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Riboflavin intake associated with decreased risk of all-cause mortality among adults attending NHANES 2005-2016

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Riboflavin intake has been shown to be inversely associated with blood pressure.[(1)] However, the association between riboflavin intake and cardiovascular mortality is understudied.[(2–4)] No study has examined the interaction between riboflavin intake and folate intake in relation to mortality. We aimed to investigate the association between intakes of riboflavin and all-cause and cardiovascular disease mortality using population data to fill in the research gap. Eligible 10,480 adults aged ≥ 20 years who attended the 2005–2016 National Health and Nutrition Examination Survey (NHANES) were followed up till 2019 for their vital status. Nutrient intake including riboflavin was assessed by two-day 24 hours recall. Death date and cause were obtained from the US mortality registry. Multivariable Cox regression was used to determine the association. During a mean of 8.5 years of follow-up, there were 1214 deaths (373 CVD and 302 cancer). High intake of riboflavin was associated with a lower risk of all-cause mortality, and CVD mortality. In multivariable model adjusted for sociodemographic factors, lifestyle factors and chronic conditions, across the quartiles of riboflavin intake, the hazard ratios (HRs) [95% CI] for CVD mortality were: 1.00, 0.92 [0.63, 1.35], 0.79 [0.49, 1.26], 0.52 [0.30, 0.90] (p trend 0.027), respectively. The corresponding figures for all-cause mortality were: 1.00, 0.69 [0.55, 0.87], 0.74 [0.58, 0.94] and 0.62 [0.48, 0.80], respectively. The protective association between riboflavin intake and CVD mortality was further strengthened among those with a high intake of folate (quartiles 3 and 4) with HRs of 1.00, 0.49 [0.21, 1.12], 0.25 [0.10, 0.63] and 0.19 [0.08, 0.47] across quartiles of riboflavin intake (p for interaction 0.039). In conclusion, riboflavin intake was inversely associated with all-cause mortality, particularly CVD mortality. Riboflavin and folate synergistically decreased the risk of CVD mortality.

References

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