Research

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Improvement in coronary heart disease risk factors during an intermittent fasting/calorie restriction regimen: Relationship to adipokine modulations

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Abstract

Background

The ability of an intermittent fasting (IF)-calorie restriction (CR) regimen (with or without liquid meals) to modulate adipokines in a way that is protective against coronary heart disease (CHD) has yet to be tested.

Objective

Accordingly, we examined the effects of an IFCR diet on adipokine profile, body composition, and markers of CHD risk in obese women.

Methods

Subjects (n = 54) were randomized to either the IFCR-liquid (IFCR-L) or IFCR-food based (IFCR-F) diet for 10 weeks.

Results

Greater decreases in body weight and waist circumference were noted in the IFCR-L group (4 ± 1 kg; 6 ± 1 cm) versus the IFCR-F group (3 ± 1 kg; 4 ± 1 cm). Similar reductions ($P < 0.0001$) in fat mass were demonstrated in the IFCR-L (3 ± 1 kg) and IFCR-F group (2 ± 1 kg). Reductions in total and LDL cholesterol levels were greater ($P = 0.04$) in the IFCR-L (19 ± 10%; 20 ± 9%, respectively) versus the IFCR-F group (8 ± 3%; 7 ± 4%, respectively). LDL peak particle size increased ($P < 0.01$) in the IFCR-L group only. The proportion of small LDL particles decreased ($P < 0.01$) in both groups. Adipokines, such as leptin, interleukin-6 (IL-6), tumor necrosis factor-alpha (TNF-alpha), and insulin-like growth factor-1 (IGF-1) decreased ($P < 0.05$), in the IFCR-L group only.

Conclusion

These findings suggest that IFCR with a liquid diet favorably modulates visceral fat and adipokines in a way that may confer protection against CHD.

Keywords: Intermittent fasting; Calorie restriction; Liquid diet; Body weight; Visceral fat; Cholesterol; Coronary heart disease; Obese women