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Physical Frailty and Cognitive Impairment Associated with Diabetes: Disability Prevalence and Mortality Risk

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Diabetes ranks 11th in the world's leading cause of disease burden in 2015. Physical frailty and cognitive impairment are common in diabetes, but their impacts on disability and mortality are not well studied. Community-living participants (N=2702) aged ≥55y were assessed at baseline on the prevalence of diagnosed diabetes, physical frailty (defined by the CHS criteria) and cognitive impairment (MMSE≤23), functional disability (IADL and ADL dependency) and followed up (mean 10.2 years) for mortality outcome. Diabetes was significantly associated with higher prevalence of frailty (OR=2.90, 95% CI=1.58-5.32) and frailty with cognitive impairment (OR=2.77, 95% CI=1.64-4.67). Among 487 participants with diabetes, compared to non-frailty without cognitive impairment, cognitive impairment alone was not significantly associated with IADL (OR=1.0, 95%CI=0.4-2.3) or ADL disability (OR=0.6, 95%CI=0.1-3.1), but physical frailty alone was associated with considerably higher prevalence of IADL (OR=15.0, 95% CI=1.7-128.3) and ADL disability (OR=3.9, 95% CI=0.7-21.4). Physical frailty with cognitive impairment was associated with considerably higher prevalence of IADL (OR=18.1, 95%CI=12.2-151.2) and ADL disability (OR=93.6, 95%CI=17.9-489.9). Physical frailty and cognitive impairment alone and in combination was associated with worse mortality outcomes: cognitive impairment alone (HR=2.2, 95%CI=1.1-4.7), frailty alone (HR=3.7, 95% CI=1.5-9.5) and frailty with cognitive impairment (HR=15.5, 95%CI=5.6-32.4).
Frailty and cognitive impairment in diabetes adversely impact functional and mortality outcomes; the worst outcome was associated with the combined presence of frailty and cognitive impairment. In management of older people with diabetes, there is a need go beyond a glucocentric to an individualized approach that emphasizes functional performance with quality of life and well-being.