CANCER MALNUTRITION: BIOELECTRICAL IMPEDANCE IN ROUTINE CLINICAL ASSESSMENT

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BACKGROUND

- Cachexia: Loss of skeletal muscle +/- fat mass[1]
- Common in cancer but poorly evaluated[2]
- Weight and body mass index under-estimate cachexia[3]
- Bioelectrical Impedance Analysis (BIA) may present a solution[4]
- BIA: Non-invasive, bedside, body composition measure
- BIA measures phase angle (PhA), an indicator of cell integrity[4]
- Low PhA associated with malnutrition & poor prognosis[4]
- Feasibility of routine use in hospice patients is unclear

OBJECTIVES

- Evaluate the feasibility & acceptability of BIA to assess body composition in a hospice

METHODS

Study Design

- Prospective observational study
  - 50 consecutive hospice cancer inpatients

Data Collection

- Subjective Nutrition: Patient Generated Subjective Global Assessment (PG-SGA)
- BIA on 2 consecutive mornings
- Tests conducted in naturalistic conditions
- Recorded divergence from recommended conditions:
  a. Bladder voided
  b. Right-sided electrodes
  c. Fasting
  d. Supine
- Acceptability: Questionnaire
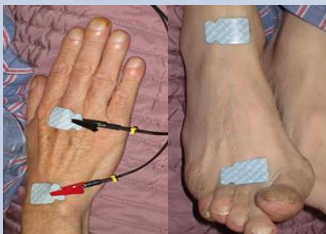
Figure 1: Electrode placement

Figure 2: BIA Measurement

RESULTS

Demographics

- 50 participants: 25 M & 25 F
- Mean age: 67 ± 12 years
- Cancer: Metastatic 48; Loco-regional cancer 2
- Median ECOG Performance Status: 3 (Range 1-3)

Subjective Nutrition (PG-SGA)

n=27 / n=23
- Moderately Malnourished
- Severely Malnourished

Device Feasibility
Ideal Test Conditions Achieved (N=50)
- All Days
- 1 of 2 Days
- Neither Day

(Number of Participants vs Recommended Test Condition: Fasting, Bladder Voided, Supine Position, Right-Sided Measurement)

BIA Phase Angle Results

n=20 / n=30
- Low (<4°)
- Normal (4-12°)

Test-Test Reliability
Reliability of Consecutive Phase Angle Measurements (N=47)

(Number of Participants vs Day to Day Phase Angle Variation: <0.5 Degree Difference, ≥0.5 Degree Difference)
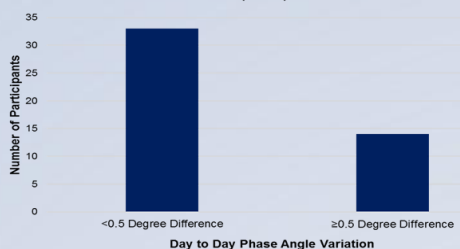
User Acceptability

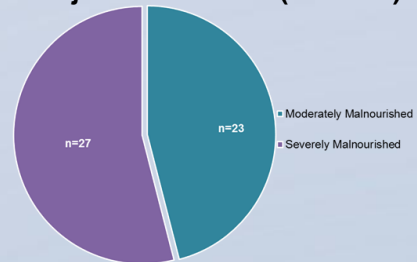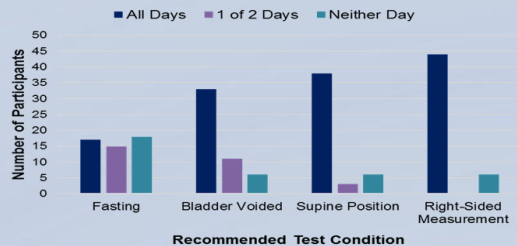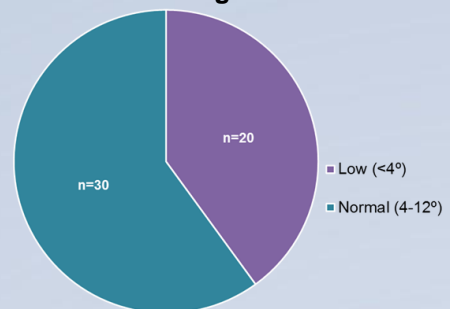- 100% acceptability in patients

DISCUSSION

- BIA can be used to measure PhA in hospice inpatients
- High malnutrition prevalence subjectively & objectively
- Patients often too unwell to achieve ideal test conditions
- Limitations: a. Small sample size
              b. Non-ideal conditions

CONCLUSIONS

1. High acceptability supports clinical use
2. Difficult to accomplish recommended test conditions
3. PhA results may vary from day to day
4. High malnutrition prevalence in hospice inpatients
5. Future study: Evaluate impact of altered test conditions

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