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Title

Multimorbidity and frailty in middle-aged adults with type 2 diabetes mellitus

Priority 1 (Research Category)

Diabetes and endocrine disease

Presenters

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Abstract

Context: Frailty and multimorbidity are common in type 2 diabetes, including in middle-aged people (<65 years). Clinical guidelines recommend adjustment of treatment targets in people with frailty or multimorbidity. However, guidelines do not specify how frailty/multimorbidity should be identified. It is not clear if recommendations should be applied to people with frailty/multimorbidity at younger ages.

Objective: Assess prevalence and clinical implications of frailty/multimorbidity in middle- to older-aged people with type 2 diabetes using four different measures.

Design: Cohort, baseline 2006-2010, median 8 years follow-up.

Setting: Community

Participants: UK Biobank participants (n=20,566) with type 2 diabetes aged 40-72 years.

Exposures: Four measures of frailty (frailty phenotype and frailty index) and multimorbidity (Charlson Comorbidity index and numerical count of long-term conditions (LTCs)).

Outcomes: Mortality (all-cause, cardiovascular- and cancer-related mortality), Major Adverse Cardiovascular Event (MACE), hospitalization with hypoglycaemia, fall or fracture.

Results: Frailty and multimorbidity are prevalent in in people with type 2 diabetes from age 40-72. Individuals identified differed depending on which measure was used: 42% frail of multimorbid by at least one scale; 2.2% were identified by all four scales. Each measure was associated with increased risk of mortality (all-cause, cardiovascular, and cancer-related), MACE, hypoglycaemia and falls. The absolute risk of 5-year mortality was higher in older versus younger participants with a given level of frailty (e.g. 1.9%, 4.4%, and 9.9% in men aged, 45, 55, and 65, respectively, using frailty phenotype) or multimorbidity (e.g. 1.3%, 3.7%, and 7.8% in med with 4 long-term conditions aged 45, 55, and 65, respectively). No measure was associated with baseline HbA1c. For the frailty index, Charlson Comorbidity index, and LTC count, the relationship between HbA1c and mortality was consistent across all levels of frailty/multimorbidity. For the frailty phenotype, the relationship between HbA1c and mortality was steeper and more linear in frail compared with pre-frail or robust participants.

Conclusion: Assessment of frailty/multimorbidity should be embedded within routine management of middle-aged and older people with type 2 diabetes. Method of identification as well as features such as age impact baseline risk and should influence clinical decisions (eg. glycaemic control)