Contribution ID: **11** Type: **Lightning poster presentation**

The use of a new protocol for identify mechanistic pathways in the association between dietary patterns and breast cancer

Wednesday, 21 September 2022 12:36 (6 minutes)

Background and objective
Diet could be a risk factor for several cancers, even breast cancer. Dietary patterns reflect the overall diet as it considers the associations between food items and nutrients. However, there is a lack of studies assessing the mechanisms that play a role in the associations of dietary patterns and cancer. The main objective is to develop a protocol to identify, summarise and describe the existing evidence on (breast) cancer-related mechanisms associated with dietary patterns in human studies.
Methods
The stage 1 of the Bristol Methodology was applied to identify and select potential mechanisms in the associations between dietary patterns and breast cancer risk. PubMed was used for the initial search considering relevant MeSH (Medical subject headings) terms for studies evaluating associations between exposure, outcome, and IPs. The TEMMPO (Text Mining for Mechanism Prioritisation) tool was used to identify, out of that initial search, the relevant mechanisms that linked both exposure, dietary patterns, and outcome, breast cancer. Once mechanisms were identified, specific searches were conducted for human studies evaluating the associations between dietary and lifestyle patterns and the mechanisms. Only meta-analyses and systematic reviews were examined and summarized in a narrative review.
Results
The initial search using MeSH terms was conducted on the 26th of April of 2022 in PubMed. 9,217 papers included the three components: dietary patterns AND mechanisms AND breast cancer. This search was uploaded into the TEMMPO web tool. After grouping mechanisms pertaining to the same pathway, the following 4 mechanisms were selected for from the identified intermediate phenotypes: sex hormones, inflammation, insulin resistance and antioxidants/oxidative stress. Subsequently, a specific search in Pubmed were conducted to identify systematic reviews and meta-analyses evaluating associations between dietary patterns and each of these mechanisms.
Conclusion
The use of TEMMPO tool could help to summarize and highlight relevant mechanisms. In the same vein, the use of this new developed protocol, based on Bristol Methodology, could be useful to identify, in a semi-systematic way, relevant mechanistic pathways between exposures and outcomes.

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Session Classification: Lightning poster presentation