Charcot arthropathy – a mechanical complication of obesity and diabetes

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The most widely appreciated impact of obesity on diabetes is to amplify the risk of developing the disease in the first place. However, given obesity, the course of diabetes will also be more stormy one. There is good evidence that people with diabetes who are more obese are more likely to develop coronary artery disease (Cho et al, 2002). This is likely to be partly because obesity is associated with worse glycaemic control and exacerbates all aspects of the metabolic syndrome (Daousi et al, 2006).

Stuck and colleagues (summarised alongside) now make an interesting contribution to this literature by demonstrating that obesity is also a major independent risk factor for the development of Charcot arthropathy. The strength of the observed association is powerful, making the coincidence of peripheral neuropathy and obesity an important predictor. While one can only speculate upon the precise explanation for this observation, the finding is entirely plausible, as obesity would obviously amplify abnormal mechanical forces on a weight-bearing joint, and increase the likelihood of progressive painless joint destruction.

Obesity is a strong risk factor for osteoarthritis of weight-bearing joints, and in the presence of a peripheral neuropathy Charcot arthropathy may be another mechanical complication of obesity.

Charcot arthropathy is often a devastating complication of diabetes, and this paper gives a remarkably simple insight into its pathogenesis, at least for some individuals. Weight loss would be an important treatment objective in these circumstances.


References:


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Obesity increases risk of Charcot arthropathy

1. Charcot arthropathy is a severe, degenerative joint disease in the foot that can infrequently occur in people with long-standing diabetes.

2. The study aim was to determine whether obesity increases the incidence of Charcot arthropathy in people with diabetes with and without peripheral neuropathy.

3. The study sample comprised 652 people with diabetes who were newly diagnosed with Charcot arthropathy. BMI data were used to determine obesity (BMI ≥30 kg/m²).

4. Logistic regression evaluated the likelihood of a person developing Charcot arthropathy as a function of obesity, peripheral neuropathy and their interactions, while controlling for diabetes control, patient characteristics and other comorbidities.

5. Compared with people without obesity or peripheral neuropathy, people with obesity alone were approximately 59% more likely to develop Charcot arthropathy, people with peripheral neuropathy alone were 14 times more likely to develop Charcot arthropathy (P<0.001), and people with both obesity and peripheral neuropathy were 21 times more likely to develop Charcot arthropathy (P<0.001).

6. Obesity is an independent and significant risk factor for Charcot arthropathy. People with obesity, diabetes and peripheral neuropathy are at particularly high risk of developing Charcot arthropathy, and should be targeted for preventative treatment.