

Abstract

Pre-diagnosis lifestyle exposures and the survival of gastric cancer patients

Gastric cancer is the fourth most common malignancy in the world and although its frequency has been declining for decades it remains the second leading cause of cancer mortality and ranks second among the cancers accounting for the highest number of disability-adjusted life years (DALYs). In Europe, the average 5-year relative survival rate of patients diagnosed between 2000 and 2002 was estimated at 24.9%, varying widely across countries.

The geographical and temporal differences in gastric cancer survival may be explained by a heterogeneous distribution of the access to early diagnosis, and treatment across populations as well as differences in the socioeconomic status of the patients. The latter may also be associated with environmental exposures with potential impact both in the risk of gastric cancer and the patients' prognosis.

The understanding of the relation between pre-diagnosis lifestyles and survival may contribute to a more accurate characterization of the burden associated with these exposures.

The aim of the present dissertation was to study the relationship between pre-diagnosis behaviours and the survival of gastric cancer patients. It includes two studies, with the following specific objectives:

- To review systematically the published studies assessing the association between pre-diagnosis lifestyle exposures and the survival of gastric cancer patients (Manuscript I).
- To quantify the association between pre-diagnosis lifestyle exposures and survival of gastric cancer patients in a Portuguese setting (Manuscript II).

Manuscript I – Pre-diagnosis lifestyle exposures and survival of gastric cancer patients: systematic review and meta-analysis

Published studies quantifying the association between pre-diagnosis smoking and alcohol intake and the survival of gastric cancer patients were identified through systematic review and meta-analysis in Pubmed® and EMBASE® up to April 2011. Summary Hazard ratio (HR) estimates and respective 95% confidence intervals (95%CI) were computed through by random-effects meta-analysis (DerSimonian and Laird) with current vs. never for smoking and drinkers vs. non-drinkers for alcohol consumption. Heterogeneity was quantified using the I^2 statistic.

Seven articles, providing data from 6856 cases evaluated in seven countries (Canada, Japan, Italy, USA, Korea, Iran and Sweden), were eligible for meta-analysis.

The summary HR was 1.08 (95%CI: 0.90-1.30) for smoking (current vs. never smokers; 9 estimates from 7 studies; $I^2=56.2\%$) and 1.13 (95%CI: 1.00-1.28) for alcohol consumption (drinkers vs. non-drinkers; 6 estimates from 5 studies; $I^2=13.2\%$). Only two studies assessed the effect of other dietary factors.

Manuscript II – Pre-diagnosis lifestyle exposures and survival of gastric cancer patients: a cohort study from Portugal

Incident cases of gastric cancer admitted to the surgery wards in two hospitals, between June 2001 and December 2006. Patients were interviewed regarding demographic, social, behavioural, and medical characteristics. For the year preceding the diagnosis, smoking habits was assessed and a validated food frequency questionnaire (FFQ) was used to estimate usual food intake.

Survival curves were estimated by the Kaplan-Meier method and Cox proportional hazards regression models were used to estimate age-, sex-, education, extent of disease-adjusted hazard ratios (HRs) and 95% confidence intervals (95%CI). Maximum follow-up: 10 years.

Three dietary patterns were identified: (I) high consumption of fruits and dairy products, and low consumption of alcoholic beverages; (II) low consumption of fruit, salads, vegetables, dairy products, fish and meat; (III) high consumptions of most food groups and low vegetable soup intake.

Only dietary pattern III was correlated significantly with a better 5-year survival and just for an extent of disease as regional spread (HR, 0.45, 95%CI, 0.22-0.93). The results were not significant for other variables (alcohol, smoking, consumption of fruits and vegetables, ingestion of red and processed meat and ingestion of food with the highest contribution of sodium intake).

Conclusions

- According to a systematic review and meta-analysis from the literature, a lower survival of gastric cancer patients was related with alcohol consumption, for smoking there is no association and there is almost no information on the effects of dietary factors.

- The results from a cohort study conducted in Portugal confirm that pre-diagnosis lifestyles have a small impact in the survival of gastric cancer patients.