Spousal diabetes – protocol development

Prevention of type 2 diabetes

Approximately 90-95% of all diabetes cases are type 2 diabetes (T2D)[1]. Although genetic factors are strong predictors for the development of T2D[2], and being genetically related to a person with T2D increases the relative risk of T2D by up to more than 30 times depending on number and type of probands[3], most of the variation in the risk of T2D is explained by lifestyle and behavioural factors, or by the interaction of lifestyle behaviours with genetic factors[4-6]. Evidence regarding prevention or postponement of the onset of T2D in high risk individuals through a healthy diet, increased physical activity, and weight loss has been successfully established in randomized clinical trials from both high-income[7,8] and middle-income countries[9,10]. However, it remains unclear how the evidence from the available efficacy trials can be translated into low-cost, effective, feasible and sustainable interventions[17], and how to efficiently identify high risk individuals as the target of the interventions.

Early detection of type 2 diabetes

Early detection of T2D is key for the management of the disease as diabetes related complications like retinopathy and cardio-vascular diseases can be prevented by controlling blood glucose levels and managing vascular risk factors[18,19]. However, globally 46% of people with diabetes are unaware of their disease status and thus receive no treatment[20]. The high proportion of undetected or late detected diabetes in high-income countries may be due to the current T2D screening recommendations, which focus on demographic (e.g., age, ethnicity), behavioural risk factors (e.g., overweight, physical inactivity), and first degree relatives with T2D[21]. In many low-income countries screening programs do not even exist, and due to limited diagnostic equipment[22-24], and low awareness both in the population[25,26] and among the health professionals[24], screening strategies from high-income countries cannot easily be adapted.

Focusing on the family

Results of studies[27-29] suggest that unhealthy eating patterns, physical inactivity, and obesity cluster among individuals living in the same household. In addition, married couples have been found to have similar weight measurements, and diet and physical activity behaviours[30], which may explain why spouses of a person with T2D have an up to 30% higher risk of developing diabetes as compared to individuals with no spousal diabetes history[3,31]. Conversely, shared environment may also be a driver for positive influences. In a recently published study[32], we showed that sharing a household with a

person who had been diagnosed with T2D for at least two years and who had received diabetes-related education was associated with an improved cardio-metabolic risk profile compared to individuals living in household without a member with diagnosed diabetes. These results are supported by studies from the U.S. showing that untreated spouses experienced weight loss[33,34] and improved their diet[35] when sharing a household with a spouse enrolled in a lifestyle intervention program. Thus, households present a challenge of socially entrenched unhealthy behaviours, but also a unique opportunity for identification of individuals at high risk of T2D and potentially detection of the disease.

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