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**Diet and cardiovascular risk factors in Bonaire population**

According to WHO, cardiovascular diseases (CVDs) are the number one cause of death globally; representing 30% of all global deaths, meaning that more people die annually from CVDs than from any other cause.

The bad news is that the number of people who die from CVDs (mainly heart disease and stroke), will increase - CVDs are projected to remain the single leading cause of death.

The good news is that most cardiovascular diseases can be prevented by addressing risk factors such as tobacco use, unhealthy diet and obesity, physical inactivity, high blood pressure, diabetes and raised lipids: behavioral risk factors are responsible for about 80% of coronary heart disease and cerebrovascular disease.

The effects of an unhealthy diet and physical inactivity may show up in individuals as raised blood pressure, raised blood glucose, raised blood lipids, and overweight and obesity (so called “intermediate risk factors”).

SJSM students performed a research on those risk factors that indicate an increased risk of developing a heart attack, stroke, heart failure and other complications in people in Bonaire
Effects of Dietitian Intervention on CVD Risk Factors

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Introduction

Primary prevention with lifestyle modification has been shown to significantly reduce CVD development and events in many studies, especially for diabetics that are at two to three times the risk for CVD. We performed a population-based, cross-sectional study of diabetics in Bonaire that compares non-variant diet diabetics against a standard non-diabetic population along with pre-intervention measurement of modifiable CVD risk factors against post-intervention measurement. By evaluating measurable modifiable risk factors before intervention and after, we were able to compare Bonaire results to similar studies and evaluate the efficacy of intervention in Bonaire.

Materials & Methods

- Weight, BMI, SBP, DBP, TC, TC/HDL, LDL, & HDL were obtained by the study researchers for the control group using Fat Loss Monitor, Intellisense BP cuff, and Cardio Check P-A. (fig. 1).
- Statistical Data: Mean, standard deviation, and mean change were figured in Microsoft Excel. Paired t-test confidence intervals were calculated at (P ≤ 0.05) on SPSS software.
- DM group data: Files obtained from DM clinic database at Fundashon Mariadal, Kralendijk, Bonaire. Selection criteria for diabetes must have lipid panel pre and post-intervention, and had to be patients of a General Practitioner.

The two working hypotheses were:

1. H₀: There is no difference between before and after lipid panel: (TC/HDL, TC, TAG, LDL, & HDL) with an intervention with a dietitian.

2. Hₐ: There is a difference between before and after lipid panel: (TC/HDL, TC, TAG, LDL, & HDL) with an intervention with a dietitian.

Results

Using a paired t-test for pre and post-intervention, the data indicated that the dietitian had a significant impact in Weight (P<0.002 & 0.004), BMI (P<0.001 & <0.001), SBP (P<0.001 & <0.001), TC (P<0.001 & 0.021), and TAG (P<0.001 & <0.001). The data shows that the dietitian has a significant impact on lowering the weight (P=0.032) and BMI (P=0.034) and H₀ was rejected (Table 1, fig. 2). There was no statistical significance that the dietitian has an impact on diabetics’ lipid panel levels in the timeframe of this study, and the H₀ was accepted (Table 1).

Discussion

Control group significance showed a need for intervention on modifiable CVD risk factors among the Bonaire diabetics population when compared to the control group. Compared to other randomized, controlled studies completed in various countries, our study's weight and BMI significance (fig. 2) indicates efficacy in 6 months timeframe and shows reductions in lipid panel (Table 1).

Conclusions

Intervention and modification of lifestyle, diet, and glucose control are important in the reduction of CVD risks. Long-term intervention has been shown to reduce weight, BMI, TC/HDL, and improve glucose management.

Limitations

Length of study compared to longer studies. Cross-sectional rather than cohort. Disease state of diabetics and age. Non-compliance with dietitian (fig 3).

Application

Lifestyle changes that don't require medication, which targets only one aspect. Lowered health care costs, and reduction of CVD risks and morbidity through primary intervention.

Acknowledgments

Special thanks to Internist at Fundashon Mariadal Evy Witlox, Dietitian Fundashon Mariadal, and to Bruce Davidson, PhD for guidance and resources; Bruce Hundley, PhD for mentoring and assistance and Alexander Dux, MD for SPSS and statistical assistance.

Table 1 – After Intervention Changes in Bonaire Diabetic Population

<table>
<thead>
<tr>
<th>Bonaire DM Population</th>
<th>Before</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC</td>
<td>Mean ± SD</td>
<td>Mean ± SD</td>
</tr>
<tr>
<td>150.29 ± 22.1</td>
<td>151.8 ± 21.1</td>
<td></td>
</tr>
<tr>
<td>HDL</td>
<td>Mean ± SD</td>
<td>Mean ± SD</td>
</tr>
<tr>
<td>4.31 ± 1.1</td>
<td>2.31 ± 0.9</td>
<td></td>
</tr>
<tr>
<td>LDL</td>
<td>Mean ± SD</td>
<td>Mean ± SD</td>
</tr>
<tr>
<td>66 ± 25.7</td>
<td>63 ± 25.7</td>
<td></td>
</tr>
<tr>
<td>TAG</td>
<td>Mean ± SD</td>
<td>Mean ± SD</td>
</tr>
<tr>
<td>83.15 ± 64.1</td>
<td>79.3 ± 61.4</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>Mean ± SD</td>
<td>Mean ± SD</td>
</tr>
<tr>
<td>73.77 ± 25.03</td>
<td>71.6 ± 24.1</td>
<td></td>
</tr>
<tr>
<td>BMI</td>
<td>Mean ± SD</td>
<td>Mean ± SD</td>
</tr>
<tr>
<td>26.15 ± 8.3</td>
<td>24.9 ± 8.2</td>
<td></td>
</tr>
</tbody>
</table>

Control group for non-dietary population baseline.

P-Value was calculated at (P ≤ 0.05) on SPSS software.

References