Male gender and hypertension are independent variables associated with kidney cancer in Europe: results from the SHARE study

Joana Lourenço[1, 2, 3]; António Serrano[1], Alice Santos-Silva[4], Elísio Costa[4]

1-USF Pedras Rubras, Maia, Portugal; 2-Faculty of Nutrition and Food Sciences,University of Porto, Portugal; 3- CINTESIS-Center for Health Technology and Services Research (CINTESIS), Porto, Portugal; 4- UCIBIO, REQUIMTE and Faculty of Pharmacy, University of Porto, Porto, Portugal

Introduction

Kidney cancer is responsible for a small percentage of total cancer cases and deaths throughout the world. However its incidence rates have been steadily increasing over the past decade, whereas numerous other cancers have stabilized or even decreased in number. In Europe, Kidney cancer is the seventh most common cancer, with more than 115 000 new cases diagnosed in 2012 (3% of the total).

The aim of this study was to evaluate possible associated variables with kidney cancer across Europe.

Material and methods

We used data from participants in wave 4 of SHARE (Survey of Health, Ageing, and Retirement in Europe) database. SHARE is a multi-national panel database which includes representative samples of community-based populations from 19 countries in Europe plus Israel (20 countries in total). In the present study, data from wave 4 of the SHARE survey was used, which included information about health, social and economic status, and family networks of individuals from 16 European countries (Austria, Belgium, Czech, Denmark, Estonia, France, Germany, Hungary, Italy, Netherlands, Poland, Portugal, Slovenia, Spain, Sweden and Switzerland). This wave contains data from 58,489 individuals between the ages of 23 and 103 (in 2010). For the purpose of the present study, the sample includes non-institutionalized individuals over 54 years old.
All data were gathered by a comprehensive computer-assisted personal interview, which lasted for about 90 minutes, and by a complementary paper drop-off questionnaire. In the case of the computer-assisted interviews, the interviewers read the questions to the participants and typed their answers; the paper drop-off questionnaires were completed by the participants and delivered at a subsequent date. All participants gave informed consent prior to the interview.

Dependent variables
Self-reported of physician-diagnosed of kidney cancer was defined when the individuals selected "kidney" to respond to the question "In which organ or part of the body have you or have you had cancer?"

Explanatory variables
Sociodemographics: gender, age, education (results from the response to the question "years of education", which has been dichotomized by ≥12 years of education). Self-reported of physician-diagnosed comorbidities (diabetes, hypertension, dislipidemia), number of chronic disease, body mass index and smoking status (current or former smoker).

Statistical analysis
Descriptive analysis of outcomes was performed in order to reach an estimate of the proportion of individuals with kidney cancer. Multiple regression analysis using stepwise method was used to determine independent factors associated with self-reported of physician-diagnosed of kidney cancer. Odds ratios (OR) and their 95% confidence intervals (CI) are reported. All the analyses were performed using the software IBM SPSS (version 23) and a significance level of 0.05 was considered.

Results

From a total of 58 489 individuals that have participated in wave 4 SHARE survey, we select only the individuals that respond to all the questions included in this work (no missings). Indeed, we include in analysis 2167 individuals, being 1287 (59.4%) females. From those, 76 (3.51%) individuals answered that have had kidney cancer. The proportion of male with kidney cancer is significantly higher than in female (5.1% vs 2.4%, p=0.001). Moreover, a significant increased proportion of high blood pressure or hypertension was found in kidney cancer group (59.2% vs 44.1%, p=0.01). No significant differences were found between individuals with and without kidney cancer for the others analyzed variables. Multiple regression analysis shown that male gender (b= -0.71; p=0.001) and high blood pressure or hypertension (b=0.055; p=0.01) as independent variables associated with kidney cancer.

Table I - Association of explanatory variables with kidney cancer

	Not standardized coefficients		Standardized coefficients	t	Sig.	95.0% Confidence Interval	
	B	Standard error	Beta			Inferior limit	Upper limit
(Constante)	0,069	0,014		4,946	0	0,041	0,096
Male or female	-0,027	0,008	-0,071	-3,337	0,001	-0,042	-0,011
Doctor told you had: high blood pressure or hypertension	0,02	0,008	0,055	2,567	0,01	0,005	0,036

Conclusion

In conclusion, no association was found between overweight, diabetes or high blood sugar, smoking status and number of chronic diseases, as previously described in literature. However, this study supports the evidence of association of high blood pressure or hypertension and male gender with kidney cancer diagnosis across Europe.