Background

- Milk contains a number of bioactive nutrients including saturated fat, protein and calcium as well as vitamins.
- The effects of increased intake of milk on all-cause mortality are uncertain.
- Previous studies, however, have suggested that increased milk intake may be protective for stroke, and may have reduced risk for ischemic heart disease event.

Objective

To examine the association of milk intake frequency with all-cause mortality in a large community-based cohort of Japanese men and women incorporating potential confounding variables.

Method

- Subjects and exclusion
  - N = 110,586 (46,396 men and 64,190 women) aged 40-79 in 1988-90
  - Missing information on the milk intake frequency excluded (N = 20,386)
  - Missing value of Body mass index (BMI), exercise, smoking status, drinking status, self-reported deeping duration, education years, were coded as “unknown” group. And were treated as an additional category in the model

- N = 90,200 (37,864 men and 52,336 women)

- Methods: statistical analysis

Cox proportional hazard model adjusted for 5-year age groups and potential confounding variables:

- Stratifying subjects by baseline age (younger: 40-59 years and older: 60-79 years)
- Cause-specific mortality (Cancer ICD10: C00-D48, Circulatory diseases ICD10: I00-99, others)
- All statistical analyses were performed using the epicalc: Epidemiological calculator, R package version 2.15.1

Results (continued)

- Median follow-up period = 18.8 year (IQR: 10.9-20.9 year);
- 33.4% men and 37.7% women drank milk almost everyday;
- Total number of death cases = 21,485 (12,161 men and 9,324 women)
- 34.4% were caused by cancer (36.6%, men; 29.9%, women);
- 29.9% were caused by circulatory diseases (27.8%, men; 33.7%, women)

Additional analyses:

- No significant results were found in younger participants (40-59 years);
- Multivariate-adjusted all-cause mortality HRs of each milk intake frequency categories were significantly lower than 1 in both men and women compared to those who never drank milk;
- Increased frequency of drinking milk was negatively associated with mortality caused by cardiovascular disease.

Discussion

- One previous report from JACC study indicated that higher intake of dairy calcium was associated with significant lower risk of stroke mortality
- Biochemical and/or physiological effects of milk itself (milk minerals, calcium, potassium, dairy phosphorus, etc.) and other healthy lifestyles (eating habit, etc.) associated with drinking milk behavior might explain the inverse association
- Subjects who did not drink milk might have had some health conditions that prevented them from drinking milk.

Conclusion

- Milk intake was associated with lower risk of all-cause mortality in both men and women. These observed associations were probably explained by lower cancer mortality in men and lower circulatory diseases mortality in women associated with milk intake.
- Drinking milk was inversely associated with mortality in a Japanese cohort with its baseline around 1990.