

江苏省淮安市高危人群上消化道早期癌影响因素分析

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摘要: [目的] 分析 2009—2017 年淮安市淮河流域癌症早诊早治项目上消化道早期癌的影响因素。[方法] 收集 2009—2017 年淮安市三个县(区)参加此项目的调查对象问卷内容及内镜检查信息。采用多因素 Logistic 回归分析调查问卷相关因素与上消化道早期癌之间的关系。[结果] 最终纳入研究对象 3961 人, 其中病例组 351 人, 对照组 3610 人; 男性 1567 人 (39.6%)。单因素分析结果表明两组性别、吸烟、饮酒、教育、家庭人口数、家庭年收入、肿瘤家族史、饮水主要来源、新鲜水果、干果干菜、腌晒食品、烫热食品构成比存在统计学差异, P 值均 <0.05 。多因素 Logistic 回归分析结果表明, 女性人群, 食用腌晒食品和烫热食品频次低的人群, 患病风险显著降低, OR (95%CI) 分别为 0.41 (0.30~0.57), 0.55 (0.41~0.74) 和 0.53 (0.37~0.75); 有肿瘤家族史、饮水主要来源为浅井水或湖河水, 以及食用新鲜水果频次低的人群患病风险显著增加, OR (95%CI) 分别为 1.96 (1.53~2.51), 2.24 (1.05~4.78), 1.53 (1.18~1.98)。[结论] 男性人群、有肿瘤家族史人群、饮水主要来源为浅井水或湖河水人群、食用腌晒食品和烫热食品频率高的人群、食用新鲜水果频次低的人群, 患上消化道早期癌风险较高。应对有上述特征人群进行健康教育, 改善饮食结构和生活方式。

关键词: 早诊早治; 影响因素; 上消化道; 早期癌; 江苏

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Influencing Factors about Early Cancer of Upper-Digestive Tract Among High-Risk Population in Huai'an City of Jiangsu Province

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Abstract: [Purpose] To analyze the influence factors about early cancer of upper-digestive tract in Huai'an city of Jiangsu province. [Methods] The questionnaires and endoscopic results were collected among residents from 3 counties of Huai'an City who participated in a cancer early detection and early treatment program of Huaihe river basin from 2009 to 2017. Multivariate Logistic regression was used to analyze the risk factors of cancers of upper-digestive tract. [Results] The data of 3961 participants (1567 males and 2394 females) were finally analyzed in the study, including 351 cancer patients (case group) and 3610 normal subjects (control group). The univariate analysis indicated that the gender, smoking, drinking, education, number of family members, family annual income, family history of cancer, main sources of drinking water, eating fresh fruits, eating dried fruits and vegetables, eating pickled and dried food, and eating hot food were significantly different between case group and control group (all $P < 0.05$). The multivariate Logistic regression indicated that female sex (OR=0.41, 95%CI: 0.30~0.57), low frequency of eating pickled, dried food (OR=0.55, 95%CI: 0.41~0.74) and hot food (OR=0.53, 95%CI: 0.37~0.75) had lower risk for cancers of upper-digestive tract. Subjects with a family history of cancer, with shallow well water or lake and river water as main sources of drinking water, as well as with low frequency of eating fresh fruit had a higher risk for cancers of upper-digestive tract with OR (95%CI) 1.96 (1.53~2.51), 2.24 (1.05~4.78) and 1.53 (1.18~1.98), respectively. [Conclusion] The health education should be given to residents with high risk of upper-digestive tract cancers to improve their dietary habits and lifestyle.

Key words: early detection and treatment; influence factor; upper gastrointestinal; early cancer; Jiangsu

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2018 年全球肿瘤估计发病 1810 万例,死亡 960 万例,发病中胃癌排第 5 位,占比 5.7%;食管癌排第 7 位,占比 3.2%。死亡中胃癌排第 3 位,占比 8.2%;食管癌排第 6 位,占比 5.3%^[1]。Feng 等^[2]对 2018 年全球肿瘤统计报告、2015 中国肿瘤统计报告和全球流行病学网络数据库进行分析表明:中国的胃癌、肝癌和食管癌等消化系统肿瘤,占肿瘤相关死亡的 36.4%,但在美国和英国,这一比例 $\leq 5\%$ 。根据《2017 中国肿瘤登记年报》数据分析,2014 年全国肿瘤登记地区恶性肿瘤发病胃癌和食管癌分别位居第 3 位和第 6 位,恶性肿瘤死亡胃癌和食管癌分别位居第 3 位和第 6 位^[3]。我国上消化道恶性肿瘤不仅高发,而且以进展期癌为主,预后较差^[4]。上消化道癌的发病和死亡占比较高,这无疑将影响患者本人及其家人的功能状态、心理健康和生活质量。

江苏省恶性肿瘤发病和死亡粗率明显高于全国水平,调整年龄结构后,与全国水平相当^[5-6]。淮安市位于苏北地区,上消化道癌标化发病率和死亡率均高于全国水平^[7]。目前,医院诊治的癌症患者大多处于中晚期,不仅预后较差,生存时间短,同时诊治费用高,严重消耗了我国医疗卫生和社会资源。因此,探索早期癌症的高危因素,推广癌症早诊早治至关重要。针对中国人群上消化道肿瘤高危人群的研究虽有报道,但对早期肿瘤关注较少^[8]。早期癌是恶性肿瘤发生的必经阶段,也是预防恶性肿瘤的重要窗口期。本研究对 2009—2017 年淮安市淮河流域上消化道癌早诊早治项目高危人群上消化道早期癌相关影响因素进行研究,旨在筛选影响本地地上消化道早期癌的相关因素,从而为上消化道早期癌的预防提供依据。

1 资料与方法

1.1 研究对象

2009—2017 年淮安市淮河流域上消化道癌筛查项目在洪泽区、金湖县和涟水县三个项目点的 40~69 岁常住居民人群中展开。在早诊早治项目地区采用整群抽样的方法,选取食管/胃癌发病率和死亡率较高的乡或村作为目标人群。按照国家早诊早治项目技术方案组织统一进行集体宣教、单独访谈、签署知情同意书,同时进行健康知识调查、危险因素

调查、一般体格检查,然后对筛检出的高危人群进行内镜下观察和碘染色,对可疑者取活检进行病理检查。所有病变的诊断以组织病理为标准,对确诊的癌症患者和癌前病变进行相应治疗。本研究数据来源于三个项目点 2009—2017 年项目数据。

本研究纳入分析的个案病例组为病理诊断为上消化道早期癌患者:包括鳞状上皮重度异型增生、原位癌、黏膜内鳞状细胞癌、腺上皮重度异型增生(高级别上皮内瘤变)和黏膜内腺癌^[9]。上消化道癌早诊早治项目对早期癌定义为:黏膜内癌和黏膜下癌(T₁N₀M₀),无淋巴结转移证据。由于原位癌列入高级别上皮内瘤变和高级别异型增生范围,所以本研究将鳞状上皮重度异型增生和腺上皮重度异型增生(高级别上皮内瘤变)列入早期癌范围内^[10]。对照组为病理诊断为正常鳞状上皮或正常腺上皮,以及内镜检查未见明显异常,未做病理检查个案。共纳入病例组 352 人,对照组 3622 人。删除调查问卷中肿瘤患者病例组 1 人,对照组 12 人。最终纳入分析对象 3961 人,其中病例组 351 人,对照组 3610 人。

1.2 研究方法

凡有上消化道症状和病史,不良饮食习惯及行为,消化道癌症家族史者,为上消化道癌症高危人群。具体高危人群判定标准如下:凡具备以下(1)~(4)中任意 2 项或(5)~(11)中任意 1 项者视为高危人群,建议进一步做胃镜检查:(1)经常吸烟(每天 20 支,持续 10 年以上);(2)经常饮酒(白酒每天 1 两,持续 10 年以上);(3)经常食用霉变、腌晒食物;(4)习惯进食烫热、粗硬食物;(5)家族中有上消化道癌症患者(本人已患癌症的不作为检查对象);(6)进食时伴胸骨后或剑突下疼痛,可呈烧灼样、针刺样、牵拉样;(7)进行性吞咽困难;(8)有食欲不振、腹胀、烧心、反酸、恶心、呕吐、嗝气等症状;(9)有呕血黑便症状;(10)进行性消瘦;(11)有反流性食管炎或胃病。筛查人群的排除标准:严重心脏病,心力衰竭;重症呼吸道疾病,呼吸困难,哮喘持续状态;咽后壁脓肿,严重脊柱畸形,或主动脉瘤患者;身体虚弱不能耐受内镜检查,或难以镇静自控者;上消化道腐蚀性炎症急性期,或疑为上消化道穿孔者;大量腹水、严重腹胀,或有重度食管静脉曲张者;妊娠期妇女;有碘过敏史者及有出血倾向者(出凝血功能不正常)。所有筛查对象均履行知情同意程序,在自愿的原则

下签署知情同意书。

内镜检查前,必须进行血常规检查(乙肝、丙肝、HIV、梅毒),检查结果无异常后再开展内镜检查。如果在食管黏膜、胃黏膜或贲门区黏膜发现阳性或者可疑病灶,应在相应区域分别咬取活检,咬取块数视病灶大小而定。如果经内镜观察和碘染色后食管未发现任何碘染色不着色区域,不取活检。对贲门脊根部黏膜和胃大小弯与前后壁黏膜仔细观察后,如未发现任何可疑形态学改变,可不取活检。活检标本处理方法:活检标本离体后,立即将活检组织展平,使黏膜的基底层面贴附在滤纸上。置于10%~13%福尔马林缓冲液中;包埋前固定时间需在6~48h内。去除滤纸,将组织片垂直定向包埋。修正蜡块,要求连续切片6到8个组织片,捞取在同一张载玻片上,常规HE染色,封片。

1.3 变量定义

体重指数(BMI)=体重(kg)/身高²(m²)。BMI大于45kg/m²排除。

吸烟:指每天至少吸1支,连续达半年或以上。

饮酒:每天饮酒1两以上,持续1年以上。

家族史:指父母亲、兄弟姐妹、子女、祖父母、外祖父母、同父异母或同母异父兄弟姐妹、伯/叔/姑/舅/姨,侄/外甥子女,表(堂、姑、舅、姨)兄弟姐妹。

药物使用:2周药物史。

饮食习惯的频度分为频次高(每月吃4次以上),频次低(每月吃4次及以下)。

1.4 质量控制

从初筛问卷调查至临床筛查过程的每一个环节均采取严格统一的质量控制措施,包括人员培训、现场工作,数据上报采用逐级上报、逐级审核制度。对临床筛查实施者进行全国统一的专项技术培训,包括内镜检查和病理诊断培训。项目采取统一筛查流程、统一问卷设计、数据库结构和上报方式,调查员经过统一培训,确保数据质量。

1.5 统计学处理

统计描述中,非正态分布连续性变量采用中位数(四分位数间距)表示;分类资料采用构成比(%)表示。统计分析中,非正态分布连续性变量采用惠—曼特尼U检验,分类资料各组间比较采用卡方(χ^2)检验。采用非条件Logistic回归分析计算相对危险度(OR)和95%可信区间(95%CI)。以双侧检验

$P<0.05$ 为差异有统计学意义。

2 结果

2.1 调查人群一般特征

调查对象共计3961人,其中男性1567人(39.6%),女性2394人(60.4%);连续性变量年龄和BMI为偏态分布,年龄中位数(四分位数)为55(49,61)岁,BMI中位数(四分位数)为24.34(22.56,26.17)kg/m²;吸烟比例为19.2%,饮酒比例为19.0%,教育变量中未上学、小学、中学及以上比例分别为33.2%、26.9%、39.9%,有肿瘤家族史对象所占比例为43.5%,饮水主要来源中自来水、深井水、浅井水或湖河水所占比例分别为68.8%、29.7%、1.4%(Table 1)。

2.2 单因素分析病例组和对照组各相关因素

对非正态分布连续性变量和分类变量分别采用惠—曼特尼U检验和 χ^2 检验,结果表明病例组和对照组年龄和BMI变量分布存在统计学差异,U值分别为15.97和-4.55, P 值均 <0.001 ;病例组和对照组性别、吸烟、饮酒、教育、家庭人口数、家庭年收入、肿瘤家族史、饮水主要来源、新鲜水果、腌晒食品、烫热食品变量各分组构成比例存在统计学差异, P 值均 <0.001 ;干果干菜食用频次高和频次低的比例在病例组和对照组中存在统计学差异, χ^2 为9.39, P 值为0.002;油炸食品食用频次高所占比例在病例组和对照组分别为9.1%和6.9%, χ^2 为2.32, P 值为0.127,差异未见统计学意义(Table 2)。

2.3 非条件多因素 Logistic 回归分析上消化道早期病变的影响因素

将单因素分析中统计 P 值小于0.2的变量纳入多因素Logistic回归分析(Table 3)。将自变量中分类变量不同分组分别作为参照组和比较组,探讨不同分组间上消化道早期癌风险差异。分析结果表明,校正相关因素后,上消化道早期癌的风险随着年龄的增加而增加,OR(95%CI)为1.13(1.11~1.16), $P<0.001$;随着BMI增加而降低,OR(95%CI)为0.94(0.90~0.98), P 为0.002;女性早期癌风险显著低于男性,OR(95%CI)为0.41(0.30~0.57), $P<0.001$ 。

校正年龄、性别、BMI等相关因素后,有肿瘤家族史的调查对象早期癌风险显著高于无肿瘤家族史

Table 1 Statistical description of variable characters of respondents
[M (Q1, Q3)/n (%)]

Variable	Classification	Description
Age(years)	-	55(49,61)
BMI(kg/m ²)	-	24.34(22.56,26.17)
Gender	Male	1567(39.6%)
	Female	2394(60.4%)
Smoking	No	3200(80.8%)
	Yes	761(19.2%)
Drinking	No	3207(81.0%)
	Yes	753(19.0%)
Education	Without education	1315(33.2%)
	Primary school	1066(26.9%)
	Middle school and above	1580(39.9%)
Familial population	1~2	849(21.4%)
	3~4	1418(35.8%)
	≥5	1693(42.8%)
Familial income(yuan)	≤20 000	1477(37.3%)
	20 000~30 000	809(20.4%)
	30 000~50 000	1137(28.7%)
	>50 000	537(13.6%)
Familial history of cancer	No	2237(56.5%)
	Yes	1724(43.5%)
Upper gestrointestinal drugs	No	3861(97.5%)
	Yes	100(2.5%)
Main sources of drinking water	Tap water	2727(68.8%)
	Deep well water	1177(29.7%)
	Shallow well water or lake and river water	57(1.4%)
Fresh vegetables	High frequency	3939(99.4%)
	Low frequency	22(0.6%)
Fresh fruits	High frequency	2604(65.7%)
	Low frequency	1357(34.3%)
Meat,egg and milk	High frequency	3053(77.1%)
	Low frequency	908(22.9%)
Bean food	High frequency	3029(76.5%)
	Low frequency	932(23.5%)
Rice and noodles	High frequency	3703(93.5%)
	Low frequency	258(6.5%)
Dried fruits and vegetables	High frequency	750(18.9%)
	Low frequency	3210(81.1%)
Pickled and dried food	High frequency	901(22.7%)
	Low frequency	3060(77.3%)
Fried food	High frequency	282(7.1%)
	Low frequency	3679(92.9%)
Hot food	High frequency	429(10.9%)
	Low frequency	3506(89.1%)

Notes: There were 4 missing values of BMI; 1 missing value of drinking; 1 missing value of familial population; 1 missing value of familial income; 1 missing value of dried fruits and vegetables; 26 missing value of hot food. Smoking: at least one cigarette per day for six months or more; Drinking: drinking more than 50 grams per day for more than one year; Family history: refers to parents, brothers and sisters (including half-parents), children, grandparents, uncles/aunts, nephews/niece and cousins; Drug use: two weeks of drug history; High frequency: eating more than four times a month; Low frequency: eating four or less times a month

的调查对象,OR(95%CI)为1.96(1.53~2.51), $P<0.001$; 饮水主要来源为浅井水或湖河水的对象,相比饮水主要来源为自来水的对象,早期癌风险增加,OR(95%CI)为2.24(1.05~4.78), P 为0.037; 食用新鲜水果频次低的对象,相对频次高的对象,早期癌风险显著增加,OR(95%CI)为1.53(1.18~1.98), P 为0.001; 腌晒食品食用频次低的对象早期癌风险低于食用频次高的对象,OR(95%CI)为0.55(0.41~0.74), $P<0.001$; 烫热食品食用频次低的对象早期癌风险低于食用频次高的对象,OR(95%CI)为0.53(0.37~0.75), $P<0.001$ 。

3 讨 论

本研究采用横断面调查,探讨高危人群中上消化道早期癌相关影响因素。研究结果表明,校正相关变量后,女性人群,食用腌晒食品和烫热食品频次低的人群,上消化道早期癌风险显著降低,OR值分别为0.41、0.55和0.53; 有肿瘤家族史、饮水主要来源为浅井水或湖河水,以及食用新鲜水果频次低的人群早期癌风险显著增加,OR值分别为1.96、2.24和1.53。

上消化道癌包括食管癌、贲门癌及胃癌,均为临床常见恶性肿瘤。对食管癌、贲门癌和胃癌的防治虽经数十年的努力,治疗效果并不理想。我国为食管癌和胃癌的高发国家^[11]。胃癌的早期诊断、早期治疗对于提高胃癌的疗效、降低死亡率具有十分重要的意义,目前我国胃癌早期诊治率低于10%^[12]。由于中晚期食管癌治疗效果差,生存与预后改善缓慢,其5年生存率约为20%,给患者及社会造成了严重的疾病和经济负担^[13]。有报道,上消化道癌早诊早治项目中发现的上消化道癌中早期癌比例达83.9%^[14]。因此,在高危人群中开展上消化道癌筛

Table 2 Comparison between case group and control group about different variables

Variable	Classification	Control	Case	χ^2/U	P
Age(years)	—	54(48,61)	63(58,66)	15.97	<0.001
BMI(kg/m ²)	—	24.44(22.60,26.39)	23.66(22.04,25.48)	-4.55	<0.001
Gender	Male	1356(37.6%)	211(60.1%)	68.04	<0.001
	Female	2254(62.4%)	140(39.9%)		
Smoking	No	2965(82.1%)	235(67.0%)	47.50	<0.001
	Yes	645(17.9%)	116(33.0%)		
Drinking	No	2949(81.7%)	258(73.7%)	13.18	<0.001
	Yes	661(18.3%)	92(26.3%)		
Education	Without education	1165(32.3%)	150(42.7%)	22.83	<0.001
	Primary school	966(26.8%)	100(28.5%)		
	High school and above	1479(41.0%)	101(28.8%)		
Familial population	1~2	730(20.2%)	119(34.0%)	48.84	<0.001
	3~4	1341(37.1%)	77(22.0%)		
	≥5	1539(42.6%)	154(44.0%)		
Familial income(yuan)	≤20 000	1299(36.0%)	178(50.7%)	35.29	<0.001
	20 000~30 000	746(20.7%)	63(17.9%)		
	30 000~50 000	1074(29.8%)	63(17.9%)		
	>50 000	490(13.6%)	47(13.4%)		
Familial history of cancer	No	2089(57.9%)	148(42.2%)	32.09	<0.001
	Yes	1521(42.1%)	203(57.8%)		
Upper gastrointestinal drugs	No	3520(97.5%)	341(97.2%)	0.17	0.691
	Yes	90(2.5%)	10(2.8%)		
Main sources of drinking water	Tap water	2538(70.3%)	189(53.8%)	53.27	<0.001
	Deep well water	1030(28.5%)	147(41.9%)		
	Shallow well water or lake and river water	42(1.2%)	15(4.3%)		
Fresh vegetables	High frequency	3590(99.4%)	349(99.4%)	—	1.000
	Low frequency	20(0.6%)	2(0.6%)		
Fresh fruits	High frequency	2441(67.6%)	163(46.4%)	63.71	<0.001
	Low frequency	1169(32.4%)	188(53.6%)		
Meat,egg and milk	High frequency	2780(77.0%)	273(77.8%)	0.11	0.743
	Low frequency	830(23.0%)	78(22.2%)		
Bean food	High frequency	2769(76.7%)	260(74.1%)	1.23	0.268
	Low frequency	841(23.3%)	91(25.9%)		
Rice and noodles	High frequency	3372(93.4%)	331(94.3%)	0.42	0.517
	Low frequency	238(6.6%)	20(5.7%)		
Dried fruits and vegetables	High frequency	705(19.5%)	45(12.8%)	9.39	0.002
	Low frequency	2904(80.5%)	306(87.2%)		
Pickled and dried food	High frequency	769(21.3%)	132(37.6%)	48.40	<0.001
	Low frequency	2841(78.7%)	219(62.4%)		
Fried food	High frequency	250(6.9%)	32(9.1%)	2.32	0.127
	Low frequency	3360(93.1%)	319(90.9%)		
Hot food	High frequency	358(9.9%)	71(21.3%)	40.66	<0.001
	Low frequency	3244(90.1%)	262(78.7%)		

Table 3 Mutiple Logistic regression analyses about influence of factors on upper gastrointestinal eraly cancer

Variable	Referance group	Comparable group	OR	95%CI	P
Age (years)	—	—	1.13	1.11~1.16	<0.001
BMI (kg/m ²)	—	—	0.94	0.90~0.98	0.002
Gender	Male	Female	0.41	0.30~0.57	<0.001
Smoking	No	Yes	0.90	0.66~1.23	0.520
Drinking	No	Yes	0.87	0.63~1.20	0.395
Upper gestrointestinal drugs	No	Yes	0.84	0.40~1.77	0.645
Familial history of cancer	No	Yes	1.96	1.53~2.51	<0.001
Education	Without education	Primary school	0.95	0.69~1.31	0.762
	Without education	Middle school and above	0.73	0.52~1.03	0.077
Familial population	1~2	3~4	1.32	0.92~1.90	0.135
	1~2	≥5	1.16	0.83~1.62	0.383
Familial income (yuan)	≤20 000	20 000~30 000	1.14	0.80~1.63	0.459
	≤20 000	30 000~50 000	0.83	0.58~1.19	0.302
	≤20 000	>50 000	1.30	0.86~1.97	0.212
Main sources of drinking water	Tap water	Deep well water	1.09	0.82~1.43	0.563
	Tap water	Shallow well water or lake and river water	2.24	1.05~4.78	0.037
Fresh fruits	High frequency	Low frequency	1.53	1.18~1.98	0.001
Dried fruits and vegetables	High frequency	Low frequency	1.25	0.87~1.80	0.229
Pickled and dried food	High frequency	Low frequency	0.55	0.41~0.74	<0.001
Fried food	High frequency	Low frequency	1.18	0.73~1.90	0.510
Hot food	High frequency	Low frequency	0.53	0.37~0.75	<0.001

查和早诊早治工作是改善食管癌和胃癌防治现状的重要策略。

本研究发现,随着年龄的增加,上消化道癌的患病风险逐渐增加,多项研究已有报道^[15-16]。男性食管各级病变风险均高于女性^[17],胃癌发生率在不同国家男性和女性人群中差异较大,男性发生率比女性高 2~3 倍^[18],本研究中,男性上消化道早期癌患病率显著高于女性,与上述报道结果一致。肥胖与上消化道癌的关联有较多报道^[19-20],随着 BMI 的增加,患病风险增加,而本研究结果显示随着 BMI 的增加,上消化道早期癌患病风险降低。本研究为横断面研究,BMI 与早期食管癌患病的因果关系不确定,可能由于未患上消化道早期癌的对象无严重临床症状,进食及消化状态优于病例组,导致 BMI 相对较高,而呈现出较高 BMI 对象患病风险下降的现象。

湖河水或浅井水含有较多的生活污染物和农业、工业污染物,本研究发现主要饮水来源为自来水,相对于浅井水或湖河水的对象,患上消化道早期癌风险显著降低。有研究报道,油炸食品是食管癌及癌前病变发病的危险因素^[21-22],本研究中虽然病例组中油炸食品使用频次高所占的比例较高,但未达到统计学意义。本研究中对使用频次的定义与上述

研究不同,纳入的调整因素范围更广泛,可能是结果存在不一致的原因。食用腌制食品为上消化道早期病变的危险因素,世界癌症研究基金会专家报告已得出结论:食用腌制食品很可能患胃癌^[23]。一项 Meta 分析表明高盐摄入可以增加胃癌风险达 22%^[24]。盐可通过直接损伤胃黏膜导致胃炎或其他机制增加胃癌的风险。新鲜水果对上消化道癌的保护作用、腌制食品对胃癌的危险作用已有较强的证据^[23],新鲜水果中富含维生素 C、叶酸、类胡萝卜素和植物化学物质,这些物质可能通过调节外源性代谢酶来抑制致癌。食用烫热食物显著增加上消化道癌的患病风险^[22,25-26],本研究结果发现烫热食物显著增加上消化道早期癌的风险,对食管黏膜的慢性热刺激,可能会刺激内源性活性氮物质的形成,继而形成致癌物质亚硝胺。也有研究推测,反复的热损伤,损伤食管上皮细胞的屏障功能,从而使其对管腔内的致癌物质损伤更敏感^[27]。

上消化道早期癌的影响因素研究少有报道,本研究探讨上消化道早期癌相关影响因素,为早期癌的筛查提供科学依据,同时校正了较为广泛的影响因素,使分析结果更准确。本研究为横断面研究,无法分析因素与结局变量的因果关联。由于筛查点设

在各乡镇,群众预防意识比较低,检查顺应性较低,这些都会影响到活检率及早诊率。本研究将上消化道内镜检查正常未做病理活检的个案纳入正常对照组,存在一定的偏倚,即有可能病理检查存在异常,但此种偏倚会减弱相关关联,本研究得出的关联性更具有统计学意义。

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