ICCN Poster Presentations

Obesity

Effects of macronutrients on cardiovascular and metabolic responses in NIDDM (non-insulin –dependent diabetes mellitus) and healthy subjects

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We compared the cardiovascular [cardiac output (co), heart rate (hr), stroke volume (sv), mean arterial pressure (map), systolic blood pressure (sbp), diastolic blood pressure (dbp)] and metabolic responses [blood sugar, insulin, norepinephrine] to carbohydrate, protein and fat in 10 healthy subjects (4 woman, 6 man: age 36.6 ± 5.8 yr, range 30-48, BMI 24± 1.2 kg/m², range 22-25) and 15 NIDDM (non-insulin-dependent diabetes mellitus) patients (4 woman, 11 man:age 38.9 ± 5.2 yr, range 29-47, BMI 24 ± 1.6kg/m², range 21-26.6). Cardiovascular measurements were carried out before meals and 2 hours postprandially (15,30,60,90,120 min) while metabolic measurements were followed 3 hours postprandially (15, 30, 60, 90, 120,180 min). Insulin increased significantly following intake of carbohydrate, protein and fat in both groups ($p<0.05$). Baseline norepinephrine was significantly greater in healthy subjects [750(SE 22) Pg/ml] than in NIDDM [199 (SE 9)] ($p=0.001$). Norepinephrine increased significantly following intake of the carbohydrate, protein and fat in NIDDM and healthy subjects ($p<0.05$). The values for norepinephrine before and after intervention were different between two groups. Baseline blood glucose concentration in NIDDM patients was greater than healthy subjects [134(SE 6.5) vs 86 (SE2) mg/dl] ($p=0.001$). Blood sugar concentrations increased significantly postprandially in healthy subjects (0.05,0.02,0.01). In NIDDM blood sugar concentrations increased after intake of carbohydrate and protein ($p=0.005$,ns respectively) but gradually decreased after fat ($p=0.01$). In healthy subjects macronutrients caused marked and gradually developing postprandial increases in cardiac output. While in NIDDM co rose after intake of macronutrients but these increases were not significant except 30 min after protein ($p=0.004$). In healthy subjects sbp and map rose after the ingestion of macronutrients ($p<0.05$) and dbp had no changes. In NIDDM after the ingestion of macronutrients, there was a fall in systolic blood pressure and mean arterial pressure but this was only significant after fat ($p<0.05$). Dbp had no changes after carbohydrate and protein but after fat fell ($p<0.05$). There were considerable differences in the speed of development and the pattern of the cardiovascular and metabolic responses between NIDDM and healthy subjects ($p<0.05$). Finally we concluded diabetes in the early stages cause change metabolic system and then involved cardiovascular system.

The effect of food frequency on serum glucose, triglyceride and total cholesterol in niddm patient

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Objective: The aim of this semi-experimental, crossover, perspective study was to assess the effect of low and high frequency diets on fasting serum glucose, total cholesterol and triglyceride after eating a standard breakfast (B.T.T) on non-insulin-dependent diabetes mellitus (NIDDM) patients.
Material and method: In the experimental, we studied 12 NIDDM patients (6 males, 6 females aged 25-54 years). They were on isocaloric prescribed diets for 6 weeks and they followed the diets over the period of the study. The number of meals which patients consumed in high and low frequency diet periods was as following: 7/96 ± 0.11 meals/day for high frequency diet and 4 ± 0.8 meals/day for the low frequency diet. The general data was acquired from questionnaire and 3 days food records. The analysis of energy, carbohydrate, protein and fiber intake was carried out by an EPI program. Serum variables were determined at the beginning and end of each diet period.
Results: The fasting serum glucose at the end of high frequency diet period was reduced significantly compared with the baseline data ($P<0.02$) and the low frequency diet ($P<0.05$). The fasting total triglyceride at the end of high frequency diet was reduced significantly compared with low frequency diet ($P<0.05$). The differences between fasting total serum cholesterol at the end of high frequency diet compared with baseline and low frequency diet was not significant .
Conclusion: this result shows that high frequency diet reduces fasting serum glucose and triglyceride.