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Title of project: The impact of treatment with antidepressants on the course of type 2 diabetes

ABSTRACT

Type 2 diabetes (T2D) affects approximately 9 % of the global adult population and is associated with a number of physical comorbidities. It has recently been demonstrated that T2D also has devastating consequences for mental health, with major depression being present in every fourth individual with T2D. Converging evidence points to individuals with T2D and comorbid depression having increased mortality compared to T2D patients without depression. Not only due to the increased risk of suicide, but probably also related to lower quality of care and poorer glycemic control in patients with T2D and comorbid depression, increasing the risk of macro- and microvascular complications. Somewhat surprisingly given the documented impact of depression on diabetes outcomes in broader terms, only few studies have investigated the effects of antidepressant treatment on the course of T2D. Here, most studies have focused on glycemic control, but these studies have been small, with short follow-up time, and contradictory results. Only one study has investigated the effect of antidepressants on all-cause mortality in individuals with T2D, and, to our knowledge, no studies have investigated the effect of antidepressant treatment on major diabetic complications or cause-specific death. We therefore aim to investigate the effect of antidepressants on glycemic control, health-style related behaviors, mortality, and major diabetic complications in patients with T2D. We will conduct studies in a tandem setup, taking advantage of both I) large-scale population-based real-world “macro” data (somatic diagnoses, prescription drug use, laboratory values, mortality, and cause of death) on more than 350.000 patients with T2D in Denmark stemming from our nationwide registers, as well as II) deep phenotypic “micro” data (clinical examinations, blood samples, urine samples, smoking, alcohol intake, physical activity + all linked macro data) from the more than 8600 individuals with T2D in the unique Danish Centre for Strategic Research in Type 2 Diabetes (DD2) project cohort. Within each study, we will use triangulation with advanced epidemiological methods including matched cohort designs with prior-event-rate-ratio analysis, propensity score methods, and within-designs, to elucidate the true effectiveness of antidepressant treatment on the course of T2D. In the future, our results are likely to aid clinicians in preventing complications and premature deaths among patients with T2D and comorbid depression.