Title:
The Association Between Body Composition and Nutritional Markers in Hemodialysis Patients in Mainland China

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Session Title:
Renal Health
Slot:
I 15: Monday, 30 October 2017: 3:45 PM-4:30 PM
Scheduled Time:
3:45 PM

Keywords:
Body composition, Hemodialysis and Nutrition

References:


Abstract Summary:
The presentation is addressed to clinical nurses and researchers who are interested in implementing and evaluating the effectiveness of nutrition programs for patients undergoing hemodialysis treatment.

Learning Activity:

<table>
<thead>
<tr>
<th>LEARNING OBJECTIVES</th>
<th>EXPANDED CONTENT OUTLINE</th>
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<tr>
<td>1. The learner will be able to understand the importance of screening malnutrition for hemodialysis patients.</td>
<td>The consequences of malnutrition for hemodialysis patients. The limitations of body mass index as a nutritional assessment tool.</td>
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<tr>
<td>The relationship between lean tissue index and mortality among hemodialysis population.</td>
<td>Malnourished patients diagnosed by lean tissue index differed in mid-arm muscle circumference, hand-grip strength, serum pre-albumin concentration, and fat tissue index values from well-nourished patients.</td>
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2. The learner will be able to select appropriate tools to evaluate nutrition status for hemodialysis patients.

**Abstract Text:**

**Purpose:** As dialysis patients suffer from fluid retention, the limitations of body mass index as a nutritional assessment tool in this population has been well documented (Carrero & Avesani, 2015). Accumulating evidence supports that low muscle mass are associated with poor survival in hemodialysis patients (Caetano, Valente, Oliveira, & Garagarza, 2016; Santanasto et al., 2016; Wang et al., 2016). An international cohort study revealed that patients with both lean tissue index (LTI) and fat tissue index (FTI) in the 10th -90th percentiles of a healthy population had best survival (Marcelli et al., 2015). However, the body composition monitoring remains somewhat limited for use in the clinical setting, especially in developing countries. This concern lead to pursuit of using anthropometric or biomedical measures that correlate well with BCM data for the evaluation of nutrition status. The aim of this study was to assess the relationships between body composition and anthropometric measures, and biomedical markers of nutrition and also muscle function.

**Methods:** One hundred and thirty-five hemodialysis patients (56 females and 79 males) with a mean age of 63.1 ± 12.2 participated in this cross-sectional study in 2015, mainland China. Body composition monitor (BCM, Fresenius Medical Care, Germany) was used to determine LTI and FTI. Anthropometric measurements like body weight, triceps skin fold (TSF), mid-arm muscle circumference (MAMC), handgrip strength (HGS), and biomedical analyses like serum albumin, serum pre-albumin, and C-reactive protein (CRP) were performed on all participants.

Results: We found that 65 (48.1%) patients suffered from malnutrition, having LTI values below 10th centile adjusted by age and gender, and 7 (5.2%) patients had low FTI and low LTI (both values below the 10th percentile). Malnourished patients differed in MAMC, HGS, serum pre-albumin concentration, and FTI values from well-nourished patients. HGS was independently associated with LTI, β 0.176, p < 0.001. HGS (β -0.192, p < 0.001), MAMC (β 0.701, p < 0.001), and TSF (β 1.816, p < 0.001) were associated with FTI.

**Conclusion:** BCM-diagnosed malnutrition was found to be present in almost half of the patients receiving hemodialysis treatment in our study sample. Muscle function, MAMC, and serum pre-albumin could be used for nutritional assessment as they are relatively cheaper, and more accessible.