



· 论 著 ·

以医院登记为基础的20万例恶性肿瘤患者生存报告

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[摘要] 背景与目的: 恶性肿瘤是全球重大的公共健康问题, 患者生存率是评价恶性肿瘤诊治水平的重要指标。通过描述以医院登记为基础的20万例恶性肿瘤患者的生存情况, 以真实世界数据从一个侧面反映我国恶性肿瘤的治疗效果。方法: 纳入2008年1月1日—2017年12月31日之间在复旦大学附属肿瘤医院确诊为恶性肿瘤并接受住院治疗的患者共计202 542例。通过患者复诊病史资料、电话随访及死因数据链接等方式收集生存随访信息, 随访统计时间截至2019年11月30日。应用寿命表法估计各个病种1年、3年和5年总生存率(overall survival, OS), 以性别、年龄组、首次治疗时间分层。采用Kaplan-Meier生存曲线绘制各病种的总体生存曲线。结果: 患者总体的1年、3年、5年OS分别为89.8%、77.4%和71.0%; 男性患者5年OS为58.8%, 女性患者为78.7%。在常见的恶性肿瘤中, 甲状腺癌患者的5年OS最高, 为98.6%; 胰腺癌患者最低, 为11.4%。2013—2017年首次治疗的乳腺癌、肺癌和肾癌患者5年OS分别为90.0%、55.9%和80.7%, 显著高于2008—2012年首次治疗患者, 其他肿瘤未见显著上升。结论: 大部分恶性肿瘤患者经规范诊治可以获得较为理想的预后, 女性生存情况显著优于男性, 乳腺癌和肺癌患者的生存改善可能归功于新的临床治疗和早诊手段。

[关键词] 恶性肿瘤; 生存率; 医院登记

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Report on 200 thousand cancer patients' survival from a hospital-based cancer registry database ZHOU Changming¹, MO Miao¹, YUAN Jing¹, SHEN Jie¹, WANG Zezhou¹, ZHANG Zhihong¹, ZHU Ji², QIN Yiyu³, ZHENG Ying¹, WU Jiong⁴, GUO Xiaomao² (1. Department of Cancer Prevention Fudan University Shanghai Cancer Center; Department of Oncology, Shanghai Medical College, Fudan University, Shanghai 200032, China; 2. Department of Radiotherapy, Fudan University Shanghai Cancer Center; Department of Oncology, Shanghai Medical College, Fudan University, Shanghai 200032, China; 3. Shanghai Zhongfang Information Technology Co, Ltd., Shanghai 200092, China; 4. Department of Breast Surgery, Fudan University Shanghai Cancer Center; Department of Oncology, Shanghai Medical College, Fudan University, Shanghai 200032, China)

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[Abstract] **Background and purpose:** Cancer is a global major public health concern, and survival rate is a key indicator in evaluating the treatment effect of cancer. This study described the survival of over 200 thousand cancer patients from a hospital-based cancer registry database, aiming to reflect current cancer treatment effect somehow with real world data. **Methods:** A total of 202 542 hospitalized patients in Fudan University Shanghai Cancer Center from Jan. 1 2008 to Dec. 31 2017 were included in the

analysis. Medical records review, telephone visits and death registry data linkage were applied in collecting endpoint data. The last follow-up date was Nov. 30 2019. Life table was applied in evaluating the 1-year, 3-year and 5-year overall survival (OS) rate for all and stratified by gender, age group and periods. Kaplan-Meier method was applied in plotting the survival curves. **Results:** The 1-year, 3 year and 5-year OS of cancer patients were 89.8%, 77.4% and 71.0%. The 5-year OS of males and females were 58.8% and 78.7% respectively. Among common cancers, thyroid cancer held the highest 5-year survival rate 98.6% while pancreatic cancer the lowest, 11.4%. The 5-year survival rates of breast, lung and kidney cancer in 2013—2017 were 90.0%, 55.9% and 80.7% respectively, significantly higher than those in 2008—2012. No significant improvement was observed in other cancers. **Conclusion:** Most cancer patients can have a relatively better prognosis after standardized treatment. The survival of female is superior to male. The improvement of the survival of breast cancer and lung cancer could be contributed to novel treatment methods and early diagnosis.

[Key words] Cancer; Survival rate; Hospital-based registry

恶性肿瘤是全球重大的公共健康问题。每年全球新发恶性肿瘤1 810万例, 960万人因恶性肿瘤而死亡^[1]。中国由于庞大的人口基数, 拥有全球最大的恶性肿瘤患者人数, 据估计我国2018年恶性肿瘤发病人数为428.5万人, 死亡286.5万人, 而5年内诊断为恶性肿瘤目前仍存活的病例数更是高达782.8万^[2]。面对持续增长的恶性肿瘤现患数量, 需要更多的资料和证据来了解其生存状况和医疗需求, 以更好地配置卫生资源, 提供有效的医疗服务。

恶性肿瘤患者生存率是评价其治疗水平的重要指标。我国国务院办公厅颁布的《中国慢性病防治中长期规划(2017—2025年)》中明确提出到2020年和2025年, 癌症总体的5年生存率要在基线30.9%的水准上分别提高5%和10%^[3]。而作为发达地区的上海, 《上海市防治非传染性疾病中长期规划(2018—2030年)》更是提出癌症总体5年生存率2030年达到59%的目标^[4]。

对大规模肿瘤患者生存数据进行持续跟踪与评估, 可以展现恶性肿瘤治疗的进展, 评价其防控策略实施效果。全球层面上, CONCORD-3项目提供了国际上超过71个国家3 750万患者15年的生存数据, 为全球各国各类肿瘤的生存数据提供了基于人群的生存数据^[5]。我国部分肿瘤登记点的汇总数据显示, 近年来我国人群恶性肿瘤5年相对生存率也在稳步提升^[6]。

依靠肿瘤登记制度, 可以有效收集生存数据。现行肿瘤登记的类型主要分为以人群为基础的肿瘤登记和以医院为基础的肿瘤登记^[7]。以医院为基础的肿瘤登记的优势在于能及时、方便

地获得恶性肿瘤患者的医学记录和原始的病例资源, 并可收集到比以人群为基础的登记系统更为广泛、详细及可靠的信息资料, 数据具有良好的准确性^[8]。美国监测、流行病学和最终结果(Surveillance, Epidemiology, and End Results, SEER)数据库是一个具有代表性的知名数据库, 详尽记录了美国超过40年以来恶性肿瘤患者个人信息、肿瘤信息、治疗情况和死亡原因等信息^[9], 该数据库每3年发布美国癌症现患、发病和生存情况, 为公共卫生机构更好地服务恶性肿瘤幸存者、减轻美国的恶性肿瘤负担提供决策的数据支持^[10]。

作为大规模、面向全国的肿瘤医疗中心, 跟踪并了解每例肿瘤患者的生存情况可以为评估治疗效果、协助科研、预测患者预后提供有力证据支持。复旦大学附属肿瘤医院是一所集医疗、教学、科研、预防为一体的三级甲等肿瘤专科医院, 是上海地区肿瘤登记的发源地^[4]。目前每年医院住院量超过8万人次, 门诊量超过140万人次。自2009年7月起, 复旦大学附属肿瘤医院对全院住院治疗的恶性肿瘤患者进行登记和生存随访, 收集其生存、复发/转移等情况, 建立起恶性肿瘤患者生存数据库^[11]。

本研究总结了2008年1月1日—2017年12月31日在复旦大学附属肿瘤医院确诊为恶性肿瘤并接受住院治疗的患者的随访资料, 按瘤别、年龄别、性别和首次治疗时间等描述了患者的生存情况, 以期积累真实世界的恶性肿瘤患者生存数据, 从侧面反映我国近年来恶性肿瘤的治疗效果。

1 材料和方法

1.1 研究对象

纳入研究的患者为首次治疗日期在2008年1月1日—2017年12月31日住院治疗的恶性肿瘤患者, 共计202 542例。其中单纯手术治疗患者的首次治疗时间为手术时间, 新辅助治疗患者首次治疗时间为首次开始新辅助治疗时间, 其它治疗患者首次治疗时间为入院时间。

1.2 随访计划

患者出院满1年后进行首次随访, 其中肺癌、食管癌、肝癌、胆囊癌和胰腺癌患者的随访周期为半年, 其余癌种的随访周期为1年, 直至死亡发生终止随访。

完全随访指随访期间所有的随访问隔和随访资料记录符合随访计划, 具体包括以下四种情况: ① 随访到死亡; ② 随访满10年仍存活; ③ 随访时长在5~10年, 且近2年内有过随访记录; ④ 随访时间不满5年, 且在近1年内有过随访记录。

1.3 结局资料收集方式

通过3种方式收集患者的结局资料, 包括病史资料收集、电话随访及死因数据链接。病史资料收集是从患者出院后满1年开始, 按随访计划规定的时间段, 通过查询其门诊及住院病历信息, 判断患者是否有复发/转移、第二原发事件, 基于其门诊和住院病历信息收集末次随访时间。电话随访指在随访计划规定的时间段内, 患者如没有复诊记录, 由专职随访人员按照病史上的联系方式联系患者或家属, 通过电话问询并记录随访信息。死因数据链接指通过与各相关省级疾病预防控制中心的肿瘤登记系统和死因登记系统进行数据链接和匹配, 获得患者死亡结局资料, 包括死亡时间和死亡原因。

生存随访收集的资料包括患者基本信息(性别、年龄、是否复旦大学附属肿瘤医院初治、肿瘤分组、首次治疗时间)和随访信息(是否发生复发/转移、复发/转移时间、转移部位、是否发生第二原发恶性肿瘤及时间、是否死亡、死亡时间及末次随访时间)。随访统计时间截至2019年

11月30日。

1.4 统计学处理

本次统计的24个病种对应的ICD-10编码如下: 头、颈部C00-10, C12-C14; 鼻咽C11; 食管C15; 胃C16; 小肠C17; 结直肠C18-21; 肝C22; 胆C23-C24; 胰C25除外C25.4; 胰腺神经内分泌瘤C25.4; 肺C34; 骨和软组织C40-42, C45-C49; 恶性黑色素瘤C43-C44; 乳腺C50; 子宫颈C53; 子宫体C54-C55; 卵巢C56; 前列腺C61; 肾C64; 膀胱C67; 中枢神经系统C70-C72; 甲状腺C73; 淋巴瘤C81-85、C96; 其它。

全死因死亡在生存分析中作为终点事件, 未发生终点事件及未知终点事件的患者, 在末次随访时间点按删失数据处理。统计指标采用观察生存率, 即总生存率(overall survival, OS)。生存时间定义为复旦大学附属肿瘤医院首次治疗时间到死亡(全死因死亡)或删失的时间。

应用寿命表法进行估计, 用累计生存概率对各个病种生存率的点估计和95% CI进行估计, 以性别、年龄组、首次治疗时间分层估计各瘤别的1年、3年和5年OS及其95% CI。采用Kaplan-Meier生存曲线绘制各病种的总体生存曲线。

1.5 数据质量

纳入分析的观察对象总计202 542例, 随访观察到死亡50 738例, 占25.1%。192 074例患者接受过至少1次随访, 占94.8%; 151 101例患者的随访达到随访计划要求, 完全随访比例为74.6%; 整体中位随访时间为50.0个月(表1)。

2 结果

所有202 542例患者的1年、3年、5年OS分别为89.8%、77.4%和71.0%; 男性患者5年OS为58.8%, 女性患者为78.7%; 年龄 \leq 44岁、45~54岁、55~64岁、65~74岁和 $>$ 75岁患者5年OS分别为85.8%、75.9%、65.0%、55.6%和46.1%。

常见的恶性肿瘤中, 5年OS(95% CI)以甲状腺癌最高, 为98.6%(98.4%~98.8%), 胰腺癌最低, 为11.4%(10.4%~12.5%)。各病种总生存曲线详见图1。

表 1 2008—2017各年诊治患者数量以及随访数据质量

Tab. 1 2008—2017 follow-up visit data quality

Year	Patient	Death <i>n</i> (%)	Follow-up covered <i>n</i> (%)	Visited as planned <i>n</i> (%)	Median follow-up time (95% CI)/month
2008	11 875	3 687 (31.1)	11 273 (94.9)	7 395 (62.3)	115.0 (114.3, 115.7)
2009	13 187	4 048 (30.7)	12 602 (95.6)	8 727 (66.2)	105.0 (104.6, 105.4)
2010	14 952	4 343 (29.1)	14 378 (96.2)	10 092 (67.5)	93.0 (92.7, 93.3)
2011	17 860	5 256 (29.4)	17 397 (97.4)	13 121 (73.5)	84.0 (83.7, 84.3)
2012	19 616	5 628 (28.7)	19 102 (97.4)	15 092 (76.9)	72.0 (71.8, 72.2)
2013	20 155	5 645 (28.0)	19 427 (96.4)	16 115 (80.0)	66.0 (65.8, 66.2)
2014	23 252	5 844 (25.1)	22 430 (96.5)	17 788 (76.5)	58.0 (57.9, 58.1)
2015	24 673	5 739 (23.3)	23 483 (95.2)	19 355 (78.4)	46.0 (45.9, 46.1)
2016	27 032	5 678 (21.0)	24 997 (92.5)	21 534 (79.7)	34.0 (33.9, 34.1)
2017	29 940	4 870 (16.3)	26 985 (90.1)	21 882 (73.1)	21.0 (20.9, 21.1)
Total	202 542	50 738 (25.1)	192 074 (94.8)	151 101 (74.6)	50.0 (49.8, 50.2)

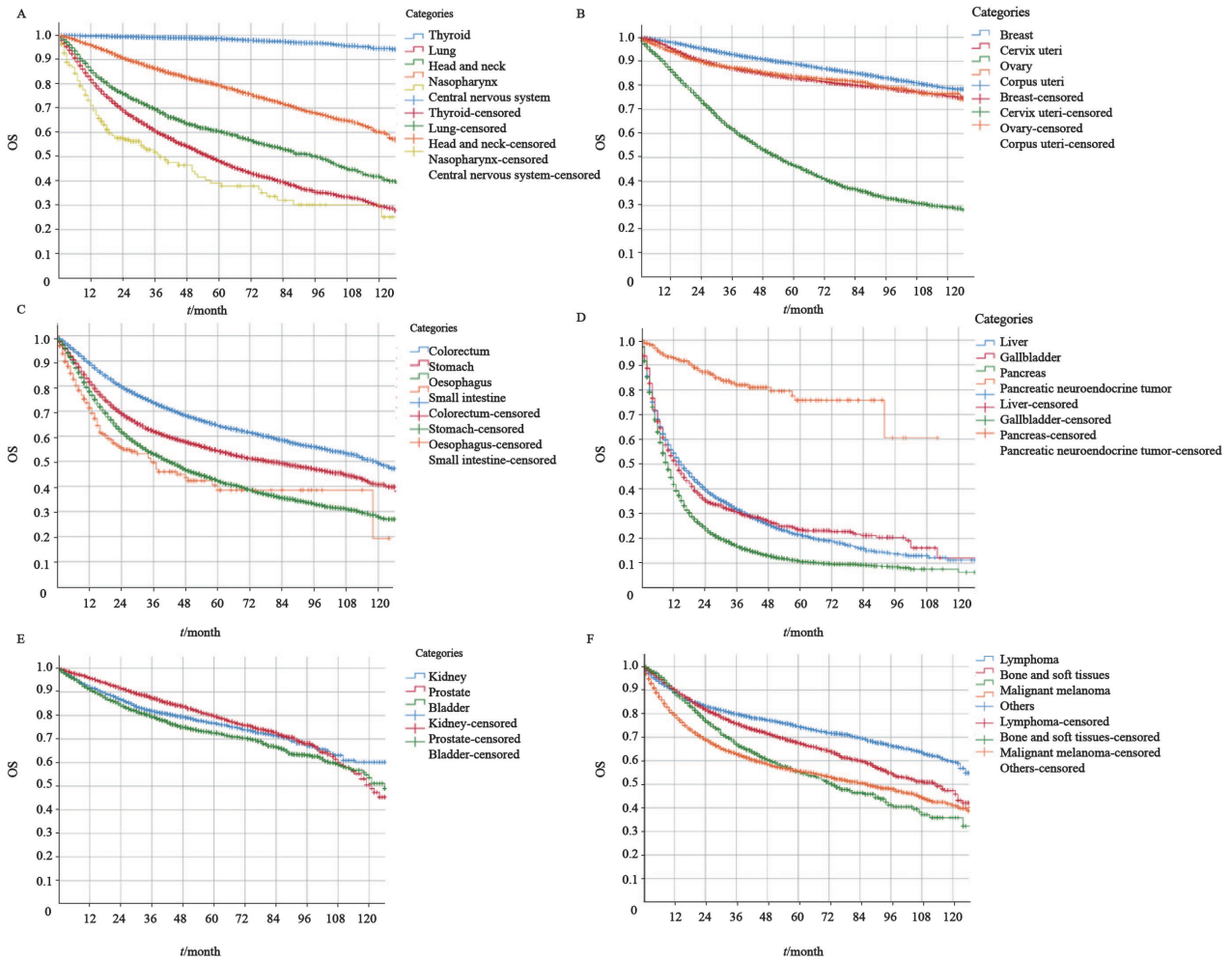


图 1 各分组恶性肿瘤Kaplan–Meier生存曲线

Fig. 1 Kaplan-Meier survival curve in all categories

A: Head, neck and thoracic cancers; B: Female cancers; C: Digestive tract cancers; D: Hepatopancreatobiliary cancers; E: Urological cancers; F: Other cancers

除甲状腺癌外，男性常见恶性肿瘤病例的5年OS以前列腺癌最高，为80.4%，其次分别是鼻咽癌（77.7%）、肾癌（74.1%）和胰腺神经内分泌瘤（73.7%）。男性5年OS最低的是胰腺癌（9.4%），其次是肝癌（22.9%）、胆囊癌（24.4%）和中枢神经系统恶性肿瘤（31.7%），男性肺癌、食管癌和小肠癌的5年OS均在40%左右。

除甲状腺癌外，女性常见恶性肿瘤病例的5年OS以乳腺癌最高，为89.2%、其次分别是鼻咽癌（84.8%）、子宫体癌（84.0%）和子宫颈癌（83.0%）。女性5年OS最低的是胰腺癌（14.3%），其次是肝癌（20.1%）、胆囊癌（23.8%）和卵巢癌（47.3%）。女性在头颈部、鼻咽、食管、肺、肾、中枢神经系统和淋巴瘤的生存情况均显著优于男性（表2）。

表2 恶性肿瘤患者按性别的OS（2008—2017）

Tab. 2 OS of cancer inpatients (2008—2017), by gender

Site	ICD-10	Gender	Patient n	Median follow-up time (95% CI)/month	OS (95% CI)/%		
					1-year	3-year	5-year
Head and neck [†]	C00-C10, C12-C14	Male	1 737	65.0 (60.5, 69.5)	85.7 (84.0, 87.4)	66.5 (64.0, 68.9)	56.3 (53.5, 59.0)
		Female	675	62.0 (57.5, 66.5)	91.7 (89.5, 93.9)	80.4 (77.1, 83.7)	72.8 (68.9, 76.7)
		Total	2 412	64.0 (60.6, 67.4)	87.4 (86.0, 88.8)	70.4 (68.4, 72.4)	60.9 (58.6, 63.2)
Nasopharynx	C11	Male	4 537	70.0 (68.5, 71.5)	95.7 (95.1, 96.3)	85.6 (84.6, 86.7)	77.7 (76.3, 79.0)
		Female	1 651	69.0 (66.5, 71.5)	97.5 (96.8, 98.3)	89.5 (87.9, 91.0)	84.8 (82.8, 86.7)
		Total	6 188	70.0 (68.7, 71.3)	96.2 (95.7, 96.7)	86.7 (85.8, 87.6)	79.6 (78.5, 80.7)
Oesophagus	C15	Male	7 726	48.0 (46.5, 49.5)	78.9 (77.9, 79.8)	51.7 (50.5, 53.0)	40.6 (39.2, 41.9)
		Female	1 904	50.0 (47.2, 52.8)	87.0 (85.4, 88.6)	62.9 (60.5, 65.4)	53.4 (50.7, 56.2)
		Total	9 630	49.0 (47.6, 50.4)	80.5 (79.7, 81.3)	53.9 (52.8, 55.1)	43.1 (41.9, 44.3)
Stomach	C16	Male	8 621	51.0 (49.6, 52.4)	84.8 (84.0, 85.6)	63.6 (62.5, 64.7)	54.9 (53.6, 56.1)
		Female	3 864	50.0 (48.0, 52.0)	81.1 (79.9, 82.4)	60.0 (58.3, 61.7)	53.7 (51.9, 55.6)
		Total	12 485	51.0 (49.8, 52.2)	83.7 (83.0, 84.3)	62.5 (61.6, 63.4)	54.5 (53.5, 55.6)
Small intestine	C17	Male	167	28.0 (19.8, 36.2)	74.2 (67.1, 81.4)	50.4 (41.0, 59.9)	40.3 (29.2, 51.5)
		Female	104	25.0 (20.3, 29.7)	77.2 (68.6, 85.8)	52.2 (40.4, 64.0)	43.0 (29.3, 56.6)
		Total	271	26.0 (22.5, 29.5)	75.4 (69.9, 80.9)	51.0 (43.6, 58.5)	41.4 (32.7, 50.0)
Colorectum	C18-C21	Male	10 892	53.0 (52.0, 54.0)	90.1 (89.6, 90.7)	73.7 (72.8, 74.6)	64.4 (63.4, 65.5)
		Female	7 472	54.0 (52.7, 55.3)	89.8 (89.1, 90.5)	73.9 (72.8, 75.0)	64.7 (63.5, 66.0)
		Total	18 364	53.0 (52.2, 53.8)	90.0 (89.6, 90.4)	73.8 (73.1, 74.4)	64.6 (63.7, 65.4)
Liver	C22	Male	3 606	35.0 (33.6, 36.4)	58.4 (56.8, 60.1)	34.4 (32.6, 36.2)	22.9 (20.9, 24.9)
		Female	1 080	35.0 (32.6, 37.4)	55.2 (52.1, 58.3)	29.2 (26.1, 32.3)	20.1 (16.7, 23.5)
		Total	4 686	35.0 (33.8, 36.2)	57.7 (56.2, 59.2)	33.2 (31.6, 34.7)	22.3 (20.5, 24.0)
Gallbladder	C23-C24	Male	549	41.0 (36.4, 45.6)	57.9 (53.6, 62.2)	32.1 (27.6, 36.5)	24.4 (19.8, 29.0)
		Female	612	42.0 (36.8, 47.2)	52.4 (48.3, 56.4)	31.1 (27.1, 35.2)	23.8 (19.6, 28.0)
		Total	1 161	42.0 (38.4, 45.6)	54.9 (52.0, 57.9)	31.6 (28.6, 34.6)	24.1 (21.0, 27.2)
Pancreas [‡]	C25	Male	4 131	37.0 (34.7, 39.3)	43.7 (42.1, 45.2)	15.7 (14.4, 17.0)	9.4 (8.1, 10.7)
		Female	2 813	37.0 (34.7, 39.3)	50.8 (48.9, 52.7)	21.4 (19.6, 23.1)	14.3 (12.5, 16.1)
		Total	6 944	37.0 (35.3, 38.7)	46.6 (45.4, 47.8)	18.0 (16.9, 19.0)	11.4 (10.4, 12.5)
Pancreatic neuroendocrine tumor [†]	C25.4	Male	153	32.0 (27.3, 36.7)	90.5 (85.6, 95.4)	77.5 (69.6, 85.4)	73.7 (63.3, 84.1)
		Female	168	26.0 (21.4, 30.6)	96.0 (92.9, 99.1)	87.8 (81.6, 94.0)	77.6 (66.5, 88.8)
		Total	321	29.0 (25.3, 32.7)	93.4 (90.5, 96.3)	82.9 (77.9, 87.9)	75.7 (67.9, 83.4)

续表 2

Site	ICD-10	Gender	Patient <i>n</i>	Median follow-up time (95% CI)/month	OS (95% CI)/%		
					1-year	3-year	5-year
Lung	C34	Male	9 885	45.0 (43.7, 46.3)	78.8 (78.0, 79.7)	52.9 (51.8, 54.0)	40.4 (39.1, 41.6)
		Female	6 525	41.0 (39.8, 42.2)	91.0 (90.2, 91.7)	74.8 (73.7, 76.0)	62.2 (60.6, 63.8)
		Total	16 410	43.0 (42.1, 43.9)	83.7 (83.1, 84.3)	61.7 (60.9, 62.5)	49.0 (48.0, 50.0)
Bone and soft tissues	C40-42, C45-C49	Male	2 513	36.0 (33.0, 39.0)	91.3 (90.1, 92.5)	75.4 (73.4, 77.5)	67.5 (65.0, 70.0)
		Female	2 828	38.0 (35.3, 40.7)	92.7 (91.6, 93.7)	78.3 (76.4, 80.1)	69.6 (67.3, 71.8)
		Total	5 341	37.0 (35.0, 39.0)	92.0 (91.2, 92.8)	77.0 (75.6, 78.4)	68.6 (66.9, 70.3)
Malignant melanoma	C43-C44	Male	687	51.0 (48.4, 53.6)	89.7 (87.3, 92.0)	65.0 (61.0, 68.9)	51.5 (46.9, 56.1)
		Female	798	50.0 (46.8, 53.2)	91.6 (89.7, 93.6)	71.0 (67.6, 74.5)	59.3 (55.1, 63.4)
		Total	1 485	50.0 (47.6, 52.4)	90.7 (89.2, 92.2)	68.3 (65.7, 70.9)	55.7 (52.6, 58.8)
Breast	C50	Male	196	59.0 (54.8, 63.2)	98.9 (97.5, 100.0)	95.8 (92.8, 98.9)	89.1 (83.7, 94.4)
		Female	36 111	55.0 (54.5, 55.5)	98.2 (98.0, 98.3)	93.1 (92.9, 93.4)	89.2 (88.8, 89.6)
		Total	36 307	55.0 (54.5, 55.5)	98.2 (98.0, 98.3)	93.1 (92.9, 93.4)	89.2 (88.8, 89.6)
Cervix uteri	C53	Female	14 780	53.0 (52.1, 53.9)	96.2 (95.8, 96.5)	87.2 (86.7, 87.8)	83.0 (82.3, 83.7)
Corpus uteri	C54	Female	3 498	51.0 (49.2, 52.8)	94.7 (94.0, 95.5)	87.5 (86.3, 88.7)	84.0 (82.6, 85.4)
Ovary	C56	Female	6 509	54.0 (52.4, 55.6)	88.0 (87.2, 88.8)	62.7 (61.4, 64.0)	47.3 (45.8, 48.8)
Prostate	C61	Male	4 314	34.0 (32.5, 35.5)	96.6 (96.0, 97.1)	88.1 (86.9, 89.3)	80.4 (78.7, 82.0)
Kidney	C64	Male	2 539	47.0 (45.1, 48.9)	91.9 (90.8, 93.0)	79.9 (78.2, 81.6)	74.1 (72.1, 76.2)
		Female	1 237	45.0 (42.5, 47.5)	94.2 (92.8, 95.5)	87.0 (84.9, 89.1)	82.7 (80.1, 85.3)
		Total	3 776	46.0 (44.4, 47.6)	92.6 (91.8, 93.5)	82.2 (80.8, 83.5)	76.9 (75.2, 78.5)
Bladder	C67	Male	3 038	45.0 (42.8, 47.2)	92.3 (91.3, 93.3)	81.0 (79.4, 82.6)	73.5 (71.6, 75.5)
		Female	710	42.0 (38.2, 45.8)	91.3 (89.1, 93.5)	77.8 (74.3, 81.4)	71.0 (66.8, 75.3)
		Total	3 748	44.0 (42.1, 45.9)	92.1 (91.2, 93.0)	80.4 (79.0, 81.9)	73.1 (71.3, 74.8)
Central nervous system	C70-C72	Male	157	29.0 (25.9, 32.1)	69.4 (61.9, 77.0)	44.3 (35.2, 53.4)	31.7 (21.5, 42.0)
		Female	119	27.0 (23.1, 30.9)	81.1 (73.8, 88.4)	65.7 (55.9, 75.4)	50.2 (36.2, 64.3)
		Total	276	28.0 (25.5, 30.5)	74.5 (69.2, 79.9)	53.7 (46.8, 60.5)	39.6 (31.1, 48.1)
Thyroid	C73	Male	7 933	47.0 (46.0, 48.0)	99.4 (99.3, 99.6)	98.6 (98.3, 98.9)	97.7 (97.3, 98.1)
		Female	21 578	48.0 (47.5, 48.5)	99.8 (99.7, 99.8)	99.4 (99.3, 99.5)	98.9 (98.7, 99.1)
		Total	29 511	47.0 (46.5, 47.5)	99.7 (99.6, 99.8)	99.2 (99.1, 99.3)	98.6 (98.4, 98.8)
Lymphoma	C81-85, C96	Male	3 058	57.0 (54.8, 59.2)	89.3 (88.2, 90.5)	77.7 (76.1, 79.4)	71.6 (69.7, 73.4)
		Female	2 163	59.0 (56.6, 61.4)	91.6 (90.4, 92.8)	83.0 (81.3, 84.7)	79.2 (77.3, 81.1)
		Total	5 221	58.0 (56.4, 59.6)	90.3 (89.4, 91.1)	80.0 (78.8, 81.1)	74.8 (73.4, 76.1)
Others		Male	4 652	35.0 (32.6, 37.4)	82.5 (81.4, 83.7)	63.7 (62.0, 65.4)	56.1 (54.2, 58.0)
		Female	4 252	34.0 (31.5, 36.5)	84.2 (82.9, 85.4)	67.6 (65.9, 69.4)	59.3 (57.3, 61.3)
		Total	8 904	34.0 (32.2, 35.8)	83.3 (82.5, 84.2)	65.6 (64.3, 66.8)	57.6 (56.2, 59.0)
Total		Male	81 091	49.0 (48.5, 49.5)	84.3 (84.0, 84.6)	67.0 (66.7, 67.4)	58.8 (58.4, 59.3)
		Female	121 451	52.0 (51.7, 52.3)	93.4 (93.3, 93.5)	84.0 (83.8, 84.2)	78.7 (78.4, 79.0)
		Total	202 542	50.0 (49.8, 50.2)	89.8 (89.7, 89.9)	77.4 (77.2, 77.6)	71.0 (70.7, 71.2)

†: Thyroid (C73) and nasopharynx (C11) were excluded from the head and neck category; ‡: Pancreatic neuroendocrine tumor (C25.4) was excluded from pancreatic cancer category

各个病种的OS总体趋势随着年龄增加而下降，但在胃癌、前列腺癌、结直肠癌、胰腺神经内分泌瘤中，≤44岁年龄组比45~54岁年龄组5年OS略差（表3）。

表3 恶性肿瘤患者按年龄别的OS（2008-2017）

Tab. 3 OS of cancer inpatients (2008-2017), by age groups

Site	ICD-10	Age/year	Patient <i>n</i>	Median follow-up time (95% CI)/month	OS (95% CI)/%		
					1-year	3-year	5-year
Head and neck [†]	C00-C10, C12-C14	≤44	526	60.0 (54.1, 65.9)	91.6 (89.2, 94.1)	82.7 (79.1, 86.2)	76.9 (72.7, 81.1)
		45-54	577	63.0 (55.4, 70.6)	87.8 (85.0, 90.6)	69.8 (65.7, 74.0)	60.7 (56.0, 65.3)
		55-64	773	66.0 (61.5, 70.5)	86.4 (83.9, 88.9)	69.0 (65.4, 72.6)	59.0 (55.0, 63.0)
		65-74	404	62.0 (53.7, 70.3)	85.4 (81.8, 89.0)	62.2 (56.9, 67.5)	50.3 (44.5, 56.2)
		> 75	132	75.0 (61.5, 88.5)	80.5 (73.5, 87.5)	56.8 (47.7, 65.9)	42.5 (33.0, 51.9)
		Total	2 412	64.0 (60.6, 67.4)	87.4 (86.0, 88.8)	70.4 (68.4, 72.4)	60.9 (58.6, 63.2)
Nasopharynx	C11	≤44	2 251	68.0 (66.0, 70.0)	97.8 (97.2, 98.4)	90.9 (89.6, 92.1)	86.2 (84.6, 87.8)
		45-54	1 984	70.0 (67.8, 72.2)	96.3 (95.5, 97.1)	88.1 (86.6, 89.6)	81.3 (79.4, 83.2)
		55-64	1 409	72.0 (69.1, 74.9)	95.6 (94.5, 96.7)	83.3 (81.2, 85.3)	74.2 (71.7, 76.8)
		65-74	460	73.0 (67.9, 78.1)	92.7 (90.3, 95.1)	75.5 (71.4, 79.7)	62.9 (58.0, 67.9)
		> 75	82	70.0 (50.1, 89.9)	83.4 (75.2, 91.7)	59.0 (47.9, 70.2)	45.5 (33.9, 57.1)
		Total	6 188	70.0 (68.7, 71.3)	96.2 (95.7, 96.7)	86.7 (85.8, 87.6)	79.6 (78.5, 80.7)
Oesophagus	C15	≤44	247	38.0 (29.1, 46.9)	84.4 (79.6, 89.2)	57.6 (50.3, 64.9)	51.9 (44.0, 59.8)
		45-54	1 630	50.0 (46.4, 53.6)	83.2 (81.3, 85.1)	58.0 (55.3, 60.7)	48.3 (45.3, 51.3)
		55-64	4 227	51.0 (49.1, 52.9)	82.2 (81.0, 83.4)	55.5 (53.8, 57.2)	45.1 (43.3, 46.9)
		65-74	2 802	45.0 (42.9, 47.1)	79.4 (77.9, 81.0)	52.3 (50.2, 54.4)	40.6 (38.3, 42.9)
		> 75	724	46.0 (38.7, 53.3)	67.1 (63.5, 70.7)	40.5 (36.3, 44.6)	25.7 (21.5, 29.9)
		Total	9 630	49.0 (47.6, 50.4)	80.5 (79.7, 81.3)	53.9 (52.8, 55.1)	43.1 (41.9, 44.3)
Stomach	C16	≤44	1 519	51.0 (47.8, 54.2)	82.1 (80.1, 84.1)	60.9 (58.2, 63.6)	53.4 (50.4, 56.3)
		45-54	2 641	49.0 (46.4, 51.6)	85.4 (84.0, 86.7)	66.6 (64.7, 68.6)	59.5 (57.3, 61.8)
		55-64	4 552	52.0 (50.1, 53.9)	85.3 (84.2, 86.3)	64.8 (63.2, 66.3)	56.4 (54.7, 58.2)
		65-74	3 064	49.0 (46.8, 51.2)	82.9 (81.5, 84.2)	59.9 (58.0, 61.8)	51.7 (49.6, 53.8)
		> 75	709	59.0 (54.5, 63.5)	73.6 (70.3, 77.0)	47.2 (43.2, 51.2)	39.1 (34.9, 43.2)
		Total	12 485	51.0 (49.8, 52.2)	83.7 (83.0, 84.3)	62.5 (61.6, 63.4)	54.5 (53.5, 55.6)
Small intestine	C17	≤44	46	29.0 (14.0, 44.0)	86.8 (76.1, 97.6)	68.2 (51.4, 85.0)	62.5 (43.8, 81.3)
		45-54	60	20.0 (12.5, 27.5)	75.0 (63.2, 86.8)	54.8 (39.4, 70.2)	47.0 (27.6, 66.4)
		55-64	85	28.0 (14.8, 41.2)	77.5 (68.1, 86.9)	45.3 (32.1, 58.5)	36.6 (21.5, 51.8)
		65-74	67	25.0 (13.2, 36.8)	64.1 (51.8, 76.4)	43.6 (29.1, 58.1)	26.0 (9.6, 42.3)
		> 75	13	80.0 (9.2, 150.8)	82.6 (60.7, 100.0)	61.2 (30.8, 91.5)	61.2 (30.8, 91.5)
		Total	271	26.0 (22.5, 29.5)	75.4 (69.9, 80.9)	51.0 (43.6, 58.5)	41.4 (32.7, 50.0)
Colorectum	C18-C21	≤44	2 474	53.0 (50.9, 55.1)	90.9 (89.8, 92.1)	74.8 (72.9, 76.6)	66.3 (64.1, 68.5)
		45-54	3 902	51.0 (49.0, 53.0)	91.1 (90.2, 92.0)	75.3 (73.9, 76.8)	67.2 (65.5, 69.0)
		55-64	6 322	54.0 (52.7, 55.3)	90.9 (90.1, 91.6)	75.3 (74.2, 76.5)	66.7 (65.4, 68.1)
		65-74	4 076	51.0 (49.4, 52.6)	88.9 (87.9, 89.9)	72.6 (71.2, 74.1)	62.4 (60.6, 64.2)
		> 75	1 590	59.0 (56.5, 61.5)	85.4 (83.6, 87.1)	65.4 (62.9, 67.8)	52.7 (49.9, 55.5)
		Total	18 364	53.0 (52.2, 53.8)	90.0 (89.6, 90.4)	73.8 (73.1, 74.4)	64.6 (63.7, 65.4)

续表 3

Site	ICD-10	Age/year	Patient <i>n</i>	Median follow-up time (95% CI)/month	OS (95% CI)/%		
					1-year	3-year	5-year
Liver	C22	≤44	771	30.0 (26.7, 33.3)	63.3 (59.7, 66.9)	38.3 (34.1, 42.5)	28.1 (23.4, 32.8)
		45-54	1 302	33.0 (30.1, 35.9)	58.6 (55.8, 61.4)	35.2 (32.1, 38.3)	25.0 (21.7, 28.4)
		55-64	1 560	37.0 (34.8, 39.2)	56.7 (54.1, 59.2)	32.1 (29.4, 34.7)	20.3 (17.5, 23.2)
		65-74	828	38.0 (35.0, 41.0)	54.5 (51.0, 58.0)	29.2 (25.7, 32.7)	18.1 (14.4, 21.9)
		> 75	225	36.0 (34.2, 37.8)	53.4 (46.7, 60.1)	29.3 (22.6, 36.0)	18.7 (11.6, 25.8)
		Total	4 686	35.0 (33.8, 36.2)	57.7 (56.2, 59.2)	33.2 (31.6, 34.7)	22.3 (20.5, 24.0)
Gallbladder	C23-C24	≤44	103	50.0 (39.5, 60.5)	68.3 (58.9, 77.6)	45.1 (34.4, 55.8)	34.9 (23.9, 45.9)
		45-54	237	41.0 (35.9, 46.1)	59.0 (52.4, 65.5)	39.6 (32.5, 46.7)	30.0 (22.1, 38.0)
		55-64	440	40.0 (33.6, 46.4)	55.7 (50.9, 60.5)	31.8 (27.0, 36.6)	23.2 (18.1, 28.3)
		65-74	285	44.0 (31.8, 56.2)	48.6 (42.7, 54.6)	23.8 (18.4, 29.3)	20.1 (14.6, 25.6)
		> 75	96	45.0 (26.0, 64.0)	46.7 (36.4, 57.0)	21.6 (12.1, 31.2)	14.6 (5.4, 23.9)
		Total	1 161	42.0 (38.4, 45.6)	54.9 (52.0, 57.9)	31.6 (28.6, 34.6)	24.1 (21.0, 27.2)
Pancreas [‡]	C25	≤44	511	33.0 (28.9, 37.1)	68.3 (64.0, 72.6)	45.2 (40.0, 50.5)	39.0 (33.2, 44.9)
		45-54	1 312	32.0 (28.7, 35.3)	50.8 (48.0, 53.7)	20.4 (17.7, 23.1)	12.8 (10.1, 15.5)
		55-64	2 585	41.0 (39.0, 43.0)	45.7 (43.7, 47.7)	16.9 (15.3, 18.6)	10.5 (8.9, 12.2)
		65-74	1 971	37.0 (33.4, 40.6)	42.0 (39.8, 44.2)	14.1 (12.3, 15.8)	7.8 (6.1, 9.5)
		> 75	565	38.0 (31.3, 44.7)	38.9 (34.8, 43.0)	10.5 (7.6, 13.5)	4.7 (2.1, 7.3)
		Total	6 944	37.0 (35.3, 38.7)	46.6 (45.4, 47.8)	18.0 (16.9, 19.0)	11.4 (10.4, 12.5)
Pancreatic neuroendocrine tumor [‡]	C25.4	≤44	79	28.0 (21.9, 34.1)	97.1 (93.2, 100.0)	85.1 (75.4, 94.9)	70.1 (52.5, 87.8)
		45-54	79	32.0 (30.0, 34.0)	91.7 (85.4, 98.1)	84.4 (75.3, 93.5)	84.4 (75.3, 93.5)
		55-64	102	25.0 (21.3, 28.7)	94.4 (89.7, 99.2)	79.3 (69.2, 89.4)	75.7 (63.9, 87.5)
		65-74	49	26.0 (15.7, 36.3)	90.8 (82.2, 99.4)	86.8 (75.5, 98.0)	77.1 (56.7, 97.6)
		> 75	12	34.0 (13.4, 54.6)	82.6 (60.7, 100.0)	71.6 (43.9, 99.2)	71.6 (43.9, 99.2)
		Total	321	29.0 (25.3, 32.7)	93.4 (90.5, 96.3)	82.9 (77.9, 87.9)	75.7 (67.9, 83.4)
Lung	C34	≤44	1 576	34.0 (32.0, 36.0)	90.3 (88.8, 91.9)	73.3 (70.7, 75.8)	60.7 (57.2, 64.2)
		45-54	3 628	39.0 (37.4, 40.6)	87.2 (86.1, 88.4)	66.4 (64.6, 68.2)	53.8 (51.7, 56.0)
		55-64	6 222	46.0 (44.6, 47.4)	83.6 (82.7, 84.6)	61.8 (60.5, 63.1)	50.3 (48.7, 51.8)
		65-74	4 008	44.0 (42.2, 45.8)	80.7 (79.4, 81.9)	56.6 (54.9, 58.3)	43.0 (41.0, 44.9)
		> 75	976	53.0 (47.5, 58.5)	73.0 (70.1, 75.8)	47.5 (44.1, 51.0)	32.5 (28.9, 36.1)
		Total	16 410	43.0 (42.1, 43.9)	83.7 (83.1, 84.3)	61.7 (60.9, 62.5)	49.0 (48.0, 50.0)
Bone and soft tissues	C40-49	≤44	2 108	33.0 (30.1, 35.9)	94.3 (93.3, 95.4)	82.6 (80.6, 84.6)	75.4 (72.8, 77.9)
		45-54	1 210	38.0 (34.0, 42.0)	93.5 (92.0, 95.0)	77.2 (74.3, 80.1)	70.2 (66.8, 73.6)
		55-64	1 143	40.0 (35.9, 44.1)	90.4 (88.5, 92.2)	73.5 (70.4, 76.6)	64.1 (60.4, 67.8)
		65-74	618	43.0 (38.1, 47.9)	87.9 (85.1, 90.7)	71.9 (67.6, 76.1)	60.9 (55.7, 66.0)
		> 75	262	49.0 (39.6, 58.4)	84.3 (79.6, 89.0)	61.4 (54.4, 68.4)	49.6 (41.8, 57.4)
		Total	5 341	37.0 (35.0, 39.0)	92.0 (91.2, 92.8)	77.0 (75.6, 78.4)	68.6 (66.9, 70.3)

续表 3

Site	ICD-10	Age/year	Patient <i>n</i>	Median follow-up time (95% CI)/month	OS (95% CI)/%		
					1-year	3-year	5-year
Malignant melanoma	C43-C44	≤44	294	49.0 (44.5, 53.5)	93.9 (91.1, 96.7)	79.2 (74.1, 84.2)	68.4 (61.8, 74.9)
		45-54	359	44.0 (38.3, 49.7)	90.2 (87.0, 93.4)	71.9 (66.7, 77.1)	61.9 (55.5, 68.4)
		55-64	423	52.0 (47.2, 56.8)	92.8 (90.3, 95.4)	66.7 (61.8, 71.6)	53.5 (47.7, 59.2)
		65-74	254	50.0 (45.3, 54.7)	88.5 (84.5, 92.5)	62.6 (56.2, 69.1)	48.6 (41.3, 56.0)
		> 75	155	55.0 (48.2, 61.8)	83.8 (77.8, 89.7)	54.4 (45.9, 62.9)	38.3 (29.2, 47.3)
		Total	1 485	50.0 (47.6, 52.4)	90.7 (89.2, 92.2)	68.3 (65.7, 70.9)	55.7 (52.6, 58.8)
Breast	C50	≤44	11 332	54.0 (53.1, 54.9)	98.3 (98.1, 98.6)	94.4 (94.0, 94.9)	91.3 (90.7, 91.9)
		45-54	12 152	54.0 (53.1, 54.9)	98.2 (98.0, 98.5)	93.0 (92.5, 93.5)	89.5 (88.8, 90.1)
		55-64	8 725	59.0 (58.1, 59.9)	98.0 (97.7, 98.3)	92.6 (92.0, 93.2)	88.3 (87.5, 89.1)
		65-74	3 147	54.0 (52.4, 55.6)	97.9 (97.4, 98.4)	92.2 (91.2, 93.2)	86.5 (85.1, 88.0)
		> 75	951	60.0 (57.6, 62.4)	97.3 (96.3, 98.4)	88.1 (85.9, 90.3)	78.0 (75.0, 81.1)
		Total	36 307	55.0 (54.5, 55.5)	98.2 (98.0, 98.3)	93.1 (92.9, 93.4)	89.2 (88.8, 89.6)
Cervix uteri	C53	≤44	5 787	56.0 (54.4, 57.6)	96.7 (96.2, 97.2)	89.6 (88.7, 90.4)	86.7 (85.7, 87.7)
		45-54	5 355	52.0 (50.6, 53.4)	95.8 (95.2, 96.3)	86.4 (85.4, 87.4)	82.0 (80.8, 83.2)
		55-64	2 810	52.0 (50.2, 53.8)	96.4 (95.7, 97.1)	86.6 (85.2, 88.0)	80.9 (79.1, 82.6)
		65-74	729	47.0 (43.0, 51.0)	94.9 (93.3, 96.6)	80.7 (77.5, 83.9)	71.7 (67.6, 75.8)
		> 75	99	72.0 (53.0, 91.0)	87.8 (81.4, 94.3)	63.2 (53.3, 73.2)	55.8 (45.1, 66.5)
		Total	14 780	53.0 (52.1, 53.9)	96.2 (95.8, 96.5)	87.2 (86.7, 87.8)	83.0 (82.3, 83.7)
Corpus uteri	C54-C55	≤44	569	50.0 (46.3, 53.7)	95.9 (94.2, 97.5)	91.7 (89.2, 94.2)	89.4 (86.4, 92.3)
		45-54	1 245	48.0 (44.9, 51.1)	96.7 (95.7, 97.8)	91.8 (90.2, 93.5)	89.6 (87.6, 91.6)
		55-64	1 225	52.0 (49.2, 54.8)	94.1 (92.7, 95.4)	86.0 (83.9, 88.1)	81.7 (79.2, 84.2)
		65-74	366	58.0 (51.7, 64.3)	90.0 (86.8, 93.1)	77.8 (73.3, 82.3)	72.6 (67.5, 77.8)
		> 75	92	65.0 (51.6, 78.4)	88.6 (81.9, 95.2)	65.2 (54.7, 75.7)	58.4 (47.0, 69.7)
		Total	3 498	51.0 (49.2, 52.8)	94.7 (94.0, 95.5)	87.5 (86.3, 88.7)	84.0 (82.6, 85.4)
Ovary	C56	≤44	1 399	53.0 (50.0, 56.0)	90.5 (88.9, 92.1)	73.4 (70.9, 76.0)	62.0 (58.9, 65.1)
		45-54	2 177	49.0 (46.3, 51.7)	88.8 (87.4, 90.1)	63.6 (61.3, 65.8)	48.8 (46.2, 51.4)
		55-64	1 999	58.0 (55.3, 60.7)	87.6 (86.1, 89.1)	59.0 (56.7, 61.4)	42.2 (39.6, 44.7)
		65-74	783	52.0 (47.4, 56.6)	85.2 (82.6, 87.7)	54.3 (50.4, 58.1)	34.6 (30.4, 38.8)
		> 75	151	69.0 (57.3, 80.7)	76.0 (69.1, 83.0)	48.1 (39.7, 56.5)	30.8 (22.5, 39.1)
		Total	6 509	54.0 (52.4, 55.6)	88.0 (87.2, 88.8)	62.7 (61.4, 64.0)	47.3 (45.8, 48.8)
Prostate	C61	≤44	17	15.0 (8.0, 22.0)	85.7 (67.4, 100.0)	85.7 (67.4, 100.0)	64.3 (25.4, 100.0)
		45-54	192	29.0 (24.0, 34.0)	98.8 (97.2, 100.0)	88.6 (83.0, 94.1)	78.9 (70.0, 87.7)
		55-64	1 289	36.0 (33.4, 38.6)	96.8 (95.7, 97.8)	89.7 (87.7, 91.7)	83.4 (80.6, 86.3)
		65-74	2 075	33.0 (30.8, 35.2)	97.1 (96.3, 97.9)	89.1 (87.5, 90.8)	82.5 (80.2, 84.8)
		> 75	741	37.0 (33.8, 40.2)	94.4 (92.7, 96.2)	82.7 (79.4, 85.9)	70.5 (65.9, 75.1)
		Total	4 314	34.0 (32.5, 35.5)	96.6 (96.0, 97.1)	88.1 (86.9, 89.3)	80.4 (78.7, 82.0)

续表 3

Site	ICD-10	Age/year	Patient <i>n</i>	Median follow-up time (95% CI)/month	OS (95% CI)/%		
					1-year	3-year	5-year
Kidney	C64	≤44	741	45.0 (41.8, 48.2)	97.1 (95.9, 98.4)	91.2 (88.9, 93.5)	88.6 (85.8, 91.4)
		45-54	972	44.0 (41.2, 46.8)	95.0 (93.6, 96.4)	88.0 (85.8, 90.3)	83.7 (80.9, 86.5)
		55-64	1 191	48.0 (45.0, 51.0)	91.1 (89.4, 92.8)	79.9 (77.4, 82.4)	73.0 (70.0, 76.0)
		65-74	678	46.0 (41.8, 50.2)	88.5 (86.1, 91.0)	72.8 (69.1, 76.5)	66.4 (62.0, 70.7)
		> 75	194	48.0 (42.9, 53.1)	87.5 (82.7, 92.3)	65.9 (58.5, 73.4)	60.5 (52.3, 68.8)
		Total	3 776	46.0 (44.4, 47.6)	92.6 (91.8, 93.5)	82.2 (80.8, 83.5)	76.9 (75.2, 78.5)
Bladder	C67	≤44	379	45.0 (38.1, 51.9)	98.5 (97.3, 99.8)	94.6 (92.0, 97.2)	91.2 (87.7, 94.7)
		45-54	621	40.0 (36.3, 43.7)	95.3 (93.6, 97.1)	89.0 (86.2, 91.8)	82.7 (78.8, 86.6)
		55-64	1 221	47.0 (43.8, 50.2)	95.1 (93.8, 96.3)	84.7 (82.4, 87.0)	80.9 (78.3, 83.5)
		65-74	988	44.0 (40.5, 47.5)	90.5 (88.5, 92.4)	76.5 (73.5, 79.5)	67.1 (63.4, 70.8)
		> 75	539	46.0 (41.7, 50.3)	80.1 (76.5, 83.6)	58.2 (53.5, 62.9)	42.2 (36.8, 47.6)
		Total	3 748	44.0 (42.1, 45.9)	92.1 (91.2, 93.0)	80.4 (79.0, 81.9)	73.1 (71.3, 74.8)
Central nervous system	C70-C72	≤44	111	29.0 (24.7, 33.3)	88.2 (82.0, 94.5)	71.7 (62.0, 81.3)	56.4 (43.2, 69.7)
		45-54	72	25.0 (23.1, 26.9)	73.1 (62.5, 83.7)	50.9 (37.3, 64.4)	35.3 (14.6, 55.9)
		55-64	47	30.0 (23.4, 36.6)	65.1 (50.9, 79.4)	49.7 (33.5, 65.9)	33.1 (14.4, 51.9)
		65-74	36	28.0 (22.9, 33.1)	58.2 (41.5, 74.9)	23.3 (6.6, 40.0)	11.6 (0.0, 29.8)
		> 75	10	9.0 (0.0, 20.6)	36.8 (6.2, 67.5)	0.0 (0.0, 0.0)	N/A
		Total	276	28.0 (25.5, 30.5)	74.5 (69.2, 79.9)	53.7 (46.8, 60.5)	39.6 (31.1, 48.1)
Thyroid	C73	≤44	15 650	47.0 (46.3, 47.7)	99.9 (99.9, 100.0)	99.8 (99.7, 99.9)	99.6 (99.5, 99.8)
		45-54	8 067	47.0 (46.1, 47.9)	99.9 (99.8, 99.9)	99.5 (99.3, 99.7)	98.9 (98.6, 99.2)
		55-64	4 537	50.0 (48.8, 51.2)	99.2 (98.9, 99.4)	97.9 (97.5, 98.4)	96.8 (96.1, 97.4)
		65-74	1 124	49.0 (46.7, 51.3)	97.4 (96.4, 98.3)	94.5 (93.1, 95.9)	91.2 (89.2, 93.2)
		> 75	133	52.0 (42.2, 61.8)	98.4 (96.3, 100.0)	92.4 (87.6, 97.2)	86.3 (79.0, 93.6)
		Total	29 511	47.0 (46.5, 47.5)	99.7 (99.6, 99.8)	99.2 (99.1, 99.3)	98.6 (98.4, 98.8)
Lymphoma	C81-85, C96	≤44	1 843	57.0 (54.3, 59.7)	94.3 (93.2, 95.4)	87.4 (85.8, 89.1)	84.2 (82.3, 86.1)
		45-54	1 091	56.0 (52.5, 59.5)	90.9 (89.2, 92.7)	82.0 (79.6, 84.5)	77.7 (74.8, 80.5)
		55-64	1 358	60.0 (57.0, 63.0)	89.2 (87.6, 90.9)	77.0 (74.6, 79.4)	71.7 (69.0, 74.5)
		65-74	727	57.0 (53.1, 60.9)	85.7 (83.1, 88.3)	70.5 (66.9, 74.1)	61.3 (57.2, 65.4)
		> 75	202	64.0 (56.5, 71.5)	74.1 (67.9, 80.3)	56.5 (49.2, 63.7)	45.4 (37.6, 53.3)
		Total	5 221	58.0 (56.4, 59.6)	90.3 (89.4, 91.1)	80.0 (78.8, 81.1)	74.8 (73.4, 76.1)
Others	/	≤44	2 606	25.0 (22.2, 27.8)	91.2 (90.0, 92.4)	80.5 (78.5, 82.5)	74.5 (72.1, 76.8)
		45-54	1 997	33.0 (29.3, 36.7)	85.9 (84.2, 87.6)	67.7 (65.0, 70.3)	60.7 (57.7, 63.6)
		55-64	2 294	41.0 (37.3, 44.7)	79.4 (77.6, 81.2)	59.4 (56.9, 61.8)	50.9 (48.3, 53.6)
		65-74	1 347	39.0 (34.1, 43.9)	75.0 (72.5, 77.6)	52.1 (48.8, 55.4)	42.9 (39.4, 46.4)
		> 75	567	52.0 (46.0, 58.0)	74.3 (70.5, 78.1)	53.2 (48.4, 58.0)	41.5 (36.4, 46.6)
		Total	8 904	34.0 (32.2, 35.8)	83.3 (82.5, 84.2)	65.6 (64.3, 66.8)	57.6 (56.2, 59.0)

续表 3

Site	ICD-10	Age/year	Patient <i>n</i>	Median follow-up time (95% CI)/month	OS (95% CI)/%		
					1-year	3-year	5-year
Total	C00-C96	≤44	52 961	49.0 (48.6, 49.4)	95.7 (95.6, 95.9)	89.4 (89.1, 89.7)	85.8 (85.5, 86.2)
		45-54	52 886	49.0 (48.5, 49.5)	92.1 (91.9, 92.4)	81.4 (81.0, 81.7)	75.9 (75.4, 76.3)
		55-64	56 569	52.0 (51.5, 52.5)	87.6 (87.3, 87.8)	72.4 (72.0, 72.8)	65.0 (64.6, 65.5)
		65-74	30 899	48.0 (47.3, 48.7)	83.2 (82.8, 83.6)	64.9 (64.3, 65.5)	55.6 (55.0, 56.3)
		> 75	9 224	54.0 (52.5, 55.5)	78.4 (77.6, 79.3)	57.7 (56.6, 58.8)	46.1 (44.9, 47.3)
		Total	202 542	50.0 (49.8, 50.2)	89.8 (89.7, 89.9)	77.4 (77.2, 77.6)	71.0 (70.7, 71.2)

†: Thyroid (C73) and nasopharynx (C11) were excluded from the head and neck category; ‡: Pancreatic neuroendocrine tumor (C25.4) was excluded from pancreatic cancer category

相比2008—2012年，2013—2017年首次治疗患者的5年OS，除了乳腺癌 [90.0% (89.5%~90.5%) vs 88.2% (87.7%~88.8%)]、肺癌 [55.9% (54.6%~57.3%) vs 39.9% (38.4%~41.3%)] 和肾癌 [80.7% (78.8%~82.7%) vs 72.6% (70.0%~75.25%)] 有显著提升以外，其它瘤种未见明显变化 (表4)。

表 4 恶性肿瘤患者按时期的OS (2008—2017年)

Tab. 4 OS of cancer inpatients (2008—2017), by periods

Site	ICD-10	Period	Patient <i>n</i>	Median follow-up time (95% CI)/month	OS (95% CI)/%		
					1-year	3-year	5-year
Head and neck [†]	C00-C10, C12-C14	2008—2012	1 486	83.0 (80.1, 85.9)	89.3 (87.6, 90.9)	74.1 (71.7, 76.6)	65.2 (62.4, 67.9)
		2013—2017	926	41.0 (38.5, 43.5)	84.4 (82.0, 86.8)	64.3 (60.9, 67.8)	53.2 (49.0, 57.3)
Nasopharynx	C11	2008—2012	4 108	87.0 (85.9, 88.1)	96.2 (95.6, 96.8)	87.1 (86.1, 88.2)	79.9 (78.6, 81.2)
		2013—2017	2 080	43.0 (41.7, 44.3)	96.2 (95.4, 97.0)	85.6 (83.9, 87.2)	79.0 (76.8, 81.2)
Oesophagus	C15	2008—2012	4 466	84.0 (81.9, 86.1)	79.9 (78.7, 81.1)	55.2 (53.5, 56.8)	43.3 (41.6, 45.1)
		2013—2017	5 164	40.0 (38.9, 41.1)	81.0 (79.9, 82.1)	52.9 (51.4, 54.5)	43.6 (41.9, 45.4)
Stomach	C16	2008—2012	5 055	81.0 (79.5, 82.5)	83.9 (82.8, 84.9)	63.1 (61.7, 64.6)	55.0 (53.5, 56.5)
		2013—2017	7 430	41.0 (40.1, 41.9)	83.5 (82.6, 84.4)	62.0 (60.7, 63.2)	54.3 (52.8, 55.7)
Small intestine	C17	2008—2012	68	55.0 (30.2, 79.8)	78.5 (68.2, 88.9)	59.8 (46.5, 73.1)	46.9 (32.4, 61.4)
		2013—2017	203	24.0 (20.2, 27.8)	74.3 (67.8, 80.8)	47.6 (38.6, 56.5)	40.0 (28.8, 51.2)
Colorectum	C18-C21	2008—2012	6 902	83.0 (81.9, 84.1)	90.0 (89.3, 90.7)	74.6 (73.5, 75.6)	64.9 (63.7, 66.1)
		2013—2017	11 462	41.0 (40.4, 41.6)	90.0 (89.4, 90.5)	73.3 (72.4, 74.1)	64.6 (63.5, 65.7)
Liver	C22	2008—2012	840	84.0 (80.1, 87.9)	65.0 (61.6, 68.4)	39.9 (36.1, 43.8)	26.7 (23.1, 30.3)
		2013—2017	3 846	33.0 (31.7, 34.3)	56.1 (54.5, 57.8)	31.7 (30.0, 33.4)	21.2 (19.2, 23.3)
Gallbladder	C23-C24	2008—2012	305	84.0 (78.6, 89.4)	60.1 (54.3, 65.9)	40.1 (34.0, 46.3)	29.7 (23.7, 35.6)
		2013—2017	856	35.0 (31.7, 38.3)	53.2 (49.8, 56.6)	28.8 (25.4, 32.1)	22.7 (19.0, 26.5)
Pancreas [‡]	C25	2008—2012	1 179	83.0 (79.7, 86.3)	49.5 (46.5, 52.5)	24.4 (21.5, 27.2)	14.4 (12.0, 16.9)
		2013—2017	5 765	35.0 (33.5, 36.5)	46.0 (44.7, 47.3)	16.7 (15.6, 17.8)	11.2 (9.9, 12.4)
Pancreatic neuroendocrine tumor [‡]	C25.4	2008—2012	36	74.0 (44.3, 103.7)	96.9 (90.8, 100.0)	96.9 (90.8, 100.0)	96.9 (90.8, 100.0)

续表 4

Site	ICD-10	Period	Patient <i>n</i>	Median follow-up time (95% CI)/month	OS (95% CI)%		
					1-year	3-year	5-year
		2013—2017	285	27.0 (23.7, 30.3)	92.9 (89.8, 96.1)	80.8 (75.1, 86.4)	69.5 (58.6, 80.3)
Lung	C34	2008—2012	5 875	84.0 (83.0, 85.0)	79.5 (78.5, 80.6)	53.4 (52.0, 54.9)	39.9 (38.4, 41.3)
		2013—2017	10 535	36.0 (35.3, 36.7)	86.0 (85.3, 86.6)	66.4 (65.4, 67.5)	55.9 (54.6, 57.3)
Bone and soft tissues	C40-49	2008—2012	2 268	68.0 (65.5, 70.5)	92.3 (91.1, 93.5)	80.3 (78.3, 82.2)	71.9 (69.6, 74.2)
		2013—2017	3 073	30.0 (28.6, 31.4)	91.8 (90.7, 92.8)	74.3 (72.4, 76.3)	65.8 (63.2, 68.3)
Malignant melanoma	C43-C44	2008—2012	471	86.0 (83.0, 89.0)	91.1 (88.5, 93.8)	71.3 (66.9, 75.8)	55.8 (50.8, 60.9)
		2013—2017	1 014	44.0 (41.9, 46.1)	90.5 (88.7, 92.4)	66.8 (63.6, 70.0)	55.9 (51.9, 59.9)
Breast	C50	2008—2012	13 928	90.0 (89.5, 90.5)	98.1 (97.8, 98.3)	92.5 (92.0, 92.9)	88.2 (87.7, 88.8)
		2013—2017	22 379	41.0 (40.6, 41.4)	98.2 (98.0, 98.4)	93.6 (93.3, 94.0)	90.0 (89.5, 90.5)
Cervix uteri	C53	2008—2012	7 168	80.0 (79.0, 81.0)	95.7 (95.2, 96.2)	87.1 (86.2, 87.9)	83.1 (82.1, 84.0)
		2013—2017	7 612	40.0 (39.2, 40.8)	96.6 (96.1, 97.0)	87.4 (86.6, 88.2)	82.7 (81.6, 83.8)
Corpus uteri	C54	2008—2012	1 498	81.0 (78.5, 83.5)	95.0 (93.8, 96.1)	88.5 (86.7, 90.2)	84.8 (82.8, 86.8)
		2013—2017	2 000	39.0 (37.8, 40.2)	94.5 (93.5, 95.5)	86.8 (85.2, 88.4)	83.3 (81.3, 85.4)
Ovary	C56	2008—2012	2 684	86.0 (83.8, 88.2)	86.1 (84.7, 87.4)	60.9 (59.0, 62.9)	45.6 (43.5, 47.7)
		2013—2017	3 825	41.0 (39.6, 42.4)	89.4 (88.4, 90.4)	63.9 (62.2, 65.6)	48.7 (46.6, 50.9)
Prostate	C61	2008—2012	1 335	78.0 (76.0, 80.0)	95.4 (94.2, 96.5)	86.8 (84.9, 88.7)	79.2 (76.8, 81.6)
		2013—2017	2 979	25.0 (24.3, 25.7)	97.2 (96.5, 97.8)	88.8 (87.3, 90.3)	81.3 (78.8, 83.7)
Kidney	C64	2008—2012	1 400	82.0 (80.0, 84.0)	91.6 (90.1, 93.1)	79.1 (76.8, 81.4)	72.6 (70.0, 75.2)
		2013—2017	2 376	38.0 (36.8, 39.2)	93.2 (92.2, 94.3)	84.1 (82.5, 85.7)	80.7 (78.8, 82.7)
Bladder	C67	2008—2012	1 456	83.0 (81.0, 85.0)	92.2 (90.8, 93.6)	81.0 (78.8, 83.2)	74.0 (71.5, 76.5)
		2013—2017	2 292	36.0 (34.8, 37.2)	92.0 (90.9, 93.2)	79.9 (78.0, 81.8)	71.9 (69.3, 74.5)
Central nervous system	C70-C72	2008—2012	78	91.0 (87.5, 94.5)	87.2 (79.4, 95.0)	62.9 (51.0, 74.8)	47.6 (35.1, 60.1)
		2013—2017	198	25.0 (23.4, 26.6)	69.6 (63.0, 76.3)	50.1 (41.7, 58.5)	37.0 (22.9, 51.2)
Thyroid	C73	2008—2012	8 222	80.0 (79.3, 80.7)	99.5 (99.3, 99.7)	99.0 (98.8, 99.2)	98.3 (98.0, 98.6)
		2013—2017	21 289	39.0 (38.5, 39.5)	99.8 (99.7, 99.8)	99.3 (99.1, 99.4)	98.8 (98.6, 99.0)
Lymphoma	C81-85, C96	2008—2012	2 759	83.0 (81.5, 84.5)	90.8 (89.7, 91.9)	81.4 (79.8, 83.0)	75.8 (74.0, 77.5)
		2013—2017	2 462	42.0 (40.6, 43.4)	89.7 (88.5, 90.9)	78.4 (76.6, 80.2)	74.3 (72.2, 76.4)
Others	-	2008—2012	3 903	68.0 (63.8, 72.2)	88.4 (87.3, 89.5)	71.5 (69.7, 73.2)	62.0 (60.1, 64.0)
		2013—2017	5 001	27.0 (25.6, 28.4)	79.3 (78.0, 80.5)	60.6 (58.9, 62.4)	54.6 (52.5, 56.6)
Total	-	2008—2012	77 490	83.0 (82.7, 83.3)	90.8 (90.6, 91.0)	78.6 (78.3, 78.9)	71.7 (71.3, 72.0)
		2013—2017	125 052	39.0 (38.8, 39.2)	89.2 (89.0, 89.3)	76.6 (76.3, 76.9)	70.8 (70.5, 71.2)

†: Thyroid (C73) and nasopharynx (C11) were excluded from the head and neck category; ‡: Pancreatic neuroendocrine tumor (C25.4) was excluded from pancreatic cancer category

3 讨 论

本研究是目前国内首个病例数超20万的单中

心、大规模、多病种的恶性肿瘤长期随访生存报告, 对近10年来医院环境下恶性肿瘤患者生存情况进行了客观描述, 为了解我国恶性肿瘤诊治效

果提供基础资料。

在20多万例患者中,超过七成的恶性肿瘤患者可以获得超过5年的生存期,即使是75岁以上的老年人,5年OS都能达到46.1%,表明经过规范的治疗,大部分恶性肿瘤患者可以获得较为理想的预后。然而,肝胆胰部位的恶性肿瘤预后仍非常差,尽管经过规范的治疗,5年OS仍较低。值得注意的是,胰腺癌、肝癌、胆囊癌、食管癌、肺癌和淋巴瘤等预后较差的恶性肿瘤在医院环境的生存情况和人群的生存资料数据有着相对较大的差异^[6],彰显了规范治疗对于恶性肿瘤患者的重要性。

不同性别在恶性肿瘤的总体生存上存在巨大差异,除去发病瘤别的差异以外,即使在同一类肿瘤中,女性也在大部分瘤种中的5年OS优于男性。造成这一差异的原因除了本身的生理差异之外,主要与诊断时期别、治疗方式^[10]及治疗顺应性^[12]有关。男女性不同的生活方式如吸烟、饮酒、饮食偏好和运动等方面的不同,也可能导致预后存在差异^[13]。

随着时期的变化,生存率改善的情况在不同病种中有所不同。如乳腺癌生存率的提高,可能主要归功于治疗方法的进步,尤其是对激素受体阳性和人表皮生长因子受体2(human epidermal growth factor receptor 2, HER2)阳性的患者(如芳香化酶抑制剂和曲妥珠单抗的使用)^[10],也有一部分归功于乳腺癌筛查,使得更多的患者在更早期得到诊断。早诊早治所带来的生存获益在肺癌中是最显著的,在引入低剂量CT筛查之后,上海市人群尤其是女性的肺癌发现率大幅度上升^[14],早期比例大幅提高,在生存率上则表现为肺癌患者5年OS由2008—2012年的39.9%迅速上升至2013—2017年的55.9%,且女性生存率远高于男性。人群数据中无论是中、韩等东亚国家还是美、加、澳等西方发达国家肺癌的5年OS都普遍为20%~30%^[5]。

本研究基于医院肿瘤登记的患者,与以人群为基础的生存资料不宜直接比较。2013—2017年诊治的患者由于中位随访时间较短,数据成熟度尚不足,在与2008—2012年时间段相比较时可能

存在一定的偏倚。此外,患者的完全随访率还有进一步提升的空间,未来如能提升至80%,将进一步提升数据质量。本研究纳入了所有住院治疗的恶性肿瘤患者,未排除外院治疗失败再次就诊的患者,因此会低估实际在本院初治患者的生存情况。

除性别、年龄和诊治时期之外,肿瘤分期、组织学分型、治疗方式等影响恶性肿瘤患者预后的因素,由于涉及病种广泛,资料收集完整性和可及变量限制,不足以在本文中作详细分析。在往后各瘤别的专题报告中,对部分病种结合主要预后影响因素将予以进一步详细的分类和描述,更为详细的分组可以弥补人群登记资料分类过粗的缺陷,并提供部分发病率较低的恶性肿瘤的生存率资料。

恶性肿瘤患者的生存资料对改善相关医疗卫生服务提供重要依据,基于这些资料的研究可以提供更多证据来改善临床决策、提高服务能力。目前我国人群的恶性肿瘤患者生存研究尚处于起步阶段。未来,随着信息科技的不断完善,将有机会建立更为全面、颗粒度更细化的结构化数据库。而随着光学字符识别(optical character recognition, OCR)技术和人工智能、语义识别技术的不断完善,生存随访的工作效率也有望不断提升。在结构化数据库和大规模长期随访工作的支持下,将有助于对医院生存数据进行进一步分析,校正更多混杂因素,更为客观地分析影响恶性肿瘤生存的因素,为进一步提升肿瘤患者的生存率和生存质量提供证据支持。

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