Re: Television Viewing and Time Spent Sedentary in Relation to Cancer Risk: A Meta-Analysis

We read with great interest the systematic review and meta-analysis by Schmid et al. on time spent sedentary and risk of cancer (1). Comparing the highest vs lowest levels of sedentary time, prolonged time spent in sedentary pursuits is associated with increased risks of colon, endometrial, and lung cancer, but not with other types of cancers, including breast cancer. This is a very important and timely investigation considering the high prevalence of sedentary behavior and the high and increasing burden of cancer worldwide (2). Breast cancer is the most frequently diagnosed cancer and the leading cause of cancer death among women worldwide (2). Although no association was found between sedentary behavior and risk of breast cancer, combining the results of risk of breast

Figure 1. The dose-response analysis between total sitting time (A), recreational sitting time (B), and occupational sitting time (C) with risk of breast cancer. The size of the gray boxes is positively proportional to the weight assigned to each study, which is inversely proportional to the standard error of the relative risks. Horizontal lines represent the 95% confidence intervals, and diamonds represent the random effect pooled relative risks. Invasive, women (A): the results for watching television or movies; invasive, women (B): the results for other sitting times include using a computer at home, sitting at meals, talking on the phone, reading, playing games, or sewing. CI = confidence interval; RR = relative risk.
cancer studies and comparing the highest vs lowest levels of sedentary time cannot fully use the information in the included original studies. More importantly, this approach might complicate the interpretation of the pooled results across study populations with different categories of sedentary time (the highest levels of occupational sitting time ranged from 1.04 hours/day to more than 6 hours/day, 3 or more hours/day to 9 or more hours/day for recreational sitting time) because the authors found that the risks of colon, endometrial, and lung cancer increased with increasing levels of sedentary time. Therefore, in this analysis, we first combined the relative risks (RRs) of breast cancer for comparable categories of sedentary time with risk of breast cancer with a restricted cubic spline model [the method has been described by Orsini et al. (3) and in our previous publications (4,5)].

For total sitting time, the combined RRs (95% confidence intervals [CIs]) of breast cancer were 1.09 (0.99 to 1.20), 1.14 (1.04 to 1.25), 1.12 (1.00 to 1.27), and 1.23 (1.06 to 1.44) for 3 to 4, 4 to 7, 7 to 9, and more than 9 hours/day (Figure 1A), respectively. For recreational sitting time, the combined RRs (95% CIs) of breast cancer were 1.14 (0.95 to 1.36), 1.04 (0.99 to 1.08), 1.11 (0.91 to 1.35), and 1.09 (0.96 to 1.23) for 2 or fewer, 2 to 4, 4 to 6, and more than 6 hours/day (Figure 1B), respectively. For occupational sitting time, the combined RRs (95% CIs) of breast cancer were 0.85 (0.59 to 1.22), 1.04 (0.83 to 1.31), and 1.05 (0.87 to 1.27) for 2 or fewer, 2 to 4, and more than 6 hours/day, respectively (Figure 1C). Results from the dose-response analysis with the restricted cubic spline model were consistent with the above-mentioned findings (data not shown).

This analysis suggested that prolonged total sitting time and recreational sitting time might also be associated with increased risk of breast cancer. In addition, in the two publications (6,7) excluded from the meta-analysis (1), increased risk of breast cancer was also found in the study assessing accelerometer-based measures of sedentary time with risk of breast cancer (RR = 1.81 [95% CI = 1.26 to 2.60] adjusting for moderate-to-vigorous physical activity and 1.48 [95% CI = 0.88 to 2.49] adjusting for light and moderate-to-vigorous physical activity) (6), and the other study assessing sedentary behavior with risk of breast cancer in a national survey (RR = 1.99 [95% CI = 1.25 to 3.19]) (7). Further studies are needed to confirm these findings.

References

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