

Handgrip strength as a measure of sarcopenia in Type 2 Diabetes mellitus

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Context and aim

Diabetes mellitus is a growing cause of morbidity and mortality in India and worldwide. It can be attributed as one of the cause as well as consequence of sarcopenia. There is paucity of data on sarcopenia and its correlation with metabolic control in diabetic patients. Therefore this study was undertaken to measure the Hand Grip Strength (HGS) in type 2 diabetic patients as a measure of sarcopenia and compare with age-sex matched non-diabetic subjects and to study its correlation with the glycaemic control (HbA1c level).

Settings and Design

This was a comparative cross-sectional pilot study carried out in the Medical Out Patient Department (OPD) and Diabetes Clinic of Lok Nayak Jai Prakash Hospital, New Delhi. The study included fifty diabetic patients of more than 50 years of both sexes with type 2 Diabetes for at least five years (Cases) and fifty age- sex matched healthy non-diabetic controls.

Methods and materials

After taking an informed consent, the HGS (Hand Grip Strength) of all subjects was measured using Jamar's Handheld

Dynamometer. Biochemical investigations including glycated hemoglobin levels (HbA1c) were done using auto analyzer. The statistical analysis was done using Paired Sample t-test and Pearson Correlation coefficient test.

Results

The mean HGS of female cases was 13.1 kg less than that of controls, and male HGS 22.29 kg less than controls. The cases i.e. diabetic patients had a statistically significantly lowered HGS than the controls. The p-value .001 (<0.05) was considered statistically significant. There was no significant correlation between HGS of patients and their glycaemic control.

Conclusions

This is the first Indian study to measure the loss of muscle strength in old diabetic patients. We conclude that hand grip strength is lower in diabetic patients as compared to controls. Proving its association with type 2 diabetes demonstrates that measures such as increased physical activity should be advised to diabetic patients to improve their muscle strength. Improved muscle strength in these subjects might reduce the morbidity and mortality. A study with larger patient base is needed to reiterate the findings.