The Dietary Quality of Persons with Heart Failure in NHANES 1999-2006

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OBJECTIVE

• To describe the dietary quality and achievement of recommended dietary goals and assess correlates of goal achievement in a national sample of persons with heart failure

RATIONALE

• Heart failure is associated with considerable morbidity and mortality
• American College of Cardiology/American Heart Association (ACC/AHA) guidelines recommend the following dietary guidelines for persons with non-end-stage heart failure
  ▪ Restricted sodium intake
  ▪ Adherence to dietary guidelines for underlying and comorbid conditions, including coronary heart disease, hypertension, hypercholesterolemia and diabetes
• However, there is little understanding of the current dietary quality of persons with heart failure

METHODS

Data Source
  • NHANES is a series of cross-sectional studies conducted by the CDC to provide health information representative of the civilian population
  • Uses multistage, stratified sampling design to ensure adequate population representation
  • Data from 1999-2000, 2001-2002, 2003-2004, 2005-2006 cycles were used

Target Population
  • Adults 50 years and over
  • Self-reported ever being diagnosed with heart failure by a health care provider
  • Included 524 persons (6.5% of persons age 50+)

Dietary Assessments
  • Single 24 hour recall administered at mobile exam center
  • Used Food Intake Analysis System (FIAS)

Covariates
  • Demographic factors: Age, gender, race/ethnicity, education income level
  • Risk factors: Body mass index (BMI), smoking status
  • Medical conditions: Provider diagnosis of coronary heart disease, hypertension, hypercholesterolemia and diabetes, years since HF diagnosis

Statistical Analysis
  • Weighted to general U.S. population age 50+ with heart failure
  • Descriptive statistics of population and dietary components
  • Principal component analysis using orthomax rotation to describe patterns of dietary goal adherence
  • Multivariate Poisson regression model to determine association of covariates with number of dietary goals achieved

DIETARY GOALS

Dietary Component | Daily Goal | Mean (SE) | Met Goal | Factor 1 | Factor 2
--- | --- | --- | --- | --- | ---
Sodium | < 2000 mg | 2,716 (94) | 34% | .63 | -
Saturated fat | < 7% total energy | 11 (3) | 13% | .65 | -
Fiber | >= 30 gm | 14 (4) | 4% | - | .79
Cholesterol | < 200 mg | 262 (12) | 53% | .65 | -
Protein | 0.8 gm/kg ideal body weight | 1.1 (0.3) | 68% | - | .77
Calcium | >= 1200 mg | 706 (21) | 13% | - | .42
Magnesium | >= 420 mg men | 270 (9) | 10% | - | .84
| >= 320 mg women | 200 (7) | - | - | -

MULTIVARIATE POISSON MODEL PREDICTING NUMBER OF GOALS MET

<table>
<thead>
<tr>
<th>Education</th>
<th>IRR (95% CI)</th>
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<tbody>
<tr>
<td>&lt; HS degree</td>
<td>Referent</td>
</tr>
<tr>
<td>HS degree</td>
<td>1.19 (1.05-1.35)</td>
</tr>
<tr>
<td>&gt; HS degree</td>
<td>1.16 (1.02-1.32)</td>
</tr>
<tr>
<td>BMI (per unit)</td>
<td>.990 (.982-.997)</td>
</tr>
<tr>
<td>Current smoker</td>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
<td>Referent</td>
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</table>

IMPLICATIONS AND LIMITATIONS

• Study limitations include self-reported heart failure diagnosis and diet and cross-sectional design
• Dietary quality of persons with heart failure is poor, with persons of lower education, overweight and obese persons and smokers at greatest risk
• Poor diet places persons with heart failure at risk for greater symptoms, poorer quality of life, worsening comorbidities and greater mortality rates
• Behavioral scientists and clinicians are challenged to develop appropriate dietary interventions targeted for this population