VARIATIONS IN COMORBIDITY BURDEN IN PATIENTS WITH TYPE 2 DIABETES OVER DISEASE DURATION: A POPULATION BASED ANALYSIS OF REAL WORLD EVIDENCE

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Summary

- Nearly half a billion people globally are living with Type 2 diabetes (T2DM), and this is a major cause of morbidity
- We used a large, linked database of the electronic health records of 2.5 million people living in London to describe the patterns of comorbidity in people with T2DM, and the associated direct healthcare costs
- Comorbidity was extremely common in this population and by 10 years after diagnosis, 60% of patients with T2DM had 3 or more co-morbidities
- Future interventions and therapies for T2DM should consider the impact of comorbidities in this population and the implications for care models, treatment guidelines and therapeutic goals

Background

- There are approximately 463 million living with diabetes worldwide of which 90-95% is estimated to be type 2 diabetes (T2DM)
- All-cause mortality has declined substantially in this patient group in recent decades driven in part by large declines in cardiovascular disease (CVD) mortality
- This has been accompanied by a diversification in cause of death away from traditional macro- and microvascular towards a broader set of conditions. Whether this has impacted the breadth of morbidity experienced by people living with T2DM is unclear
- We aimed to estimate comorbidity profiles in people living with T2DM and how this varies over the course of the disease

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Methods

- We used a real-world administrative primary care dataset – Discover-NOW - linked to hospital records to identify people living with T2DM
- We identified a cohort of 224,000 patients with T2DM in the dataset, which includes the linked electronic health records of 2.5 million people living in North-West London, England
- We generated a mixed prevalent and incident T2DM population and captured a broad set of 35 comorbidities covering traditional T2DM complications, emerging complications and other common comorbidities
- Direct healthcare costs were estimated using primary and secondary care healthcare resource utilisations
- We estimated age-standardised (European Standard Reference Population) comorbidity prevalence over the course of the disease across several sub-groups including by age, gender and specific comorbidities at diagnosis

Increasing multimorbidity post diagnosis

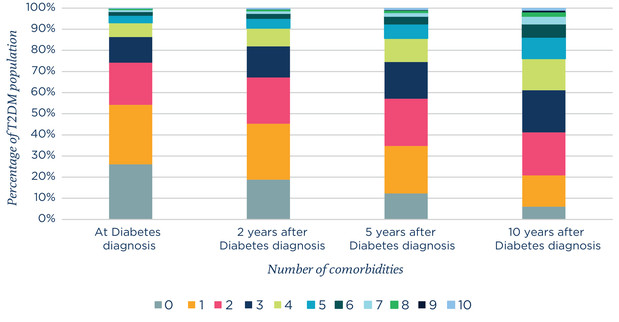

Figure 1. Percentage of T2DM population with 0-10 comorbidities at diagnosis and 2, 5 and 10 years after diagnosis of diabetes.

Comorbidities in the T2DM population

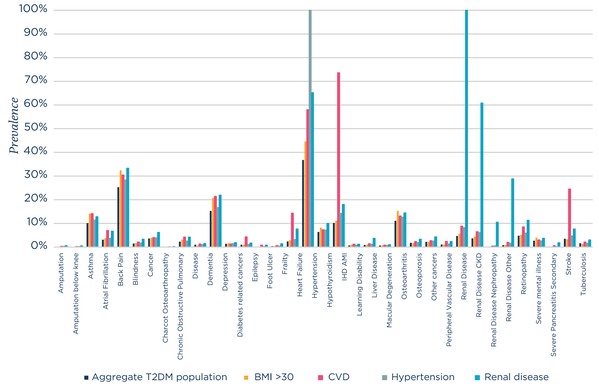

Figure 2. Prevalence of age-standardised comorbidities in the year of T2DM diagnosis stratified by having high BMI, CVD, Hypertension or renal disease at diagnosis and aggregate T2DM population

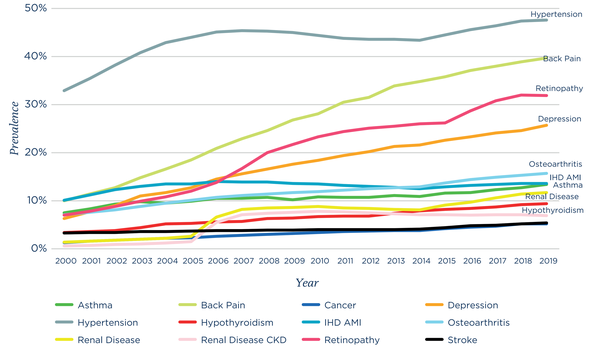

Figure 3. Age standardised comorbidity prevalence between 2000 and 2019 in the type 2 diabetes population.

Results: Multimorbidity is common and increasing in people with T2DM

- Nearly 30% of people with T2DM had three or more comorbidities at diagnosis. This increased to 60% 10 years post diagnosis
- By 10 years after diagnosis, only one in five patients (20%) had none or one comorbidity
- Some of the commonest comorbidities were expected (hypertension, 37% at diagnosis, ischaemic heart disease, 10%) but some were not (back pain, 25%, depression, 15%, osteoarthritis, 11%)
- People with obesity at diagnosis had substantially different comorbidity profiles to those without, and the five commonest comorbidities were 50% more common in this group
- There were several differences in comorbidity prevalence by ethnicity. Depression was almost twice as prevalent in white people (21%) compared to Asian (12%), hypothyroidism was twice as prevalent in Asian people compared to black people while severe mental illness, cancer, stroke and CKD were all higher in people of black ethnicity
- Direct healthcare costs in patients with high multimorbidity were over twice as high as the overall T2DM population

Conclusions

- Comorbidity profiles and health need varies substantially across patients living with T2DM
- This corresponds to large differences in HCRU and associated healthcare system costs
- Care pathways for those living with T2DM should broader to capture the breadth of morbidity impacting patients' lives
- Patients with T2DM have high unmet health needs associated with comorbidity. Ensuring that patients with unmet have access to effective interventions to reduce the burden of illness could reduce inequalities across patients living with T2DM and have greatest returns for healthcare systems