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Randomised controlled trial

Weight loss and improved fitness slow down the decline in mobility in obese adults with type 2 diabetes

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Context

The increasing prevalence of type 2 diabetes (T2D) and its complications challenge our healthcare delivery systems. Indeed, the healthcare industry is vulnerable to the rising costs and faces challenges with respect to increased life expectancy and prevalence of chronic diseases. Adults with T2D often have limitations in mobility and experience increased risk of physical disability.[1] Furthermore, the number of obese older adults with T2D has substantially increased in the last 20 years.[2] Obesity among older adults is problematic because it not only increases the risk of medical complications but also causes physical dysfunction.[3] Functional limitations associated with obesity and T2D exacerbate the age-related decline in physical function, and begin a slippery slope of negative consequences such as frailty, impaired quality of life (QOL) and increased institutionalisation.[4] To date, limited data exist regarding the efficacy of lifestyle intervention in preventing functional decline in this population.

Methods

The objective of this randomised trial was to determine whether a lifestyle intervention resulting in weight loss and better fitness would be associated with slower loss of mobility in overweight and obese patients with T2D. Additionally, the investigators determined whether differences in the loss of mobility were mediated by weight loss or improved fitness. From 2001 to 2004, obese patients aged 45–74 years with T2D were randomly assigned to an intensive lifestyle-intervention programme or a diabetes support-and-education programme. The lifestyle programme consisted of diet/behaviour modification and increased physical activity. The primary outcome was self-reported limitation in mobility, with annual assessments for 4 years and 5016 participants contributed to the data.

Findings

The lifestyle-intervention group had a 48% reduction in the relative risk for loss of mobility. After 4 years, 38.5% of patients in the lifestyle-intervention group exhibited good mobility compared with 31.9% in the support-and-education group. The lifestyle intervention resulted in a relative reduction of 5.4% in weight and 11.9% improvement in fitness. Both weight loss and improved fitness were important mediators on slowing the loss of mobility ($p<0.001$) but the magnitude of the effect of weight loss was larger (for every relative reduction of 1% in weight and relative improvement of 1% in fitness, the risk of mobility loss was reduced by 7.3% and 1.4%, respectively).

Commentary

The finding of this study underscores functional decline with ageing among obese patients with T2D. A limitation is that the primary outcome is subjective rather than performance-based measure for mobility. Similarly, the measure of fitness was estimated from performance on an exercise treadmill test rather than directly measured aerobic capacity. Data on body composition would also be valuable in further explaining the results. The study population was composed of patients with T2D; caution is needed in extending these results to people without diabetes. Nonetheless, the study has several strengths such as a large sample size, long duration of follow-up and good adherence with the intervention. Above all, the study fills an important gap in the literature in evaluating the efficacy of lifestyle intervention to prevent functional decline in obese patients with T2D. Furthermore, the finding of this study is consistent with previous studies.[5 6]

This study endorses lifestyle modification as a primary approach for treating obese adults with T2D. The recommendation is particularly true for older adults because the risk of mobility-related problems increases with age and the level of obesity and physical inactivity. Lifestyle modification should include strategies that help individuals overcome barriers to comply with dietary changes and increased physical activity. Individuals at different stages of life may have different goals for treatment. Preventing and treating the medical complications of obesity by weight management may be the most important goal for younger adults. On the other hand, improving physical function and QOL may be the most important goal for older adults. Lifestyle modification which includes a combination of weight loss and increased physical activity is a safe and effective approach that should be recommended to prevent functional decline in obese adults with T2D.

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