Obesity and cancer: links with survival differ from those with incidence

The letter from Bifulco in the *Annals of Oncology* [1], prompted by the recently published data from the POSH study [2], gives a refreshing update on the link between obesity and cancer, and emphasises the need for continued research to understand the underpinning molecular mechanisms in a cancer-specific framework. However, for the readership unfamiliar with the field of ‘adiponcosis’, one might mistakenly think that the negative impacts of obesity on cancer risk are paralleled by adverse influences of obesity on treatment outcome.

There is a large volume of epidemiological data that excess weight [commonly approximated as body mass index (BMI)] is associated with increased incident risk for several common adult cancer types. Given the consistency, strengths, and specificities of associations; the sufficiently long latency times between BMI measurements and cancer occurrence (typically >8 years); and reversibility 10 years and more after bariatric surgery; many of these associations are probably causal. For 2012, the estimated attributable risk due to high BMI worldwide was 3.6% of all incident cancers, or almost half a million new cancers [3]—in other words, this is globally a substantial public health problem.

In contrast, the evidence that excess weight, either at the time of cancer diagnosis or in the survivorship period sometime after diagnosis, influences either overall or cancer-specific survival is far from clear. For breast cancer, the tumour type with the greatest volume of evidence, the World Cancer Research Fund (WCRF) recently undertook a comprehensive review of this question, including up to 49 studies totally 16 000 deaths (varied by analysis type) [4]. The report emphasized that, while there are many studies reporting an adverse impact of excess weight on survival, interpretation of the majority of studies is limited by biases and confounding. In relation to breast cancer mortality, the report concluded that ‘the evidence suggesting that greater body fatness before, or less than 12 months after a diagnosis of postmenopausal primary breast cancer increases risk is limited’. The POSH study [2], published since the WCRF report, which shows that excess peri-diagnosis BMI is associated with a poorer survival in young women with ER-positive breast cancer, does not materially alter the WCRF conclusions. My research team have arrived at similar conclusions for colorectal cancer [5]; and after secondary analyses of randomised trial data (where patients receive standardised allocated treatments and therefore reduces biases), arrived at similar interpretations for endometrial cancer [6], a malignancy where risk is strongly linked with obesity.

By extension, there are two clinical lessons here. First, there is an important epidemiological principle: that an established link between an exposure (here, body fatness) and increased incident cancer risk, does not necessarily translate into an inferior outcome following treatment of that cancer. Second, if a lifestyle factor is not causally linked with prognosis, it is unlikely that its modification during survivorship will impact significantly on oncological outcomes.

A. G. Renéhan*
Diabetes Obesity and Cancer Research Group, Institute of Cancer Sciences, University of Manchester, Manchester, UK
(*E-mail: andrew.reneh@ics.manchester.ac.uk)

disclosure
The author has declared no conflicts of interest.

references


doi: 10.1093/annonc/mdv016
Published online 20 January 2015