

CONTROL ID: 2833492

TITLE: COMPARISON OF TWO BIOIMPEDANCE APPROACHES TO ASSESS LEAN TISSUE DURING AND AFTER CHEMORADIOTHERAPY IN ADVANCED HEAD AND NECK CANCER OUTPATIENTS.

ABSTRACT BODY:

Purpose: Loss of muscle mass is a key characteristic of malnutrition. Bioimpedance is an available technology capable of generating measures of lean tissue at the bed-side. We compared the utility of two different bioimpedance approaches, multiple-frequency bioelectrical impedance analysis (MF-BIA) and bioimpedance spectroscopy (BIS) in head and neck cancer (HNC) patients. Variables of interest were 50 kHz phase angle (PA), 200 kHz/5 kHz impedance ratio (IR), fat-free mass (FFM), total body water (TBW), extracellular water (ECW), and the ratio of ECW/TBW.

Methods: This prospective study included 19 outpatients scheduled to undergo treatment with chemoradiotherapy. Participants were seen at five time-points during and up to 3 months after treatment completion. Measurements were taken at each of the time points using MF-BIA (QuadScan 4000) and BIS (MultiScan 5000) devices (Bodystat Ltd, Douglas, UK); device software was used to generate measures. Bland-Altman analysis was used to assess agreement between devices (Quadscan 4000 – Multiscan 5000). Data were analyzed using the SAS software, Version 9.4 (SAS Institute Inc., Cary, NC, USA).

Results: Eighteen males and one female were included; mean age was 59 ± 7 years, 79% percent (15/19) were diagnosed with stage IV cancer, and 21% (4/19) had stage III disease. No difference was observed for most variables (Table 1). Only TBW was found to differ between devices (Figure 1).

Conclusions: Our results indicate that the bioimpedance devices assessed in this study produced similar measures of lean tissue and could be used interchangeably within this clinical population to assess lean tissue loss. Additional research is warranted to further evaluate the comparability of these devices to monitor changes in lean tissue over time in larger samples that include reference measures of muscle loss.

: L. Teigen, C. Earthman, Food Science and Nutrition, University of Minnesota, Minneapolis, Minnesota, UNITED STATES|U. Mulasi, Nutrition and Food/Dietetics, California State University, Sacramento, California, UNITED STATES|

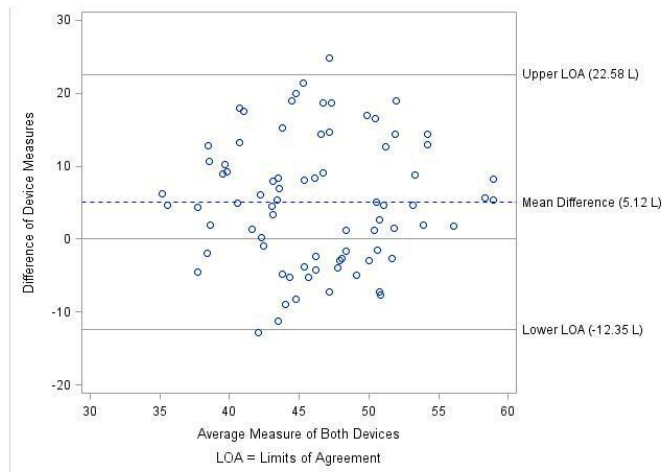
CREDENTIALS:

Urvashi Mulasi : PhD, RD

Levi Teigen : RD

Carrie Earthman : PhD, RD, LD

Figure 1 – Bland-Altman Plot of Total Body Water Comparing Two Bioimpedance Devices



Total Body Water: TBW

LOA: Limits of Agreement (mean difference $\pm$ 2 standard deviations)

X-axis: Average: ((QuadScan measure of TBW + MultiScan measure of TBW)/2)

Y-axis: ((QuadScan measure of TBW – MultiScan measure of TBW)/Average)

The overall Total Body Water difference for the entire sample was found to be 5.12 L (95% CI 3.15 to 7.08 L). A standard deviation of 8.73 L produced LOA of -12.35 to 22.58 L.

TABLE:

Note: The PDF table below is only an approximation of the HTML content and may not match formatting exactly.

Bland-Altman Results from Comparisons between the Two Bioimpedance Devices.					
Variable (n=78)	QuadScan Mean $\pm$ SD	MultiScan Mean $\pm$ SD	Mean difference $\pm$ SD	Bias*	Limits of Agreement**
PA	5.24 $\pm$ 0.84	5.19 $\pm$ 0.63	0.050 $\pm$ 1.006	-0.177 to 0.277	-1.964 to 2.064
IR	0.82 $\pm$ 0.03	0.82 $\pm$ 0.02	-0.003 $\pm$ 0.035	-0.011 to 0.005	-0.073 to 0.067
FFM	64.96 $\pm$ 11.23	66.48 $\pm$ 11.88	-1.522 $\pm$ 14.958	-4.894 to 1.851	-31.439 to 28.395
TBW	48.84 $\pm$ 7.02	43.73 $\pm$ 6.90	5.115 $\pm$ 8.731	3.147 to 7.084	-12.347 to 22.578
ECW	20.94 $\pm$ 2.91	20.90 $\pm$ 3.77	0.041 $\pm$ 4.360	-0.942 to 1.024	-8.679 to 8.761
ECW/TBW	0.43 $\pm$ 0.01	0.48 $\pm$ 0.03	-0.048 $\pm$ 0.028	-0.054 to -0.041	-0.104 to 0.008
PA, Phase angle (50 kHz); IR, Impedance ratio (200 kHz/5 kHz); FFM, Fat-free mass (kg); TBW, Total body water (liters); ECW, Extra-cellular water (liters) *95% confidence interval of the Mean difference **Limits of agreement (mean difference $\pm$ 2 SD)					

PRESENTATION TYPE/RESEARCH METHODOLOGY: Clinical Science

AWARDS: Research Workshop Travel Awards|Harry M. Vars Award and Promising Investigator Award

Financial Support (Abstracts): (none)

Research Workshop-related (abstract): No

Disclosure (Abstracts): Urvashi Mulasi: Nothing to Disclose | Levi Teigen: Nothing to Disclose | Carrie Earthman: Nothing to Disclose

Presentation Preference: Prefer POSTER presentation

Institutional approvals (abstracts): Yes

Inst. Approvals Support Info (abstracts): (none)

Disclosure confirmation (abstract): Yes

Off-label use (abstract): No

Off-label description (abstract): (none)

CURRENT TOPIC - HONORARIA: Group #3: Malnutrition, Obesity, Nutrition Practice Concepts and Issues

Commit to present (abstracts): I agree.

Encore Presentation? Abstracts: No. IF NO, go to the Copyright for original unpublished work box

Encore Presentations Details (Abstracts): Not Applicable

Conference Name (Abstracts): (none)

Publication Name (Abstracts): (none)

Original Work Details (Abstracts): This abstract represents original work. The authors hereby transfer to the American Society for Parenteral and Enteral Nutrition the copyright and all other rights in the material comprising the abstract. The authors retain the right to revise, adapt, prepare derivative works, reproduce and distribute the abstract without obtaining ASPEN approval, provided that we display ASPEN's copyright interest