RE: Dietary interventions in cancer: a systematic review of all randomized controlled trials

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To the Editor:

We applaud Ghulam Rehman Mohyuddin and colleagues for undertaking this much-needed meta-analysis to demonstrate the breadth and depth of studies that have been performed using nutritional interventions in oncology patients. One of the most revealing elements of this study is that the majority of the 252 studies done between 1997 and 2023 have assessed primary endpoints that show feasibility, adherence to diet, weight/body composition, or translational endpoints, rather than primary endpoints related to dietary interventions and cancer outcomes.

This paper shows that very few clinical trials have been conducted that measure the impact of cancer outcomes using dietary changes. Only 20 trials had a primary endpoint designed to detect an improvement in cancer outcomes, and of those 20, only 8 met their primary endpoint. However, over half of the studies that met their endpoint lacked power calculations, and the remainder failed to meet their enrollment criteria. Of the 12 that did not meet their cancer endpoints, most had power calculations, but did not accrue the number of patients needed to detect a difference in the endpoint. Therefore, each of these studies showed significant flaws.

Unfortunately, this review did not account for behavioral factors or engagement levels of the interventions associated with the cancer endpoints studied. Inclusion of those factors would have shown the potential influence they had on intervention and effectiveness of outcomes. Nor did this review assess the risk of bias, which, along with the factors already discussed, clearly does not support the statement that there is “limited evidence to support dietary interventions as a therapeutic tool in cancer care”, but conversely demonstrates the necessity for more rigorous research in that area.

In fact, it is well established that obesity is associated with poor cancer outcomes, and that maintaining weight or losing weight is associated with decreases in cancer recurrence and improvement in overall survival, as shown in innumerable studies, in particular for breast and prostate cancer.
patients. This suggests that dietary intervention trials, if powered appropriately and if they accrue their goals, should lead to improved cancer outcomes, since they have already been proven successful for weight control in cancer patients.

Taking all factors into account, the true value of this study demonstrates the importance of utilizing its findings as evidence to shift focus from feasibility and weight loss towards investigating direct impacts on cancer outcomes. Often grant applications that are designed with the intent to evaluate the ability for dietary interventions to improve cancer outcomes as a primary endpoint are rejected, based upon the need for pilot studies to first demonstrate feasibility. This meta-analysis should serve as the evidence which demonstrates feasibility so that useful progress can be made in assessing what the impact of dietary change can have on improving cancer treatment.

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