



Editorial comment

Cardiovascular risk reduction as a population strategy for preventing pain?



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In this issue of the *Scandinavian Journal of Pain*, Pico-Espinosa and co-workers [1] report on the role of diabetes mellitus (DM) and hyperlipidaemia (HL) as risk factors for frequent pain in the back, neck and/or shoulders/arms (BNSP). Their study was based on a large population-based cohort with a four-year follow-up. They concluded that DM and HL may play a role in the aetiology of frequent BNSP, but this role may be different in men and women.

1. Common risk factors for musculoskeletal pain and type 2 diabetes mellitus?

According to previous epidemiological studies, cardiovascular risk factors including type 2 DM and chronic pain are common and comorbid conditions that possibly share some aetiological factors [2]. Despite the general positive trend of cardiovascular risk factors in the prevalence of type 2 DM and obesity in recent years. More than 8.5% of adults worldwide have been estimated to have diabetes [3]. Painful diabetic neuropathy is a well-known consequence of long-lasting diabetes in some patients. Some studies have suggested that hyperglycaemia and diabetes are related to non-neuropathic musculoskeletal pain, as well [4,5]. For example, a study from Denmark found that patients with diabetes more commonly reported pain in the shoulder and neck or low back, or pain in the arm, hand, knee and/or hip compared with the general population [5]. One large population-based study from Norway found an increased prevalence of widespread musculoskeletal pain in people with diabetes but did not find an association between blood glucose levels and musculoskeletal pain [6].

2. The obesity-epidemic followed by type 2 DM and chronic musculoskeletal pain

One of the most important reasons for the increased prevalence of type 2 DM is the obesity epidemic. In addition to DM, obesity is linked to unaffordable lipid profiles (higher LDL cholesterol

and triglycerides). About half of the adults in Europe are overweight and the average prevalence of obesity is more than 10% in adults [7]. In general, obesity has been thought to be associated with musculoskeletal pain. For example, in one large population-based follow-up study obesity was related to persistence of chronic widespread pain [8]. The evidence of a systematic review indicates that obesity is a risk factor of low back pain [9]. Also, based on a meta-analysis, it is suggested that there is a dose-response relation between weight and osteoarthritis of the knee [10]. Obesity has been linked to shoulder pain in a large cross-sectional population-based study [11]. According to a clinical study, obesity and a low level of DHL cholesterol and a high level of triglycerides have been found to be associated with upper extremity pain [12].

3. Hyperlipidaemia: a risk-factor for chronic pain?

The present study by Pico-Espinosa and co-workers [1] with 10,000 middle-aged and older adults found that hyperlipidaemia in men and women and diabetes mellitus in men increased the risk of frequent BNSP. The study was questionnaire-based. A clinical examination was not conducted. Furthermore, DM and HL were not confirmed with laboratory tests. As the authors discuss, they were not able to conduct the analysis stratified or adjusted with statin use. However, the sample size was large, the follow-up was conducted carefully and the researchers could take several confounding factors (e.g. body mass index) into account in their analysis. The main results of the present study are in line with the results from some previous studies. The difference between men and women in the present study is interesting. However, this may be due to the low number of cases, resulting in limited statistical power. To assess the possible biological background of the potential gender difference requires further studies to confirm this finding. As stated in the present study, DM and HL may result in a small proportion of new cases of BNSP. However, it is plausible that increasing numbers of DM and HL are increasing the incidence of BNSP.

4. Reducing risk of cardiovascular risk factors will also reduce risk of musculoskeletal pain

Based on existing scientific evidence, it can be assumed that frequent musculoskeletal pain is associated with metabolic

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disturbances such as type 2 DM, obesity or metabolic syndrome. These cardiovascular risk factors seem to result in increased risk for musculoskeletal pain. However, there is still a gap in knowledge in understanding the causal relationship between these conditions or their possible common biological background. Despite the limitations, the present large population-based follow-up study by Pico-Espinosa and co-workers together with previous existing scientific evidence supports the view that the population strategy for preventing frequent musculoskeletal pain should include controlling cardiovascular risk factors such as type 2 DM and hyperlipidaemia.

Conflict of interest

None declared.

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