To correlate heterogeneity in LDL-C response to CYP7A1 and APOE isoforms.

**OBJECTIVES**

- To evaluate the changes in serum LDL-C, triglyceride (TG), high density lipoprotein cholesterol (HDL-\(\beta\)) and glucose levels.
- To determine in vivo variability in response to phytosterol or fiber intake in low-density lipoprotein cholesterol (LDL-C) or total cholesterol (TC).
- We hypothesized that a practical food-based approach can be utilized to lower LDL-C in statin-resistant patients and that the lipid response can be predicted based upon CYP7A1-rs3808607 and APOE genotypic isoforms.

**INTRODUCTION**


**METHODS**

DNA samples were genotyped by TaqMan SNP genotyping assay (Life Technologies, Burlington, ON). Statistical analyses were performed with statistical software, SAS using a mixed model ANOVA.

**CLINICAL TRIAL DESIGN**

Treatment products consisted of oatmeal, pancakes, cranberry bars, chocolate bars, and smoothies formulated in positively influencing cholesterol levels in statin-reluctant individuals.

**RESULTS**

- To investigate the effect of a range of hedonically acceptable proprietary food products specifically formulated in positively influencing cholesterol levels in statin-reluctant individuals.
- To evaluate the changes in serum LDL-C, triglyceride (TG), high density lipoprotein cholesterol (HDL-C), TC and glucose concentrations over a 4-week regimen using foods rich in fiber, phytosterols, alpha-linolenic acid and antioxidants.
- To correlate heterogeneity in LDL-C response to CYP7A1 and APOE isoforms.

**CONCLUSIONS**

- In comparison to control, LDL-C decreased 8.8% in the treatment arm (p=0.0001, range -37.6% to +20.5%) and total cholesterol fell 5% (p=0.004).
- No significant change was seen in HDL-C, TG or fasting glucose levels.
- The APOE-4 and CYP7A1-GG carriers may benefit more from this food intervention compared to the other genotypes.
- Consumption of a portfolio of ready-to-eat bioactive foods significantly improves serum lipid profiles in patients with statin nonresponse, taking into statin drug, with some participants achieving medication level LDL-C reductions.

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