WEIGHT LOSS BUT NOT EXERCISE LOWERS GLUCAGON RESPONSE AND IMPROVES GLUCAGON-LIKE PEPTIDE-1 TO INSULIN RATIO IN PREDIABETIC PATIENTS WITH CORONARY ARTERY DISEASE: THE RANDOMIZED CUT-IT TRIAL

Poster Contributions
Poster Hall B1
Monday, March 16, 2015, 9:45 a.m.-10:30 a.m.

Session Title: Risk Assessment, Exercise and Atrial Fibrillation
Abstract Category: 21. Prevention: Clinical
Presentation Number: 1246-115

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Background: Incretin hormones are believed to have a direct and an indirect cardio-protective effect while glucagon has the opposite effect. We examine the effect of exercise and weight loss on the incretin and glucagon response in overweight, sedentary, prediabetic coronary artery disease (CAD) patients.

Methods: 70 non-diabetic CAD patients, BMI 28-40 kg/m2, age 45-75 years were randomised to 12 weeks' aerobic interval training (AIT) at 80% peak heart rate three times/week or a low energy diet (LED, 800-1000 kcal/day) for 8-10 weeks followed by 2-4 weeks' weight maintenance diet. The incretin hormones glucagon-like peptide 1 (GLP-1) and glucose-dependent insulinotropic polypeptide (GIP) and glucagon, insulin and glucose were determined during a 3-hour 75 g oral glucose tolerance test. Areas under the curves were calculated to describe hormone and glucose response.

Results: 26 (74%) AIT and 29 (83%) LED participants completed the intervention per protocol (i.e. >60% training attendance in the AIT group and >5% weight loss after LED). The LED group obtained decreased glucagon secretion and decreased insulin and glucose excursions with unchanged incretin release. No significant change was seen after AIT despite AIT a 10% improvement in exercise capacity.

Conclusion: LED improved the GLP-1/insulin-ratio and lowered glucagon levels and fasting insulin to a greater extent than AIT. This suggests a larger effect on the glucagon and incretin response of the LED-induced weight loss than of the 12-weeks of AIT.