Medical Xpress

High milk intake linked with higher fractures and mortality

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A high milk intake in women and men is not accompanied by a lower risk of fracture and instead may be associated with a higher rate of death, suggests observational research published in *The BMJ* this week.

This may be explained by the high levels of lactose and galactose (types of sugar) in milk, that have been shown to increase oxidative stress and chronic inflammation in animal studies, say the researchers.

However, they point out that their study can only show an association and cannot prove cause and effect. They say the results "should be interpreted cautiously" and further studies are needed before any firm conclusions or dietary recommendations can be made.

A diet rich in milk products is promoted to reduce the likelihood of osteoporotic fractures, but previous research looking at the importance of milk for the prevention of fractures and the influence on mortality rates show conflicting results.

So a research team in Sweden, led by Professor Karl Michaëlsson, set out to examine whether high milk intake may increase oxidative stress, which, in turn, affects the risk of mortality and fracture.

Two large groups of 61,433 women (aged 39-74 years in 1987-1990) and 45,339 men (aged 45-79 years in 1997) in Sweden completed food frequency questionnaires for 96 common foods including milk, yoghurt and cheese.

Lifestyle information, weight and height were collated and factors such as education level and marital status were also taken into account. National registers were used to track fracture and mortality rates.

Women were tracked for an average of 20 years, during which time 15,541 died and 17,252 had a fracture, of whom 4,259 had a hip fracture .

In women, no reduction in fracture risk with higher milk consumption was observed. Furthermore, women who drank more than three glasses of milk a day (average 680 ml) had a higher risk of death than women who drank less than one glass of milk a day (average 60 ml).

Men were tracked for an average of 11 years, during which time 10,112 died and 5,066 had a fracture, with 1,166 hip fracture cases. Men also had a higher risk of death with higher milk consumption, although this was less pronounced than in women.

Further analysis showed a positive association between milk intake and

biomarkers of oxidative stress and inflammation.

In contrast, a high intake of fermented milk products with a low lactose content (including yoghurt and cheese) was associated with reduced rates of mortality and fracture, particularly in women.

They conclude that a higher consumption of milk in women and men is not accompanied by a lower risk of fracture and instead may be associated with a higher rate of death. Consequently, there may be a link between the lactose and galactose content of milk and risk, although causality needs be tested.

"Our results may question the validity of recommendations to consume high amounts of milk to prevent fragility fractures," they write. "The results should, however, be interpreted cautiously given the observational design of our study. The findings merit independent replication before they can be used for dietary recommendations."

Michaëlsson and colleagues raise a fascinating possibility about the potential harms of milk, says Professor Mary Schooling at City University of New York in an accompanying editorial. However, she stresses that diet is difficult to assess precisely and she reinforces the message that these findings should be interpreted cautiously.

"As milk consumption may rise globally with economic development and increasing consumption of animal source foods, the role of milk and mortality needs to be established definitively now," she concludes.

More information: www.bmj.com/cgi/doi/10.1136/bmj.g6015
www.bmj.com/cgi/doi/10.1136/bmj.g6205