Study finds association between consumption of certain fatty acids and developing type 2 diabetes in women

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New research presented at the European Association for the Study of Diabetes (EASD) meeting in Munich, Germany (12-16 September) shows that consumption of certain fatty acids is associated with an increased risk of developing type 2 diabetes in women. The study is by Dr Guy Fagherazzi and Courtney Dow, INSERM Centre for Research in Epidemiology and Population Health (CESP) and University Paris-Saclay, Villejuif, France, and colleagues.

Fatty acids are vital sources of energy and important components of our diets, yet evidence on their association with the risk of type 2 diabetes is lacking and controversial. Therefore, this study aimed to evaluate the association between dietary estimates of fatty acid consumption and type 2 diabetes risk over 14 years of follow-up in the French prospective E3N cohort study. This study cohort was initiated in 1990 to investigate the risk factors associated with cancer and other major non-communicable diseases in women.

A total of 71 334 women who were non-diabetic at baseline were followed from 1993 to 2011. Subsequent diabetes diagnoses were identified using questionnaires and drug reimbursement claims, and incident cases were subsequently validated. Fatty acid consumption in 1993 was estimated from a validated dietary questionnaire. Computer modelling was used to calculate the risk of developing type 2 diabetes.

A positive association was observed between high omega-3 polyunsaturated fatty acid consumption and the risk of type 2 diabetes; this persisted after adjustment for confounders, including other fatty acid groups and body mass index (BMI). Those women with the highest consumption (the top third or 33%, more than 1.6g per day) had a 26% increased risk of developing type 2 diabetes compared with the lowest 33% consumption group (less than 1.3g per day).

Upon dividing the women into 2 groups (overweight with a BMI greater than or equal to 25kg/m2) and non-overweight (BMI below 25), the total polyunsaturated fatty acid consumption also demonstrated a positive association with diabetes, but only in non-overweight women, where a 22% increased risk of diabetes was found in those women in the top third or 33% of consumption (more than 15.3g per day) versus those in the lowest 33% (less than 12.0 g per day).

High Omega-3 consumption was associated with an increased risk of diabetes in both overweight (19% increased risk for highest 33% vs lowest 33%) and non-overweight (38% increased risk for highest 33% vs lowest 33%) women. Closer examination of the omega-3 polyunsaturated fatty acid group found that high (the top 33%, ?0.08g/day), DPA consumption was associated with an increased risk of diabetes in both non-overweight and overweight women (45% and 54%, respectively) compared to the women in the bottom 33% of consumption (