Ramchurn N, Mashamba C, et al. Upper limb musculoskeletal abnormalities and poor metabolic control in diabetes. Eur J Intern Med 2009;20(7):718-721.

Reviewed, no change to conclusions May 2017

Design: Cross-sectional study

Population/sample size/setting:

- 96 diabetics (63% male, mean age 55) and 100 non-diabetics (63% male, mean age 60)
- The diabetics were evenly divided between type 1 and type 2 DM, and were consecutively recruited from patients attending annual review clinics at a diabetes center in Gateshead, UK
- The controls were matched for gender and age, and were recruited from medical outpatients with chronic conditions excluding DM and not attending rheumatology clinics

Main outcome measures:

- GALS (Gait, Arms, Legs, Spine) screening examination was administered to all participants, followed by regional examination of the musculoskeletal system when GALS showed an abnormality
- GALS was positive more often in DM patients (75%) than in controls (53%)
- Similarly, regional examination showed hand problems in 63% of DM and 12% of controls, with shoulder problems in 25% of DM vs. 2% of controls
- The commonest disorders were flexor tendon thickening and limited joint mobility
- Carpal tunnel syndrome (CTS) was present in 20% of DM, with shoulder capsulitis in 20% and Dupuytren's in 13% of DM patients
- Comparison of type 1 and type 2 diabetics showed that mean HbA1c was equal (8.6) in both groups; the mean age of type 1 was 48 and the mean age of type 2 was 60
- Shoulder capsulitis was more common in type 2 (39%) than in type 1 (11%), and CTS was also more common in type 2 than type 1 (25% vs. 15%)
- Flexor tenosynovitis was more common in type 2 (38%) than type 1 (20%)
- The presence of upper extremity problems was correlated with HbA1c; in patients with no upper limb findings, the mean HbA1c was 8.0; when both hand and shoulder findings were present, HbA1c was 9.1, and when only hand findings were present, HbA1c was 8.6
- The presence of upper extremity findings was also correlated with other complications of DM (either neuropathy or retinopathy); in patients with no upper limb findings, these complications were present in 33%; in patients with both hand and shoulder findings, these complications were present in75%

Authors' conclusions:

- Upper limb disorders are common in DM

- They are associated with poor glucose control, manifested by increased HbA1c and either retinopathy or neuropathy
- They may provide an early indication of other, less obvious complications of DM
- The increased disability of type 2 compared to type 1 may reflect the hospital setting of the study; it is not certain that the same prevalence is present in type 2 DM in the general population

Comments:

- The recruitment of controls is sparsely described, but presumably they came from medical clinics that are part of the Gateshead facility
- It is not clear whether the Gateshead facility is a specialty referral center (where more complicated patients are referred from a large catchment area) or whether it serves a general medical population; the fact that the mean HbA1c was 8.6 suggests that the diabetics in the study sample did not have optimum control of their DM (HbA1c of 7.0 or less would be optimal)
- The recruitment of DM patients was said to be consecutive; it is not clear whether is was a convenient coincidence that type 1 and type 2 DM occurred with exactly the same frequency in the selected patients, or whether some other recruitment took place, with exact balance of type 1 and type 2 as a goal for the study
- Logistic regression was supposedly done, but the adjusted odds ratios (e.g., for age in the type 1 vs. type 2 comparisons) were not reported, nor were the covariates for the regression reported
- In spite of the lack of clarity on some issues, the study does seem to show that CTS and other upper limb problems may alert the clinician to problems with glucose control in patients with DM

Assessment: Adequate for an evidence statement that upper limb disorders may be a sign of poor DM control, and that HbA1c should be measured in diabetic workers who present with these diagnoses