Andrew O. Odegaard, of the University of Minnesota at Minneapolis, and colleagues, found that making breakfast a routine part of the day may be protective against type 2 diabetes.

They compared the frequency of breakfast intake (within the context of overall dietary quality and BMI) with the incidence of T2D in the long-term Coronary Artery Risk Development in Young Adults Study. Participants included 3598 white and black men and women aged 25-37 and free of T2D at year seven in 1992-1993.

Following data analysis, the researchers found a 5 % decrease in risk of T2D with each additional day/week of breakfast intake, (hazard ration [HR] 0.95; confidence interval [CI], 0.91 to 0.99). Participants who reported eating breakfast 5+ day/week had a 31 % lower risk of T2D vs. participants who reported breakfast 0-3 day/week (HR 0.69; CI, 0.54 to 0.88). But after adjusting for year seven BMI, the HR for breakfast 5+ day/week was attenuated and no longer statistically significant.

"Overall, our findings show an inverse relation between increasing breakfast frequency and T2D, probably mediated by BMI," Dr. Odegaard and colleagues concluded.

Source: ADA 72nd Scientific Sessions, PA, June 8-12, 2012.

Researchers at the University of Buffalo, Buffalo, New York, have found that obesity is prevalent in newly diagnosed children with type 1 diabetes and at least one of their parents. It has been traditionally held that children with T1DM are underweight until after initiation with insulin.

Researchers hoped to measure the prevalence of obesity in children at diagnosis of T1DM and BMI changes after initiation of insulin. They accumulated BMI data at diagnosis and two weeks post-diagnosis as well as dietary assessment at six weeks on the 39 children enrolled.

At the two-week follow-up, parents were asked to recall daily energy (caloric intake from fat and protein) and carbohydrate (CHO) intake recommended at diagnosis.

According to the researchers, BMI at diagnosis was >85th percentile in 39 % of children and >95th percentile in 23 %; one parent was overweight in 87 %. At two weeks, BMI-z score increased from 0.45 +/-1.2 to 0.67 +/-1.1 (P<0.001). While all parents correctly reported their child’s daily recommended CHO intake, only 34 % recalled the energy intake. Food records indicate that 10 % and 40 % of subjects exceeded the recommended daily CHO and energy goals respectively; only 10 % met the recommended intake of fruits and vegetables.

Cardiovascular Effects of Intensive Lifestyle Intervention in Type 2 Diabetes

The Look AHEAD Research Group
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BACKGROUND

Weight loss is recommended for overweight or obese patients with type 2 diabetes on the basis of short-term studies, but long-term effects on cardiovascular disease remain unknown. We examined whether an intensive lifestyle intervention for weight loss would decrease cardiovascular morbidity and mortality among such patients.

METHODS

In 16 study centres in the United States, we randomly assigned 5145 overweight or obese patients with type 2 diabetes to participate in an intensive lifestyle intervention that promoted weight loss through decreased caloric intake and increased physical activity (intervention group) or to receive diabetes support and education (control group). The primary outcome was a composite of death from cardiovascular causes, nonfatal myocardial infarction, nonfatal stroke, or hospitalization for angina during a maximum follow-up of 13.5 years.

RESULTS

The trial was stopped early on the basis of a futility analysis when the median follow-up was 9.6 years. Weight loss was greater in the intervention group than in the control group throughout the study (8.6 % vs. 0.7 % at 1 year; 6.0 % vs. 3.5 % at study end). The intensive lifestyle intervention also produced greater reductions in glycated haemoglobin and greater initial improvements in fitness and all cardiovascular risk factors, except for low-density-lipoprotein cholesterol levels.

The primary outcome occurred in 403 patients in the intervention group and in 418 in the control group (1.83 and 1.92 events per 100 person-years, respectively; hazard ratio in the intervention group, 0.95; 95 % confidence interval, 0.83 to 1.09; P=0.51).

CONCLUSIONS

An intensive lifestyle intervention focusing on weight loss did not reduce the rate of cardiovascular events in overweight or obese adults with type 2 diabetes.

Funded by the National Institutes of Health and others; Look AHEAD ClinicalTrials.gov No. NCT00017953.
Chinese researchers of the SPREAD-DIMCAD STUDY GROUP, Shanghai, compared the long-term effects of glipizide and metformin on major cardiovascular (CV) events in high-risk patients with type 2 diabetes and a history of coronary artery disease (CAD). They found that treatment with metformin for three years substantially reduced major CV events, compared with glipizide, suggesting that treatment with this drug could be a good prevention strategy for CV disease in patients with type 2 diabetes.

In a randomized trial, patients (N=304) with type 2 diabetes and CAD were randomly assigned to receive either glipizide plus metformin placebo or metformin plus glipizide placebo for three years. At a mean follow-up of three years, 91 participants had developed 103 primary end points - time to the composite of recurrent CV events, including death from a CV cause, death from any cause, nonfatal myocardial infarction, nonfatal stroke, or arterial revascularization. Intent-to-treat analysis showed an adjusted hazard ratio of 0.54 (95 % confidence interval, 0.30 to 0.90, \( P=0.026 \)) for the composites of CV events among the patients who received metformin, compared with glipizide.


MedWire News: Women who follow an Atkins-style diet have a significantly increased risk for cardiovascular disease (CVD), experts warn. Pagona Lagiou (University of Athens) and team estimate that an extra 4-5 cases of CVD occur per year for every 10,000 women who follow a low-carbohydrate, high-protein diet.

This translates to a 28 % higher risk for ischaemic heart disease, stroke, and peripheral arterial disease among such women, relative to those who do not follow this diet.

The researchers measured diet on the low carbohydrate-high protein (LCHP) score where a score of 2 corresponded to very high carbohydrate and low protein consumption and a score of 20 corresponded to very low carbohydrate and high protein consumption. They found that each one-tenth decrease in carbohydrate intake or increase in protein intake was associated with a significantly increased risk for CVD overall, at an incidence risk estimate of 1.04. The equivalent 2-unit increase in LCHP score was associated with a 1.05-fold increased CVD incidence.

As reported in the BMJ, unadjusted analysis revealed that compared with an LCHP score of 6 or less, CVD risk increased by 13 % for women who had a score of 7-9, 23 % for those with a score of 10-12, 54 % for those with a score of 13-15, and 60 % for those with a score of 16 or higher.

After adjustment for other CV risk factors, there was a 5 % increase in the likelihood for a CV event or death with each 2-point increase in the LCHP score. The authors say that this 5 % increase was attributed to a daily reduction in carbohydrates of 20 g, which is equivalent to a small bread roll, and a daily increase in protein of 5 g, which is equivalent to one boiled egg.

The study involved 43,396 Swedish women aged 30-49 years who completed an extensive dietary questionnaire and were followed up for an average of 15.7 years.

Lagiou and team say that LCHP diets used on a regular basis "and without consideration of the nature of carbohydrates or the source of proteins" are associated with CV risk. However, they say that the possible benefit of short-term effects of LCHP diets to control weight or insulin resistance needs further investigation.

In a related commentary, Anna Floegel and Tobias Pischon, both from the Max Delbrück Center for Molecular Medicine in Germany, say that the discrepancies between conclusions from different previous studies in this area "need to be resolved before low carbohydrate-high protein diets can be safely recommended to patients."

In the meantime, they suggest that any benefits gained from Atkins-style diets in the short term "seem irrelevant in the face of increasing evidence of higher morbidity and mortality from CVD in the long term."
Small doses of metformin have shown that they could inhibit tumour transformation and selectively kill breast CSCs.

Studies show that the transient activation of Src oncoproteins may mediate an "epigenetic switch" from immortalised breast cells via transformed and stabilised lines into self-renewing mammospheres which contain cancerous stem cells (CSC). The Src activation leads to an inflammatory response: interleukins (IL6, NF-kB, and STAT3) activate microRNA transcription, and then the epigenetic switch with a positive feedback, which activates the interleukin loop. This phenomenon is particularly strong in CSC compared to non-stem cells.

The CSC theory suggests that these are resistant to chemotherapy and can regenerate tumour cells, resulting in an escape from the treatment of the disease. Small doses of metformin have shown that they could inhibit tumour transformation and selectively kill breast CSCs. The combination of metformin and doxorubicin kills both CSCs and non-stem cancerous cells in culture, and prevents the escape much more effectively than drugs alone in mice xenografts. Metformin is also effective with other chemotherapy treatments, and makes it possible to reduce the dose of doxorubicin by four times. It appears to inhibit inflammatory phenomena. These results support the CSC theory and provide a rational and experimental basis for using the combination of metformin with anti-cancer drugs in order to optimise their effectiveness.

Insulin-like growth factor (IGF) and cancer

High levels of IGF-1 are often associated with an increased risk of cancer. Additionally, the IGF-1 receptor (IGF-1R) is often over-expressed in tumour tissues. The inhibition of IGF-1R in culture and in preclinical studies has enabled tyrosine kinase antibodies and inhibitors as to be developed as an adjuvant therapy in chemotherapy, for which studies should be continued. Obesity, metabolic syndrome, and type 2 diabetes present hyperinsulinaemia that is associated with an increased risk of cancer, which suggests that hyperinsulinaemia has a mitogenic effect by means of the insulin receptor and particularly on the breast, and which could make it possible to consider other treatment options.

Obesity and cancer

In 2008, a study demonstrated the association between BMI and an increased risk of several types of cancer. Among the most common were: colon, endometrial, postmenopausal breast, oesophageal adenocarcinoma, and among the less common ones: thyroid, and non-Hodgkin's lymphoma. The clinical support may be the insulin/IGF-1 approach, sex steroids, and inflammatory adipokines/cytokines. This risk is reversible after treatment with bariatric surgery. Approximately 124,000 new cases of cancer could be attributed to an excessive BMI in Europe in 2008. The link between BMI and cancer may be modified by the presence of other risk factors; however in the case of treatment with hormone replacement therapy after the menopause, oestrogens play an important role as an intermediary between obesity and the development of endometrial and breast cancers. Moreover, recent studies show that waist circumference is a better indicator than BMI, and that obesity acts in different ways on the prognosis and death rates of some cancers that would be important to understand better.