·临床研究·

老年肺结核的临床特征及其防治相关知识的影响因素

汤咏军,鲍美娟*
(上海市公共卫生临床中心,上海 201508)

【摘 要】 **目的** 分析老年肺结核的临床特征及其防治相关知识的影响因素。**方法** 将2017年7月至2019年10月上海市公共卫生临床中心收治的年龄≥60岁的165例老年肺结核患者作为研究对象(老年组),另选择同期收治的165例中青年肺结核患者作为对照(中青年组),收集两组患者临床资料,分析比较其临床特征,包括临床表现、实验室检查及肺部CT检查情况。并对老年肺结核患者进行肺结核防治知识问卷调查,根据防治知识问卷结果将患者分为全知晓组与非全知晓组,采用单因素分析和多因素logistic回归分析影响老年肺结核患者防治知识的因素。采用SPSS 26.0统计软件进行数据分析。组间比较采用χ^2检验。**结果** 老年肺结核患者临床表现主要为咳嗽(58.18%)、胸闷(57.58%)、胸痛(55.76%),2个及以上临床表现者73例(44.24%),3个及以上症状表现者92例(55.76%);实验室检查显示结核菌素纯蛋白衍生物(PPD)试验阳性率69.70%,抗酸杆菌涂片阳性率40.00%,肺部CT表现主要为结节阴影(89.09%)、钙化(54.55%)、渗出毛玻璃影(45.45%)、胸腔积液(41.82%)。老年肺结核患者胸痛比率高于中青年肺结核患者,发热、盗汗比率低于中青年肺结核患者,结节阴影、心包积液、钙化比率高于中青年肺结核患者(均$P<0.05$)。防治知识问卷调查结果显示,老年肺结核患者对所有问题的全知晓率为36.97%,对肺结核主要传播途径知晓率最高,为66.06%;对肺结核药物不良反应处理知晓率最低,为44.85%。单因素分析显示,全知晓组年龄、文化程度、家庭有人患过结核病与非全知晓组比较差异均有统计学意义($P<0.05$)。多因素logistic回归分析显示,文化程度为小学及文盲、家庭有人患过结核病是老年肺结核患者防治知识的影响因素($OR=2.849$、2.735;$P<0.05$)。**结论** 老年肺结核患者更容易出现胸痛症状,影像学检查中结节阴影、心包积液、钙化发生率也相对较高;文化程度、家庭有人患过结核病是老年肺结核患者防治知识的影响因素,可根据影响因素进行针对性肺结核防治知识宣传。

【关键词】 老年人;肺结核;临床特征;防治知识;影响因素
【中图分类号】 R521 【文献标志码】 A 【DOI】 10.11915/j.issn.1671-5403.2025.03.038

Clinical characteristics of pulmonary tuberculosis and factors influencing knowledge awareness of its prevention and treatment in the elderly

Tang Yongjun, Bao Meijuan*
(Department of Infection Control, Shanghai Public Health Clinical Center, Shanghai 201508, China)

【**Abstract**】 **Objective** To analyze the clinical characteristics of pulmonary tuberculosis (PTB) and the factors influencing knowledge awareness of its prevention and control in the elderly. **Methods** A total of 165 elderly PTB patients (aged ≥ 60 years) admitted to the Shanghai Public Health Clinical Center from July 2017 to October 2019 were selected as the study group (elderly group), and another 165 middle-aged and young PTB patients admitted during the same period were chosen as the control group (young and middle-aged group). Clinical data of the two groups of patients were collected for analysis and their clinical characteristics were compared, including clinical manifestations, laboratory tests, and chest CT findings. In addition, a questionnaire survey on the knowledge of tuberculosis prevention and treatment was conducted among the elderly patients with pulmonary tuberculosis, and based on the questionnaire results, patients were divided into the fully informed group and the non-fully informed group. Univariate and multivariate logistic regression analyses were performed to identify factors influencing the knowledge awareness of prevention and treatment of pulmonary tuberculosis among the elderly patients. SPSS statistics 26.0 was used for statistical analysis. Data comparison between two groups was performed using χ^2 test. **Results** Clinical manifestations of the elderly patients with pulmonary tuberculosis mainly included cough (58.18%), chest tightness (57.58%), and chest pain (55.76%). There were 73 cases (44.24%) with two or more clinical manifestations, and 92 cases (55.76%) with three or more symptoms. Laboratory tests showed a positive rate of 69.70% for tuberculin purified protein derivative (PPD) test and 40.00% for acid-fast bacilli smear, and common chest CT findings included nodular shadows

收稿日期: 2024-01-23; **接受日期**: 2024-06-05
基金项目: 上海市公共卫生临床中心科研启动基金(KY-GW-2017-29)
通信作者: 鲍美娟, E-mail: 276801995@qq.com

(89.09%), calcification (54.55%), ground-glass opacities (45.45%), and pleural effusion (41.82%). The ratio of chest pain in the elderly patients with pulmonary tuberculosis was higher than that in the young and middle-aged patients, the ratios of fever and night sweats were lower than those in the young and middle-aged patients ($P<0.05$), and the ratios of nodular shadows, pericardial effusion and calcifications were higher than those in the young and middle-aged group ($P<0.05$ for all). The results of the questionnaire survey on the knowledge of tuberculosis prevention and treatment showed that the overall awareness rate was 36.97% among the elderly patients with pulmonary tuberculosis, with the highest awareness rate for the primary transmission routes of tuberculosis (66.06%) and the lowest for managing adverse reactions to tuberculosis drugs (44.85%). Single-factor analysis revealed significant differences in age, education level, and family member having tuberculosis between the fully informed group and the non-fully informed group ($P<0.05$). Multivariate logistic regression analysis indicated that education level (primary school or illiterate) and family member having tuberculosis were the factors influencing knowledge awareness of tuberculosis prevention and treatment in the elderly patients (OR = 2.849, 2.735; $P<0.05$). **Conclusion** Elderly patients with pulmonary tuberculosis are more likely to experience chest pain, and imaging examinations show higher rates of nodular shadows, pericardial effusion, and calcifications. Education level and family member having tuberculosis are factors influencing knowledge awareness of the tuberculosis prevention and treatment in the elderly patients. Targeted campaigns for tuberculosis prevention and treatment can be conducted based on these influencing factors.

【Key words】 aged; tuberculosis; clinical characteristics; prevention and control knowledge; influencing factor

This work was supported by the Research Startup Fund of the Shanghai Public Health Clinical Center (KY-GW-2017-29).

Corresponding author: *Bao Meijuan*, *E-mail*: *276801995@qq.com*

肺结核为结核分枝杆菌引起的常见肺部慢性传染病,可见于任何年龄段[1]。我国人口基数大,为肺结核高发地区,且随着老龄化发展,老年肺结核病例在肺结核人群中也呈上涨趋势[2]。由于老年患者肺结核症状多不明显,加之老年人多讳疾忌医,因此其普遍存在就诊延误情况。调查显示,老年肺结核患者年均就诊延误率达到 60%以上,而这主要与老年患者对肺结核防治相关知识了解不足有关[3,4]。因此,了解老年肺结核患者临床特征及其防治相关知识的影响因素,对提高老年肺结核患者及时就诊率和其对肺结核防治相关知识的掌握程度具有重要作用。本研究旨在探讨老年肺结核的临床特征及影响其防治相关知识的因素,以期为老年肺结核患者临床诊疗及防治管理提供相关依据。

1 对象与方法

1.1 研究对象

选取 2017 年 7 月至 2019 年 10 月上海市公共卫生临床中心收治的 165 例老年肺结核患者为研究对象,其中男性 94 例,女性 71 例;年龄 60~83(71.74±5.63)岁。纳入标准:(1)符合肺结核诊断标准[5],经痰涂片阳性和肺部病变病理检查确诊;(2)年龄≥60 岁;(3)有完整临床资料,对本研究知情同意。排除标准:(1)非结核分枝杆菌感染;(2)合并呼吸系统其他疾病,如支气管扩张、肺部肿瘤等;(3)精神意识障碍;(4)合并其他传染性疾病。另选择同期收治的 165 例中青年肺结核患者作为对照(中青年组),其中男例 89 例,女 76 例例;年龄 21~59(39.28±8.14)岁。

1.2 方法

1.2.1 临床特征 包括临床表现(如咳嗽、胸闷、气短、发热、消瘦、贫血等)、实验室检查[包括结核菌素纯蛋白衍生物(purified protein derivative of tuberculin,PPD)试验、痰涂片抗酸杆菌检测]及肺部 CT 检查情况。

1.2.2 基础资料 包括性别、年龄、民族、居住地、文化程度、婚姻状况、职业及家庭是否有人患过结核病。

1.2.3 肺结核防治知识问卷 采用全国第五次结核病流行病学抽样调查报告中的结核病防治核心知识问卷[6],内容包括 5 个知识点:(1)肺结核治疗过程需全程按时规律服药;(2)肺结核症状;(3)肺结核主要传播途径;(4)肺结核药物不良反应处理;(5)结核病免费治疗政策。在对患者进行调查前,向其说明本次调查内容及目的,取得患者配合,耐心指导患者填写相关调查表,若患者填写不便可由调查人员口述内容,获得患者口述结果后再由调查人员帮忙填写。

1.3 统计学处理

采用 SPSS 26.0 统计软件进行数据分析。计数资料用例数(百分率)表示,采用 χ^2 检验。将单因素分析差异有统计学意义的因素纳入多因素分析,通过多因素 logistic 回归分析影响老年肺结核患者防治知识的相关因素。$P<0.05$ 为差异有统计学意义。

2 结 果

2.1 老年及中青年肺结核患者临床特征比较

老年肺结核患者临床表现主要为咳嗽(58.18%)、胸闷(57.58%)、胸痛(55.76%),两个及以上临床

表现者73例(44.24%),3个及以上症状表现者92例(55.76%)。实验室检查显示PPD试验阳性率69.70%,抗酸杆菌涂片阳性率40.00%,肺部CT表现主要为结节阴影(89.09%)、钙化(54.55%)、渗出毛玻璃影(45.45%)。

中青年肺结核患者临床表现主要为发热(65.45%)、咳嗽(55.76%)、胸闷(53.94%),两个及以上临床表现者75例(45.45%),3个及以上症状表现者90例(54.54%)。实验室检查显示PPD试验阳性率71.54%,抗酸杆菌涂片阳性率42.42%,肺部CT表现主要为结节阴影(80.61%)、钙化(43.64%)、渗出毛玻璃影(42.42%)。

老年肺结核患者胸痛比率高于中青年肺结核患者($P<0.05$),发热、盗汗比率低于中青年肺结核患者($P<0.05$),结节阴影、心包积液、钙化比率高于中青年肺结核患者($P<0.05$;表1)。

2.2 老年患者肺结核防治知识问卷调查结果

老年肺结核患者防治知识问卷调查结果显示,只答对一个方面问题者8例(4.85%),答对两个方面问题者17例(10.30%),答对3个方面问题者33例(20.00%),答对4个方面问题者46例(27.88%),答对5个方面问题者61例(36.97%),即患者对所有问题的全知晓率为36.97%(61/165)。对肺结核主要传播途径知晓率最高,为66.06%;对肺结核药物不良反应处理知晓率最低,为44.85%(表2)。

2.3 影响老年患者肺结核防治知识的单因素分析

将答对五个方面问题患者纳入全知晓组($n=61$),其余患者纳入非全知晓组($n=104$)。全知晓组性别、民族、居住地、职业与非全知晓组比较差异无统计学意义($P>0.05$);年龄、文化程度、家庭有人患过结核病与非全知晓组比较差异有统计学意义($P<0.05$;表3)。

表1 老年与中青年肺结核患者临床特征比较

Table 1 Comparison of clinical characteristics between elderly group and young and middle-aged group [$n=165$, n(%)]

Item	Elderly group	Young and middle-aged group	χ^2	P value
Symptom presentation				
Cough	96(58.18)	92(55.76)	0.198	0.657
Short of breath	67(40.61)	65(39.39)	0.051	0.822
Thoracodynia	92(55.76)	73(44.24)	4.376	0.036
Chest distress	95(57.58)	89(53.94)	0.442	0.506
Fever	90(54.55)	108(65.45)	4.091	0.043
Poor appetite	56(33.94)	53(32.12)	0.123	0.725
Night sweat	53(32.12)	74(44.85)	5.645	0.018
Losing weight	54(32.73)	52(31.52)	0.056	0.813
Anemia	22(13.33)	18(10.91)	0.455	0.500
Laboratory examination				
Positive PPD test	115(69.70)	118(71.52)	0.131	0.717
Acid-fast bacilli smear positive	66(40.00)	70(42.42)	0.200	0.655
Pulmonary CT findings				
Nodular shadow	147(89.09)	133(80.61)	4.620	0.032
Miliary shadows	11(6.67)	13(7.88)	0.180	0.672
Oozing shadows of ground glass	75(45.45)	70(42.42)	0.308	0.579
Fiber strip shadow	30(18.18)	33(20.00)	0.177	0.674
Film shadow	18(10.91)	20(12.12)	0.119	0.730
Pleural effusion	69(41.82)	64(38.79)	0.315	0.574
Pericardial effusion	32(19.39)	19(11.52)	3.920	0.048
Enlarged mediastinal lymph nodes	56(33.94)	51(30.91)	0.346	0.557
Hollow	51(30.91)	53(32.12)	0.056	0.813
Calcification	90(54.55)	72(43.64)	3.929	0.047

PPD: purified protein derivative of tuberculin.

表2 老年患者肺结核防治知识问卷调查结果

Table 2 Results of questionnaire survey on knowledge awareness of tuberculosis prevention and treatment among elderly patients [$n=165$, n(%)]

Knowledge point	Number of cases aware of knowledge
Requirement of regular medication throughout treatment process	87(52.73)
Pulmonary tuberculosis symptom	92(55.76)
Main transmission route of tuberculosis	109(66.06)
Treatment of adverse reactions to tuberculosis drug	74(44.85)
Free tuberculosis treatment policy	80(48.48)
Full knowledge (full knowledge of the above points)	61(36.97)

表 3 影响老年患者肺结核防治知识的单因素分析

Table 3 Univariate analysis of factors influencing knowledge awareness of tuberculosis prevention and control among elderly patients

[n(%)]

Factor	Fully informed group(n=61)	Non-fully informed group(n=104)	χ^2	P value
Gender			0.165	0.684
Male	36(59.02)	58(55.77)		
Female	25(40.98)	46(44.23)		
Age			4.142	0.042
<75 years	41(67.21)	53(50.96)		
≥75 years	20(32.79)	51(49.04)		
Nation			0.108	0.743
Han	59(96.72)	101(97.12)		
Others	2(3.28)	3(2.88)		
Place of residence			0.010	0.919
Urban area	40(65.57)	69(66.35)		
Rural area	21(34.43)	35(33.65)		
Education level			32.958	<0.001
Primary school or illiteracy	23(37.70)	85(81.73)		
Secondary school or above	38(62.30)	19(18.27)		
Marital status			0.759	0.684
Married	54(88.52)	87(83.66)		
Unmarried	1(1.64)	2(1.92)		
Divorced or widowed	6(9.84)	15(14.42)		
Occupation			1.170	0.883
Employees of public institutions	17(27.87)	28(26.92)		
Technicians and administrators	14(22.95)	20(19.23)		
Self-employed individuals	9(14.75)	16(15.39)		
Farmers	7(11.48)	19(18.27)		
Others	14(22.95)	21(20.19)		
Family member having tuberculosis			9.889	0.002
Yes	10(16.39)	2(1.92)		
No	51(83.61)	102(98.08)		

2.4 影响老年患者肺结核防治知识的多因素 logistic 回归分析

以老年肺结核患者防治知识是否全知晓(是=0,否=1)为因变量,将单因素中有显著差异的因素作为自变量,进行多因素 logistic 回归分析,显示文化程度为小学及文盲、家庭有人患过结核病是老年肺结核患者防治知识的影响因素($P<0.05$;表 4、5)。

表 4 自变量赋值

Table 4 Assignment of argument variables

Factor	Assign
Age	<75 years=0, ≥75 years=1
Education level	Secondary school or above=0, Primary school or illiteracy=1
Family member having tuberculosis	Yes=0, No=1

3 讨 论

老年人群身体机能减退,免疫功能相对减弱,更容易受到病原微生物侵袭,如结核分枝杆菌。此外,老年人群多伴有慢性病,如糖尿病、心脏疾病、恶性肿瘤等,发生肺结核的风险也更高[7,8]。由于肺结核临床症状和体征特异性不明显,加之老年人群多合并肺部基础疾病,诊断难度增加,容易漏诊或误诊,因此更需要不断总结老年肺结核临床特征,以提高临床早期诊治率。本研究对老年肺结核患者临床特征进行分析,结果显示,老年肺结核患者临床表现主要为咳嗽(58.18)、胸闷(57.58%)、胸痛(55.76%),但这些临床表现在其他肺部疾病中也会出现,并不具有典型性,必须再通过其他检查方法确诊[9]。实

表 5 影响老年肺结核患者防治知识的多因素 logistic 回归分析

Table 5 Multivariate logistic regression analysis of factors influencing knowledge awareness of tuberculosis prevention and treatment among elderly patients

Factor	β	SE	Wald χ^2	OR	95%CI	P value
Age ≥75 years	0.931	0.497	3.509	2.537	0.958-6.720	0.062
Education level of primary school or illiterate	1.047	0.289	13.125	2.849	1.617-5.020	<0.001
Family member having tuberculosis	1.006	0.305	10.879	2.735	1.504-4.972	0.001

验室检查显示 PPD 试验阳性率 69.70%,抗酸杆菌涂片阳性率 40.00%,肺部 CT 表现主要为结节阴影(89.09%)、钙化(54.55%)、渗出毛玻璃影(45.45%)。本研究还选择中青年肺结核患者作为对照,对比分析发现,老年肺结核患者胸痛比率高于中青年肺结核患者($P<0.05$),发热、盗汗比率低于中青年肺结核患者($P<0.05$),结节阴影、心包积液、钙化比率高于中青年肺结核患者($P<0.05$),即老年肺结核患者更容易出现胸痛症状,影像学检查中结节阴影、心包积液、钙化发生率也相对较高。

肺结核的防治一直是社会公共卫生要点之一。本次防治知识问卷调查结果显示,老年肺结核患者对所有问题的全知晓率为 36.97%。蔡红英等[10]调查结果显示,安顺市老年肺结核患者防治相关知识全知晓率为 42.99%,稍高于本次结果,这可能与地域不同等有关,但综合来看,老年肺结核患者对肺结核相关防治知识知晓率尚未达到一半,这样的结果并不可观。在各知识点中,老年肺结核患者对肺结核主要传播途径知晓率最高(66.06%),对肺结核药物不良反应处理知晓率最低(44.85%),与其他研究结果存在差异[11,12],因此需根据各地区调查结果予以针对性重点宣教,本次可着重针对肺结核治疗药物进行宣教。分析老年肺结核患者防治知识的影响因素,单因素分析显示,年龄、文化程度、家庭有人患过结核病与非全知晓组比较差异均有统计学意义($P<0.05$),而多因素 logistic 回归分析进一步明确,文化程度为小学及文盲、家庭有人患过结核病是老年肺结核患者防治知识的影响因素($P<0.05$)。赵红梅等[13]研究结果也显示,文化程度高的患者对肺结核相关防治知识总知晓率高于文化程度低的患者。这是因为文化程度高的患者获取知识的途径更多,学习主动性相对较高,可以更好地自主查阅肺结核相关疾病知识,了解肺结核症状、治疗等方面的内容;而文化程度低的患者对知识的摄取能力相对偏弱,更依赖于医护人员的健康宣教[14,15]。对于家庭有人患过肺结核的老年患者而言,其经历过家庭人员肺结核诊疗过程,对肺结核相关知识的了解程度也相对更深。

综上,老年肺结核患者更容易出现胸痛症状,影像学检查中结节阴影、心包积液、钙化发生率也相对较高。文化程度、家庭有人患过结核病是老年肺结核患者防治知识的影响因素。可防控和可治愈是肺结核重要特点,患者获取准确的医疗信息并进行规范治疗是该病治愈的关键点,可根据不同文化程度人群进行针对性肺结核防治知识宣传,将网络新媒体与传统媒体宣传相结合,扩大结核病宣传网,增加结核病知识普及度。本研究也存在一些局限性,属于回顾性单中心研究,样本量较小,导致研究结论代表性不足,后续还需扩大样本量进行前瞻性多中心研究。

【参考文献】

[1] Wang HQ, Dai HP, He JY, *et al*. Epidemiological characteristics of pulmonary tuberculosis in patients with pneumoconiosis based on its social determinants and risk factors in China: a cross-sectional study from 27 provinces[J]. Chin Med J (Engl), 2022, 135(24): 2984-2997. DOI: 10.1097/CM9.0000000000002486.

[2] 滕人聪, 李涛, 李玉红, 等. 2015-2021年全国65岁及以上老年肺结核患者登记情况分析[J]. 中国防痨杂志, 2023, 45(4): 367-371. DOI: 10.19982/j.issn.1000-6621.20220494.

[3] 郝晓刚, 王炜, 张幸, 等. 2015年-2021年衢州市≥65岁老年肺结核患者的临床特征分析[J]. 中国卫生检验杂志, 2022, 32(13): 1615-1617.

[4] 陈晓庆, 夏菊芳. 住院结核病患者结核病防治知识知晓情况分析[J]. 华南预防医学, 2019, 45(5): 468-471. DOI: 10.13217/j.scjpm.2019.0468.

[5] 中华人民共和国国家卫生和计划生育委员会. 肺结核诊断[J]. 传染病信息, 2017, 30(6): 1-12. DOI: 10.3969/j.issn.1007-8134.2017.06.001.

[6] 王彦富, 张淑娥, 时宇, 等. 黑龙江省农村居民肺结核防治知识抽样调查结果分析[J]. 中国防痨杂志, 2018, 40(7): 756-760. DOI: 10.3969/j.issn.1000-6621.2018.07.016.

[7] Visca D, Zampogna E, Sotgiu G, *et al*. Pulmonary rehabilitation is effective in patients with tuberculosis pulmonary sequelae[J]. Eur Respir J, 2019, 53(3): 38-43. DOI: 10.1183/13993003.02184-2018.

[8] 刘伯伟, 索继江, 杜明梅, 等. 传染病实时监控系统在活动性肺结核管理中的应用[J]. 中华老年多器官疾病杂志, 2016, 15(9): 645-649. DOI: 10.11915/j.issn.1671-5403.2016.09.153.

[9] Li L, Yao Y, Liang J, *et al*. Serum human epididymis protein 4 concentrations are associated with severity of patients with pulmonary tuberculosis[J]. Clin Chim Acta, 2020, 502: 255-260. DOI: 10.1016/j.cca.2019.11.009.

[10] 蔡红英, 戴祎华, 刘漫, 等. 安顺市老年肺结核病人防治相关知识调查及影响因素分析[J]. 中国全科医学, 2020, 23(S2): 42-45.

[11] Jusuf H, Sakti M, Husein I, *et al*. Modelling optimally to the treatment of TB patients for increase medical knowledge[J]. Sys Rev Pharm, 2020, 11(4): 742-748. DOI: 10.31838/srp.2020.4.107.

[12] 穆丽平, 薛桂红, 蔡华. 平顶山市结核病人群结核预防相关知识, 态度及行为调查[J]. 华南预防医学, 2020, 46(1): 92-93, 97. DOI: CNKI:SUN:GDWF.0.2020-01-028.

[13] 赵红梅, 尤心怡, 胡文品, 等. 甘肃省居民结核病防治知识知晓情况及其影响因素分析[J]. 中国健康教育, 2023, 39(9): 851-857, 863. DOI: 10.16168/j.cnki.issn.1002-9982.2023.09.014.

[14] 许琰, 秦莉, 赵瑶, 等. 北京市新生家长结核病防治知信行现状及行为影响因素分析[J]. 中国防痨杂志, 2022, 44(6): 608-616. DOI: 10.19982/j.issn.1000-6621.20220083.

[15] 夏甫开提·阿力甫, 马国芳. 乌鲁木齐市天山区流动人口肺结核病与手足口病防治知识知晓率调查[J]. 医学与社会, 2019, 32(10): 62-65. DOI: 10.13723/j.yxysh.2019.10.016.

(编辑: 温玲玲)