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Triglyceride Metabolism

Abstract 1017: Moderate vs Low Fat Diet Effects on Lipids and Inflammation in Metabolic Syndrome

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Background: The optimal diet for people with metabolic syndrome (MetS) is not known. We assessed the impact of a 40% fat & 45% carbohydrate diet (Moderate Fat Diet= MF) vs. a 20% fat & 65% carbohydrate diet (Low Fat Diet= LF) on lipids and inflammation. Both diets had 8% saturated fat.

Methods: We enrolled 71 men and women with MetS in a double-blinded, randomized, cross-over feeding trial to evaluate MF vs. LF diet at constant body weight. Primary outcomes included non-HDL cholesterol (non-HDL-C) and high sensitivity C reactive protein (hs-CRP) change from baseline. Participants underwent each study diet for 4 weeks. They also underwent an 8 week NCEP Step 1 diet prior to randomization and for 4 weeks between MF and LF diets. 64 participants completed both diets. Other outcomes included LDL-C, HDL-C, and triglycerides. Linear mixed models which accounts for repeated measures were fitted to evaluate the effect of each diet on outcomes.

Results: The mean age was 54±8 yrs. 52% were women. Mean waist circumference was 109 cm±11 cm. Mean lipids (mg/dL) were: non-HDL-C 164±29, triglycerides 220± 81, LDL-C 120±29, and HDL-C 42±8. The mean hs-CRP was 3.3±3.0 mg/L.

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N=64	LF: Mean Δ (95% CI) from baseline, p value	MF: Mean Δ (95% CI) from baseline p value	MF vs. LF P value
Non-HDL-C (mg/dL)	-1.0 (-6.6, +4.6) p=0.7	-17.2 (-22.8, -11.6) p<0.001	<0.001
Hs-CRP (mg/L)	-0.82 (-1.41, -0.22) p=0.008	-0.63 (-1.22, -.028) p=0.04	0.66
Triglycerides (mg/dL)	+13.4 (-9.1, +35.9) p=0.24	-28.6 (-51.7, -6.0) p=0.01	<0.001*
HDL-C (mg/dL)	-4.9 (-6.3, -3.6) p<0.001	-1.9 (-3.3, -0.57) p=0.006	0.001*
LDL-C (mg/dL)	-3.7 (-9.3, +1.9) p=0.2	-11.6 (-17.2, -6.0) p<0.001	0.03*

*p=0.01 significant for non primary outcomes analyses adjusted for multiple comparisons

Conclusions: This is the first study to examine the effects of low fat vs. moderate fat diet in MetS. MF compared to LF diet improves the atherogenic dyslipidemia of MetS. MF diet is a preferable dietary intervention in people with MetS to improve CVD risk.

Table 1

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