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Green tea consumption and risk of cancer: a systematic review and meta-analysis of observational studies

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INTRODUCTION

Tea is one of the most highly consumed drink in the world after water. Between 2007 and 2016, world tea production grew by an average annual rate of 4.4%. Global tea consumption was 5.53 million tonnes in 2016 with an annual growth rate of 4.5 percent between 2007 and 2016 [1]. Brewed tea is obtained from the infusion of leaves and buds of *Camellia sinensis*. The most commonly consumed type of tea varies cross-culturally, but green and black tea are the main ones. It has been described that *Camellia sinensis* contains polyphenols, particularly green tea that contain a high amount of catechins, powerful antioxidants. Laboratory studies have suggested that these compounds may inhibit cancer cell proliferation and [2] and some experimental and nonexperimental epidemiologic studies have suggested that green tea may have cancer-preventative effects [3][4]. We aimed to assess associations between green tea consumption and the risk of cancer incidence and mortality.

MATERIALS AND METHODS

We searched eligible studies up to January 2019 online databases as well as from reference lists of previous reviews and included studies. We included all observational epidemiological studies (both cohort and case-control studies), that investigated the association of green tea consumption with cancer risk. Two or more authors independently applied the study criteria, extracted data and assessed methodological quality of studies. We also performed a meta-analysis using a random effects model comparing the highest category of green tea intake with the lowest, and using the most adjusted multivariable model. We summarized the results according to cancer type diagnosis

RESULTS

In this review update, we included 131 studies, including 46 cohort and 85 case-control studies with over 1,100,000 participants., we found a lower overall cancer incidence. Regarding overall cancer mortality we found no difference in risk For most of the site-specific cancers we observed a decreased sRR. However, after stratifying the analysis according to study design, we found strongly conflicting results for some cancer sites: esophageal, prostate and urinary tract cancer showed an increased sRR in cohort studies and a decreased/null sRR in case-control studies.

CONCLUSIONS

Overall, findings from observational epidemiological studies yielded inconsistent and even contrasting results for the effect of green tea consumption on cancer risk. In addition, since observational studies generally suffered from the inherent limitation of this study design, potential unmeasured confounding and exposure misclassification, well conducted and adequately powered experimental studies are clearly needed to elucidate the possible beneficial effects of green tea consumption on cancer risk in humans.

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Risk of early onset dementia (EOD) in relation to fruit and vegetable consumption: a case-control study

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INTRODUCTION

Early onset dementia (EOD) is a condition characterized by the onset of severe cognitive impairment before 65 year [1]. There is a general agreement that clinical presentation and consequences on daily life are different than late-onset dementia, due to the occurrence when subjects are still involved within occupational activities as well as familiar responsibilities [2]. Previous studies have raised the possibility that the risk factors may also differ between the two forms, including the role of environmental and life-style determinants such as diet [3]. There is some epidemiologic evidence of an association between dietary habits and protective relations to cognitive decline and incident dementia [4][5]. The aim of this study is to evaluate, for the first time to our knowledge, the association between diet and EOD risk.

MATERIALS AND METHODS

Using a case-control design, we recruited newly-diagnosed EOD cases from 2016 to 2019 in Modena province, Northern Italy. We recruited controls from care-givers of dementia patients referring the Neurology Units of Modena-Baggiovara and Carpi Hospitals. We investigated dietary habits through a self-administered semi-quantitative food frequency questionnaire, designed and validated to capture eating behaviors in Italy, and specifically developed as part of the European Prospective Investigation into Cancer and Nutrition (EPIC) study for the Northern Italy population [6]. Participants were asked to respond to 248 questions about 188 different food items, in order to assess frequency and quantity of daily consumption for each food item. We specifically focused on consumption of fruits and vegetables that were categorized into major and sub-group categories as previously reported [7]. We computed the odds ratios (ORs) of EOD risk, and the corresponding 95% confidence intervals (CIs), according to increasing tertile of intake using an unconditional logistic regression model and we also modeled the relation using restricted cubic splines with three knots (10, 50 and 90%). We implemented a model adjusted for sex, age (years), educational attainment (years), and total energy intake (kcal/day).

RESULTS

We recruited 56 (men/women: 22/34) and 53 (men/women: 24/29) controls who agreed to participate and returned study material. Regarding food intake, cases showed a lower intake than controls of vegetables (119 g/day versus 148 g/day), pulses (19 g/day versus 22 g/day), potatoes (15 g/day versus 23 g/day), and dry fruits (2.6 g/day versus 4.0 g/day). Conversely cases showed a higher intake than controls of fresh fruits (256 g/day versus 240 g/day). In the analysis of EOD risk according to increasing tertile we found an inverse association with all vegetables overall considered and also for individual subgroup, particularly leafy vegetables and other vegetables (e.g. eggplant, zucchini or sweet pepper). Also, an inverse association was found for potatoes and slightly for legumes. Conversely, the higher tertile of intake of fresh fruits was associated with no difference in EOD risk, but in the stratified analysis for non-citrus and citrus fruits we found inverse association for the latter. Interestingly, for non-citrus fruits we found inverse association in the second tertile of consumption, and an opposite positive association in the third tertile. Finally, with increasing tertile of dry fruits intake, we found a strong inverse association with EOD risk. Similarly in the spline analysis, the increasing consumption of vegetables, particularly leafy vegetables showed a strong inverse association, as similarly also increased pulse intake. Regarding fruit consumption, fresh fruit overall considered showed ambivalent relation, while higher consumption of citrus fruits only, as well as dry fruits, showed a negative association with EOD risk.

CONCLUSIONS

In this study, we found an association of consumption of vegetables and to some extent fruit with EOD risk in an Italian population. Despite the study limitations, such as the possible occurrence of selection bias, our findings suggest that dietary habits may influence EOD etiology and onset.

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Associazione tra il pattern orario di attività fisica, comportamento sedentario e depressione prevalente ed incidente. The Maastricht Study

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INTRODUZIONE

Studi precedenti hanno dimostrato l'esistenza di una associazione bidirezionale tra attività fisica, comportamento sedentario e depressione [1]. Tuttavia, ancora poco è noto circa la distribuzione oraria dell' attività fisica, del comportamento sedentario e la depressione. Il presente studio analizza l'associazione tra il pattern orario di attività fisica e del comportamento sedentario durante i giorni infrasettimanali e nel fine settimana e la depressione prevalente ed incidente nel corso di 4 anni di follow-up.

MATERIALI E METODI

Sono stati utilizzati i dati di 2.124 partecipanti al The Maastricht study, studio di coorte di popolazione. I sintomi depressive sono stati misurati mediante il Patient Health Questionnaire-9 (PHQ-9) al baseline e annualmente durante i 4 anni di follow-up. Sintomi depressivi clinicamente rilevanti sono stati definiti con un PHQ-9 score ≥ 10 [2]. l'attività fisica e il comportamento sedentario sono stati misurati oggettivamente con l'accelerometro activPAL3 activity monitor [3]. L'associazione tra il pattern orario di attività fisica, comportamento sedentario e depressione è stata valutata mediante modelli di regressione multivariate aggiustati per età, sesso, livello educativo, diabete, Body Mass Index (BMI), alcool, fumo, introito energetico, limitazioni alla mobilità.