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Reply to the letter to the editor 'Erroneous conclusions about the association between light alcohol drinking and the risk of cancer: comments on Bagnardi et al.'s meta-analysis, by S.-K. Myung'

Professor Myung questioned [1] our conclusions on the positive association between light alcohol drinking and the risk of cancer of the oral cavity and pharynx and cancer of the esophagus [2]. His critics rely on an alleged discrepancy between the pooled estimate of cohort studies and the pooled estimate of case–control studies, advocating that evidence is more reliable from cohort studies than from case–control studies. However, with regard to esophageal cancer, the pooled estimate from the 9 cohort studies is even higher than the pooled estimate from the 18 case–control studies [1.34 (95% confidence interval, CI 0.96–1.87) versus 1.28 (95% CI 1.04–1.59)], and therefore, we do not see much of a problem. Moreover, the homogeneity test did not suggest heterogeneity between estimates ($P = 0.84$). Professor Myung stated that 'there was a substantial discrepancy in findings between case–control studies and cohort studies on the association' because the pooled estimate of case–control studies was statistically significant, while the pooled estimate of cohort studies was not. This is a major mistake, as heterogeneity should not be assessed on the basis of separate significant tests within the different strata, but through a single statistical test for homogeneity.

The same reasoning can be applied to the association between light alcohol drinking and cancer of the oral cavity and pharynx, where the test for homogeneity yielded a P value of 0.31. Professor Myung noted that the pooled estimate from the 3 included cohort studies was 1.01 (95% CI 0.70–1.45), while the pooled estimate from the 20 included case–control studies was 1.22 (95% CI 1.11–1.35). However, since almost 90% of the cancers of the oral cavity and pharynx included in our meta-analysis derived from case–control studies, inference based on cohort studies alone is inadequate.

In conclusion, we acknowledge the limits deriving from the inclusion of retrospective studies in a meta-analysis, as they are more prone to selection or recall bias if not properly conducted [3]. However, the vast majority of epidemiologic evidence linking diet to rare diseases is based on case–control studies, where more detailed information on exposure can be gathered, when compared with cohort studies [4]. Therefore, in contrast to the opinion of Professor Myung, in a meta-analysis of observational studies investigating on the association between alcohol and cancer, case–control studies provide reliable and valid information.

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