Understanding the epidemiology of fractures in diabetes

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Due to the ageing of populations as well as increasing obesity and adverse lifestyle factors, type 2 diabetes (T2D) is reaching epidemic proportions in many parts of the world. People with diabetes have been shown to be at higher risk of fracture, with the relative risk of hip fracture up to seven-fold higher in patients with type 1 diabetes and approximately 1.3-fold higher in patients with type 2 diabetes. Nevertheless, most patients with diabetes are never assessed for osteoporosis and, as shown by recent data, they are less likely to be prescribed treatment for osteoporosis than persons without diabetes.

This is because determining the individual fracture risk of a patient with diabetes is challenging for the physician as current fracture predictors - namely, bone mineral density (BMD) and fracture risk assessment tools, underestimate fracture risk in these patients.

A new review in the journal *Calcified Tissue International & Musculoskeletal Research* looks at the complexity of fracture epidemiology in diabetes, and makes recommendations for the clinician and for future research. It addresses a major difficulty: the tight connection between the disease itself and diabetes-related complications, comorbidities and shared risk factors.

'Epidemiology of Fractures in Diabetes' examines current data on the various risk factors which influence fracture risk in diabetes, such as age, gender, previous fracture, glucocorticoid-use, smoking and alcohol use, as well as the potential role of falls, pancreatitis and autoimmune

diseases.

The authors identify areas in which further research is needed, particularly emphasizing the need for epidemiological studies to disentangle the effects of shared risk factors for diabetes and fracture, such as pancreatitis and oral glucocorticoid-use. Furthermore, more research is needed on the effect of falls and hypoglycaemia on the risk of fractures in patients with diabetes.

The review urges that physicians be cognizant of the fact that current risk factor calculators may not adequately predict fractures in people with diabetes, and that extra vigilance is therefore required. Imaging of the spine by vertebral fracture assessment or spine X-ray may help identify vertebral fractures and predict new fractures. Fall prevention strategies may also be recommended and in patients with diabetes this may be achieved by detecting and preventing hypoglycemic events and orthostatic hypotension due to antihypertensive treatment and of course by optimum long-term management to reduce the risk of neuropathy and retinopathy.

Professor Bo Abrahamsen, Dept. of Medicine, Holbaek Hospital, Holbaek, Denmark, stated: "Given that the global burden of both diabetes (currently 400 million people) and osteoporosis (currently 250 million) is expected to increase dramatically in the coming years, it is important that effective screening and prevention strategies are developed to reduce the risk of potentially devastating fractures in people with diabetes."

More information: Jakob Starup-Linde et al, Epidemiology of Fractures in Diabetes, *Calcified Tissue International* (2016). DOI: 10.1007/s00223-016-0175-x

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