

Milk consumption and osteoarthritis: a doubtful connection

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Received on May 19, 2004; accepted on May 31, 2004.

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In this issue of *Clinical and Experimental Rheumatology* an interesting report from Antalya, Turkey is published regarding the association of daily milk consumption with decreased occurrence of symptomatic knee osteoarthritis (1). Kaçar and colleagues interviewed 655 subjects with pain of the knee joint and asked amongst other things the frequency of consumed dietary elements. There are scarce data on the possible role of nutrition, though low intake of anti-oxidant vitamins (A, C, E) and vitamin D may be associated with increased risk of progression of established knee osteoarthritis (2), and reduced levels of vitamin D with increased risk of incident hip osteoarthritis (3). However, these associations are from much lower amplitude than the generally accepted susceptibility factors such as obesity, genetic factors, bone density or cigarette smoking (4). The interest in milk consumption was triggered by an earlier report of Colker *et al.* (5), who reported that daily consumption of a nutritional beverage containing milk-based micronutrients, vitamins (C, B12 and E) and minerals (iron, zinc) was beneficial in alleviating symptoms and dysfunction in subjects with osteoarthritis. They performed a study in 31 subjects with osteoarthritis of both knees, and randomised them into 2 groups, giving them 12 oz daily of the micronutrient-containing beverage, or a placebo for 6 weeks. The patients were instructed not to change their normal activities and diet. Body-weight, vital signs, blood chemistries and adverse events were monitored to assess safety; these safety indicators remained unchanged in the test and placebo groups. The principal outcome measurement for efficacy was the Western Ontario McMaster Universities Osteoarthritis Index (WOMAC), administered weekly. All these scores improved significantly over time in the micronutrient group, whereas only a few scores improved in the placebo group. The overall treatment effect based on the WOMAC composite score was significant, though the effect size was moderate at 0.55. This has been a remarkable report, not confirmed by other studies yet. Of course the milk-

derived micronutrients were the ingredients of interest, but the tested beverage provided other nutrients that might have contributed to the improved joint health, such as antioxidant activity from vitamin C and E, as has been suggested before (2). In any case these findings are interesting enough to warrant taking another look at a possible relationship between milk and symptomatic osteoarthritis.

Kaçar *et al.* performed an epidemiological study in the urban population of Antalya. Over 3000 persons were involved. A structured interview was performed in persons aged 50 or over. Patients were included when they experienced pain without swelling or warmth of the knee joint and answered positive on one or more of the following questions:

1. "Does the pain aggravate with motion and subside with rest?"
2. "During the initial movement after rest, do you have stiffness at the knee joint lasting less than 15 minutes?"

By means of these questions a total of 655 subjects were identified. These were further invited for physical examination and X-ray of the knee joint (in most of the patients) at the hospital. Thus 97 patients with symptomatic osteoarthritis and 559 "without" osteoarthritis were identified. The frequency of symptomatic knee osteoarthritis was significantly lower in subjects who were daily milk consumers than in subjects who did not drink milk. This could be in line with the observation of Colker *et al.* discussed above. However, before we can draw such a conclusion from this Turkish survey, we first have to consider other well-known risk factors for osteoarthritis. As expected, there were more women with osteoarthritis than men, but no data on the use of milk specific for women and men are given (do men drink more milk than women?). More importantly, in this study the authors did not measure weight, nor did they calculate the body mass index. No data on cigarette smoking, bone density and other factors are supplied either. Therefore it is very difficult to judge the value of the report. For instance, we must consider the hypothesis that socio-economic factors

may influence the behaviour of people in Antalya: people with higher education are physically more active, less frequently overweight, and have a different eating pattern, including the use of milk. Based on this hypothesis, there could be an association between higher milk consumption and less osteoarthritis, but the mediating factors would be lifestyle and/or obesity.

Therefore, though this report is interesting it does not prove any relationship between milk consumption and symptomatic knee OA and at the mo-

ment it is impossible to suggest that milk consumption may have beneficial effects on symptomatic knee OA. Perhaps this study should be interpreted as a validation of the general advice regarding food in osteoarthritis: adopt a low-fat, complex carbohydrate, reduced caloric and "healthy" diet (4).

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