Medication Use Among Young Adults

Are Medication Users At Risk For Chronic Disease?

Introduction

Over the past twenty years the number of obese adults in the United States has nearly doubled (1). According to the most recent National Health and Nutrition Examination Survey (NHANES) 65% of the U.S. population is overweight or obese (2). Along with the increase of overweight and obesity, the prevalence of related chronic conditions such as heart disease, type 2 diabetes, stroke and cancer have increased (2). Like all segments of the population, young adults (18-24 year old) are at risk for chronic conditions associated with weight gain and inactivity. Findings from a recent national survey estimate that 3 out of every 10 college students are overweight (3). Prescription medications can also alter a person’s health profile and, in some cases, add to risk for chronic conditions and promote weight gain. About 50% of females and 40% of males take at least one prescription medication in the United States (5).

Young Adult Health Risk Screening Initiative (YAHRSI)

The primary objective of YAHRSI is to better understand the health and nutrition practices of college-age students. Since it began in the fall of 2005, YAHRSI has collected information on over 2,200 students. Findings from YAHRSI estimate that close to half (46%) of young men and a quarter (27%) of young women at UNH are overweight or obese (4).

For this research project, medication use was explored by examining student health profiles from the YAHRSI study.

Project Questions

1) What percentage of college-age students report over-the-counter and prescription medication use?
2) Are biochemical (glucose, high-density lipoproteins, low-density lipoproteins, triglycerides and total cholesterol) or blood pressure measurements different among female users versus nonusers of oral contraceptives?

Subjects

Between August 2005 – December 2007, young adults (ages 18-24) were recruited from the introductory nutrition course at UNH during the fall, spring and summer semesters. Participants provided informed consent before entering the study. A total of 1,967 participants completed health record information and were included in the current analysis.

Methods

Anthropometric Assessment

In a private room participants’ height, weight, and waist circumference measurements were obtained by a trained technician, undergraduate or graduate students. Body Mass Index (BMI) was calculated using the weight and height measurements (kg/m²).

Biochemical Assessment

Trained undergraduate and graduate students collected fasting blood samples from participants via finger stick. Bench top analyzers (LDX System, Cholestech) assessed fasting blood glucose, triglycerides, and cholesterol levels (high-density lipoprotein, low-density lipoprotein, and total cholesterol levels). In a seated position blood pressure was also obtained after a minimum five minute rest (Omron).

Personal Health History

The health record is a self-reported questionnaire with four sections: health history, exercise habits, drug history, and diet history. The drug section was analyzed for this project.

Statistical Analysis

Data was organized with Excel 2007 and analyzed via SPSS, v. 15.0. Descriptive statistics (frequency and means ± standard error) are presented. Mean differences of biological values between users and nonusers of oral contraceptives were analyzed via ANCOVA, term and age served as covariates.

Results

<table>
<thead>
<tr>
<th>Descriptive Characteristics (n=1967)</th>
<th>Females</th>
<th>Males</th>
<th>Recommended</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age (yr)</strong></td>
<td>18.9 ± 0.0</td>
<td>19.7 ± 0.1</td>
<td>-</td>
</tr>
<tr>
<td><strong>Body Mass Index (kg/m²)</strong></td>
<td>23.6 ± 3.1</td>
<td>21.3 ± 0.2</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total Cholesterol (mg/dL)</strong></td>
<td>178.3 ± 9.0</td>
<td>175.2 ± 6.6</td>
<td>&lt; 200</td>
</tr>
<tr>
<td><strong>HDL (mg/dL)</strong></td>
<td>58.9 ± 0.4</td>
<td>47.5 ± 0.6</td>
<td>F (&gt; 50, M &lt; 40)</td>
</tr>
<tr>
<td><strong>LDL (mg/dL)</strong></td>
<td>98.6 ± 6.8</td>
<td>109.3 ± 1.5</td>
<td>&lt; 100</td>
</tr>
<tr>
<td><strong>Triglycerides (mg/dL)</strong></td>
<td>112.0 ± 6.4</td>
<td>102.5 ± 6.4</td>
<td>&lt; 150</td>
</tr>
<tr>
<td><strong>Glucose (mg/dl)</strong></td>
<td>83.8 ± 0.3</td>
<td>86.8 ± 0.4</td>
<td>&lt; 100</td>
</tr>
<tr>
<td><strong>Total Cholesterol/HDL Ratio</strong></td>
<td>3.2 ± 0.0</td>
<td>3.9 ± 0.1</td>
<td>&lt; 5</td>
</tr>
<tr>
<td><strong>Systolic (mmHg)</strong></td>
<td>115.0 ± 0.3</td>
<td>118.1 ± 0.6</td>
<td>≤ 120</td>
</tr>
<tr>
<td><strong>Diastolic (mmHg)</strong></td>
<td>76.8 ± 0.2</td>
<td>79.1 ± 0.4</td>
<td>≤ 80</td>
</tr>
</tbody>
</table>

Biochemical Values among Female Users and Non-users of Oral Contraceptives

- **Triglycerides**: Male users (175 mg/dL) versus non-users (179 mg/dL), p < .05
- **Total Cholesterol**: Male users (200 mg/dL) versus non-users (198 mg/dL), p < .05
- **HDL**: Male users (58 mg/dL) versus non-users (59 mg/dL), p < .05
- **LDL**: Male users (98 mg/dL) versus non-users (110 mg/dL), p < .05
- **Triglycerides**: Male users (110 mg/dL) versus non-users (115 mg/dL), p < .05
- **Glucose**: Male users (83 mg/dL) versus non-users (85 mg/dL), p < .05
- **Total Cholesterol/HDL Ratio**: Male users (3.2) versus non-users (3.3), p < .05
- **Systolic**: Male users (115 mmHg) versus non-users (118 mmHg), p < .05
- **Diastolic**: Male users (77 mmHg) versus non-users (79 mmHg), p < .05

<table>
<thead>
<tr>
<th>Medication Use (%) (n=1967)</th>
<th>Females</th>
<th>Males</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Oral Contraceptive</strong></td>
<td>40.3</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Antidepressant/Anti-anxiety</strong></td>
<td>10.1</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Allergy</strong></td>
<td>4.4</td>
<td>5.6</td>
</tr>
<tr>
<td><strong>Asthma</strong></td>
<td>3.3</td>
<td>3.4</td>
</tr>
<tr>
<td><strong>Acne</strong></td>
<td>2.9</td>
<td>2.6</td>
</tr>
<tr>
<td><strong>ADD/ADHD</strong></td>
<td>1.9</td>
<td>3.2</td>
</tr>
<tr>
<td><strong>Migraine</strong></td>
<td>1.7</td>
<td>0.9</td>
</tr>
<tr>
<td><strong>Seizures</strong></td>
<td>0.4</td>
<td>0.4</td>
</tr>
<tr>
<td><strong>Diabetes</strong></td>
<td>0.3</td>
<td>0.4</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td>4.4</td>
<td>3.2</td>
</tr>
</tbody>
</table>

Number of Medications Reported

- **Zero Medications**: 179 (50%)
- **One Medication**: 200 (50%)
- **Two Medications**: 3 (1%)
- **Three Medications**: 0 (0%)

Summary

- Over half the female participants report at least one medication.
- About 40% of the female participants report taking oral contraceptives.
- About 20% of the male participants report taking at least one medication.
- Cholesterol (total cholesterol, HDL, and LDL) and triglycerides are higher in female users of oral contraceptives vs. non-users.
- BMI and waist circumference are higher in male users of asthma medication vs. non-users (data not shown).

References

4) World Cancer Research Fund” FASEB J. 2008 22:886.6

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