Relationship between coffee consumption with risk of gastric cancer in Japanese men and woman: The JACC study

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Background and purpose

Gastric cancer (GC) is one of the leading causes of cancer-related deaths worldwide including Japan. Although, the incidence and mortality rates for GC have declined since the middle of the 20th century. GC remains the sixth most common cause of death in Japan, four times more common in Japanese population than other western populations. Several studies have shown that GC is associated with Helicobacter pylori (H.pylori) infection, genetics and dietary and lifestyle factors. Coffee is one of the most popular beverages consumed worldwide and these beverage have potential to reduce the risk of several types of cancer. However, the relationship between Consumption of coffee and risk of GC has been extensively studied, the evidence regarding the associations is scars.

Objective

To examine the relationship between coffee consumption with risk of gastric cancer in Japanese population.

Methods

Between 1989–2009, We followed a total of 110,585 individuals (46,395 men and 64,190 women) aged 40-79 years in 45 study areas throughout Japan with no history of cancer or cardiovascular disease completed a lifestyle questionnaire that included information about food intake. Individuals in present study were limited to 24 study areas where the incidence of cancer was available. Of total 65,042 individuals in these 24 areas, we excluded 277 participants with a medical history of gastric cancer and 641 participants who missed answers for coffee consumption at the baseline survey. This left a total of 64,123 participants (26,018 men and 38,105 women) for the analyses. The subjects were enrolled in the Japan Collaborative Cohort (JACC) Study for Evaluation of Cancer Risk Sponsored by Monbusho. The follow-up ended at the end of 1994 in one area, 1997 in two areas, 1999 in one area, 2000 in one area, 2002 in one area, 2003 in one area, 2006 in two areas, 2008 in two areas and at the end of 2009 for the rest of the 24 areas. The Cox proportional hazard model was used to calculate the hazard ratios (HRs) and 95% confidence intervals (CIs).

Results

During the follow up period, a total of 1343 incident cases of gastric cancers were obtained. To control for the potential impact of subclinical symptoms of GC at the baseline survey, to clarify the effect of these potential confounders we adjusted for lifestyle risk factors known to be associated with coffee and total caffeine consumption, such as smoking status, drinking status, BMI, meat consumption, and age, it remains possible that these factors could perturb the incident risk of GC. Subjects with high coffee consumption were younger, more educated, and more likely to be smokers, and regularly have a Western style of breakfast. Similar trends were obtained for men and women. However, unlike in men, alcohol drinking in women increased with an increase in coffee consumption. Moreover, both male and female subjects with high total caffeine intake were younger, more educated in general, more likely to be smokers, and regularly have a western style of breakfast. Table 2 shows the HRs and 95% CIs for GC incidence by coffee and consumption GC risk. No association in the risk of GC with coffee consumption was observed among total both sexes (P for trend = 0.672). Total sexes whom consumed less than or equal to 1 cups of coffee per day showed an unadjusted HR of 0.97(0.87-1.09) and an HR of 0.82(0.69-0.98) after multivariable adjustment for potential confounding factors, and those whom consumed 3 cups or more of coffee per day showed an unadjusted HR of 1.09(0.84-1.4) and an HR of 0.94(0.6-1.48) after multivariable adjustment for potential confounding factors. In contrast, Coffee consumption were not associated with incident risk of GC.

	Coffee				Pfor	Caffeine intake （quartile）				P for
	<1cup/d	1cup/d	2cups/d	≥3cups/d	trend	≤120	121-202	203-321	≥322	trend
total										
Person-year	310179	407773	78717	51966		191420	183821	220392	198630	
N	24972	27822	6411	4043		14868	13541	15439	14626	
gastriccancer,n.	560	665	111	67		357	290	363	279	
Age-adjustedHR（95％ＣＩ）	1.00	0.97(0.87-1.09)	1.04(0.85-1.28)	1.09(0.84-1.4)	0.672	1.00	0.94(0.81-1.00)	0.96(0.83-1.11)	0.93(0.8-1.09)	0.442
MultivariableHR（95％ＣＩ）	1.00	0.82(0.69-0.98)	0.86(0.63-1.19)	0.94(0.6-1.48)	0.266	1.00	0.96(0.79-1.16)	0.89(0.74-1.07)	0.83(0.68-1.01)	0.047
men										
Person-year	120367	169774	35591	29285		73618	74199	92615	91495	
N	9369	11352	2753	2171		5559	5258	6315	6507	
gastriccancer,n.	345	420	74	55		209	181	235	188	
Age-adjustedHR（95％ＣＩ）	1.00	0.96(0.83-1.11)	0.97(0.75-1.25)	0.99(0.74-1.32)	0.781	1.00	0.96(0.79-1.18)	0.98(0.81-1.18)	0.91(0.74-1.00)	0.410
MultivariableHR（95％ＣＩ）	1.00	0.75(0.6-0.95)	0.78(0.52-1.17)	0.96(0.56-1.66)	0.249	1.00	0.91(0.71-1.17)	0.88(0.69-1.11)	0.8(0.62-1.03)	0.098
women										
Person-year	189812	237998	43126	22681		117802	109622	127777	107135	
N	15603	16470	3658	1872		9309	8283	9124	8119	
gastriccancer,n.	215	245	37	12		148	109	128	91	
Age-adjustedHR（95％ＣＩ）	1.00	0.95(0.79-1.15)	1.01(0.71-1.44)	0.73(0.4-1.3)	0.432	1.00	0.89(0.69-1.14)	0.87(0.68-1.00)	0.84(0.64-1.09)	0.149
MultivariableHR（95％ＣＩ）	1.00	0.94(0.71-1.25)	1.03(0.61-1.74)	0.84(0.37-1.95)	0.802	1.00	1.05(0.78-1.41)	0.91(0.68-1.22)	0.92(0.67-1.26)	0.402

*Age-adjusted for age
*Multivariable for age, education, drinking status, smoking status, history of diabetes, family history of gastric cancer, western style of break fast, caffeine, salt intake and total energy.

Conclusions

In this large community-based prospective cohort study, no association between coffee with incidence GC in both sexes.