

EDITORIAL



One step closer between dietary pattern and cancer prevention

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Diet has been recognized as an important contributing factor for cancer development for years. Many dietary pattern or style, such as Mediterranean diet [1], or food compositions, such as alcohol intake [2], has been recommended for cancer prevention (<https://www.wcrf.org/diet-and-cancer/cancer-prevention-recommendations/>). However, the exact mechanism of the beneficial effect of these food to cancer prevention were still unclear.

In this issue of the journal, in a population-based multicase-control study, Lozano-Lorca et al. used the energy-adjusted Dietary Inflammatory Index (E-DII) to quantify the dietary pro-inflammatory level of their study subjects [3]. They observed a more pro-inflammatory diet is associated with increased risk of prostate cancer and also cancer aggressiveness. In a previous report of the same population, Mediterranean Dietary pattern was already shown to associate with low risk of aggressive prostate cancer, when compared to Western and prudent diet [2]. So the current study had tried to fill the gap in the mechanism between Mediterranean diet and prostate cancer prevention by showing anti-inflammatory effect is probably the mechanism involved.

Unfortunately, currently there are still many missing pieces in the whole mechanistic path between diet and prostate cancer carcinogenesis. Despite the traditional belief that certain food constituents are related to cancer development [4], there was not much food composition found to have a clear role and mechanism for their beneficial effects. Nevertheless, there are increasing evidences suggesting that gut microbiome might be one of the important media in the dietary effect on various disease development, including cancer.

In many other diseases, it was already suggestion that dietary intake will alter the gut microbiome pattern and resulted in altered immune response, with subsequent changes in systemic inflammation level [5]. In an earlier small scale randomized study, the gut microbiome before and after dietary modification (weight-losing diet) were compared [6]. It was observed the change in red meat and poultry intake would result in changes in the gut microbiome composition after 7–8 weeks of dietary modification. This suggested dietary composition could affect gut microbiome pattern. In another small pilot study, Golombos et al. had shown differences in the gut microbiome between people with intermediate/high risk prostate cancer and people with benign prostate condition [7]. The higher level of *F. prausnitzii* in patients with benign prostate condition was related to the production of short-chain fatty acid, butyrate, which have anti-inflammatory properties in human. Therefore, these small studies suggested dietary effect on cancer might be carried out through the change in gut microbiome and its related biological effects. There are increasing reports about the relationship of different food composition on gut microbiome changes and its subsequent effect on human systems and hence prostate cancer development [8]. Hopefully, with more

evidences accumulate, the benefit of dietary modification in cancer prevention or even treatment could be strengthened and even could be tailor made for individual with abnormal gut flora.

Nevertheless, the evidence from current studies already provide good support for the use of Mediterranean diet in the prevention of prostate cancer should be promoted to the public in order to combat the rapid rising incidence of prostate cancer in the world.

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AUTHOR CONTRIBUTIONS

CFN contributed 100% to the article.

COMPETING INTERESTS

The author declares no competing interests.

ADDITIONAL INFORMATION

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