vs. 1.125 (1.075~1.214),  $p < 0.01$ ) of peritonsol. The median rasis-raRBI was significantly similar to the rw-raRBI (presence: 1.136 (1.083 ~1.182) vs. 1.109 (1.057~1.146),  $p < 0.01$ ; absence: 1.135 (1.019~1.182) vs. 1.108 (1.057~1.149),  $p < 0.01$ ).

**Conclusion:** The volume status of CAPD patients could be simply expressed by numerical value, rw-raRBI or rasis-raRBI, using bioimpedance spectroscopy without considering of height, weight and sex. Especially, rasis-raRBI could be potentially used for the patients with the third-space fluid or pacemaker.

**Table:**

	ECW/T BW	OH(L )	rw-raRBI (before drainage)	rw-raRBI (after drainage)	rasis-raRBI (before drainage)	rasis-raRBI (after drainage)
ECW/TBW						
Correlation coefficient	1	0.64	0.839	0.714	0.741	0.686
P value		1	0.000	0.000	0.000	0.000
n	86	0.00	86	86	64	64
		0				

		86				
<b>OH(L)</b>						
Correlation coefficient	0.641	1	0.579	0.474	0.538	0.944
P value	0.000		0.000	0.000	0.000	0.000
n	86	86	86	86	64	64
<b>rw-raRBI (before drainage)</b>						
Correlation coefficient	0.839	0.57	1	0.853	0.911	0.883
P value	0.000	9		0.000	0.000	0.000
n	86	0.00	86	86	64	64
		0				
		86				
<b>rw-raRBI (after drainage)</b>						
Correlation coefficient	0.714	0.47	0.853	1	0.897	0.913
P value	0.000	4	0.000		0.000	0.000
n	86	0.00	86	86	64	64
		0				
		86				
<b>rais-raRBI (before drainage)</b>						
Correlation coefficient	0.741	0.53	0.911	0.897	1	0.897
P value	0.000	8	0.000	0.000		0.000
n	64	0.00	64	64	64	64
		0				
		64				
<b>rais-raRBI (after drainage)</b>						
Correlation coefficient	0.686	0.94	0.883	0.913	0.897	1
P value	0.000	4	0.000	0.000	0.000	
n	64	0.00	64	64	64	64
		0				
		64				

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