

doi: 10.13241/j.cnki.pmb.2018.04.033

老年肺癌患者化疗期间抑郁情况调查及相关因素分析*

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摘要 目的:调查老年肺癌患者化疗期间抑郁情况及分析其相关因素。**方法:**选取2012年1月至2016年12月在我院化疗的老年肺癌患者300例,调查统计患者的基本信息资料,采用Zung氏自评抑郁量表(SDS)评价患者的抑郁情况,统计患者抑郁情况的调查结果,并采用Logistic回归分析影响老年肺癌患者抑郁的相关因素。**结果:**300例老年肺癌的患者当中,在化疗期间有抑郁者164例,占54.67%。其中59例是轻度抑郁,占35.98%;90例是中度抑郁,占54.88%;15例是重度抑郁,占9.15%。单因素分析显示,老年肺癌患者抑郁发生率与年龄、收入水平、TNM分期及有无癌症转移有关(均 $P<0.05$),与性别、文化程度、癌症分型无关($P>0.05$)。多因素Logistic回归分析显示影响老年肺癌患者抑郁的相关因素有年龄 ≥ 70 岁、收入水平 <3000 元/月、TNM分期为III~IV期以及癌症转移($P<0.05$)。**结论:**老年肺癌患者在化疗期间较容易出现抑郁症状,临床上应加以重视,年龄 ≥ 70 岁、收入水平 <3000 元/月、TNM分期为III~IV期以及癌症转移是影响老年肺癌患者抑郁的相关因素,针对相关因素应尽早采取相应的干预措施,从而有利于改善患者的负性心理情绪。

关键词:老年;肺癌;化疗;抑郁;相关因素

中图分类号:R734.2 文献标识码:A 文章编号:1673-6273(2018)04-750-04

Investigation and Analysis on the Related Factors of Depression in Elderly Patients with Lung Cancer during Chemotherapy*

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ABSTRACT Objective: To investigate the depression of elderly patients with lung cancer during chemotherapy and its related factors. **Methods:** A total of 300 elderly patients with lung cancer treated with chemotherapy in our hospital from January 2012 to December 2016 were selected. The basic information of the patients were investigated and statistics, and Zung's self rating depression scale was used in the evaluation of depression of patients. The evaluation results were collected, and the single factors and related factors of depression were statistically analyzed by logistic regression analysis. **Results:** Among the 300 cases of elderly patients with lung cancer, 164 patients were depressed during chemotherapy, accounting for 54.67%. 59 cases among them were mild depression, accounting for 35.98%; 90 cases were moderate depression, accounting for 54.88%; 15 cases were severe depression, accounting for 9.15%. The Single factor analysis showed that the incidence of depression in elderly patients with lung cancer was related to age, income level, TNM stage and cancer metastasis (all $P<0.05$), and was not related to gender, educational level and cancer type ($P>0.05$). Multivariate Logistic regression analysis showed that factors related to depression in elderly patients with lung cancer were age ≥ 70 , income level <3000 yuan/month, TNM stage III-IV and cancer metastasis ($P<0.05$). **Conclusion:** Elderly patients with lung cancer are prone to depressive symptoms during chemotherapy, which should be paid attention to in clinic. Age ≥ 70 , income level <3000 yuan/month, TNM stage III-IV and cancer metastasis are the related factors of depression in elderly patients with lung cancer, and appropriate intervention measures should be taken as soon as possible for the related factors, in order to improve the negative emotions of patients.

Key words: Elderly; Lung cancer; Chemotherapy; Depression; Related factors

Chinese Library Classification(CLC): R734.2 **Document code:** A

Article ID: 1673-6273(2018)04-750-04

前言

肺癌是临床十分常见的恶性肿瘤,近年来其发病率以及死亡率快速增长,对人类身体健康以及生命安全均造成严重威胁^[1,2]。目前临床对于肺癌治疗,早期患者通常以手术作为主

要治疗手段,而晚期患者则以化疗手段为主,且据统计显示,需进行化疗治疗的肺癌患者所占比例超过90%^[3,4]。虽然化疗能够一定程度上缓解病情,但杀伤肿瘤细胞的同时也会对患者正常细胞造成损伤,严重的恶心、呕吐使患者对之后的化疗望而生畏,导致患者出现心理问题^[5,6]。近年来,社会各界对于癌症患者

* 基金项目:四川省科技计划项目(2014zc0038)

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(收稿日期:2017-04-29 接受日期:2017-05-24)

心理状况越来越重视,研究发现恶性肿瘤患者普遍存在情绪障碍问题,且以抑郁发生率最高,抑郁心理会对患者治疗效果造成不良影响,甚至加重不良反应程度^[7]。多项研究结果显示,癌症患者心理问题主要体现为抑郁倾向,并且抑郁会影响其治疗以及预后效果^[8,9]。对于无法接受手术治疗的老年患者而言,化疗是其主要治疗方式。由于老年患者本身心理承受力不强,加之疾病以及治疗带来较大痛苦,使其内心承受过多压力,进而导致抑郁心理加重^[10]。针对该情况专家展开深入研究,结果发现心理问题对于癌症患者影响重大,并且提出癌症治疗应从单纯疾病治疗扩展到身心两方面。因此,关注肺癌患者心理状况,并分析其抑郁的危险因素十分必要^[11]。本文通过调查老年肺癌患者化疗期间抑郁情况及分析其相关因素,旨在为更好地促进老年肺癌患者的预后康复,现报道如下。

1 资料和方法

1.1 一般资料

选取 2012 年 1 月至 2016 年 12 月在我院化疗的老年肺癌患者 300 例,纳入标准:(1)符合 WHO 关于肺癌的相关诊断标准^[12],且病理组织学确诊为肺癌;(2)患者年龄 >60 岁,且意识清晰,可配合调查;(3)有化疗指征者;(4)患者的病情较为稳定,且对本次研究知情同意。排除标准:(1)存在药物依赖史的患者;(2)具有严重并发症的患者;(3)病历资料缺失者以及患有精神疾病者。其中男 173 例,女 127 例。年龄 60~83 岁,平均(67.24±5.21)岁。小细胞肺癌 131 例,非小细胞肺癌 169 例。TNM 分期为 I~II 期 100 例,III~IV 期 200 例。癌症转移 133 例,无转移 167 例。本研究经医院伦理委员会批准通过。

1.2 研究方法

首先对患者的基本信息资料实施调查统计,主要包括:(1)年龄;(2)性别;(3)文化程度;(4)收入水平;(5)癌症分型;(6)TNM 分期;(7)癌症转移。其次采用 Zung 氏自评抑郁量表(SDS)评价患者的抑郁情况^[13],此量表包含 20 个陈述句及对应条目,各条目均表示 1 个症状,按 1-4 级进行评分,计算公式为:抑郁指数=各项条目得分×1.25,最终得分<50 分记为正常,分值为 50~59 分记为轻度抑郁,分值为 60~69 分记为中度抑郁,分值>70 分记为重度抑郁。

1.3 观察指标

分析患者抑郁情况的调查结果,采用单因素和多因素 Logistic 回归分析影响患者抑郁的相关因素。

1.4 统计学方法

通过 SPSS21.0 统计软件对数据实施统计分析,对于计数资料用(%)加以表示,予以 χ^2 检验,对于相关因素的分析采用单因素和多因素 Logistic 回归分析法,其中 $P<0.05$ 为差异有统计学意义。

2 结果

2.1 患者抑郁情况的调查结果分析

300 例老年肺癌的患者当中,在化疗期间有抑郁者 164 例,占 54.67%。其中有 59 例是轻度抑郁,占 35.98%;90 例是中度抑郁,占 54.88%;15 例是重度抑郁,占 9.15%。

2.2 影响患者抑郁的单因素分析

单因素分析显示,老年肺癌患者抑郁发生率与年龄、收入水平、TNM 分期及有无癌症转移有关(均 $P<0.05$),与性别、文化程度、癌症分型无关($P>0.05$),见表 1。

表 1 影响患者抑郁的单因素分析
Table 1 Single factor analysis of depression

Factors		Cases	Incidence of depression [n(%)]	X ²	P
Age(year)	<70	148	67(45.27)	10.407	0.001
	≥ 70	152	97(63.82)		
Gender	Male	173	92(53.18)	0.365	0.546
	Female	127	72(56.69)		
Degree of Education	High school and above	94	55(58.51)	0.816	0.366
	Junior high school and below	206	109(52.91)		
Income level (yuan / month)	≥ 3000	102	41(40.20)	13.058	0.000
	<3000	198	123(62.12)		
Cancer classification	Non small cell lung cancer	169	90(53.25)	0.311	0.577
	Small cell lung cancer	131	74(56.49)		
TNM stage	I ~ II	100	46(46.00)	4.546	0.033
	III~IV	200	118(59.00)		
Cancer metastasis	Yes	133	106(79.70)	60.413	0.000
	No	167	58(34.73)		

2.3 影响患者抑郁的相关因素分析

以患者是否发生抑郁为因变量,将年龄、收入水平、TNM

分期及癌症转移作为自变量纳入多因素 Logistic 回归分析模型,结果显示影响老年肺癌患者抑郁的相关因素有年龄≥ 70

岁、收入水平<3000元/月、TNM分期为III~IV期以及癌症转移($P<0.05$),见表2。

表2 影响患者抑郁相关因素的多因素 Logistic 回归分析

Table 2 Multivariate Logistic regression analysis of factors related to depression in patients

Variables	Regression coefficient	Standard error	P	OR	95%CI
Age ≥ 70	4.287	2.882	0.010	1.169	1.031~8.349
Income lever<3000 yuan/month	5.241	3.249	0.007	1.932	1.111~12.963
TNM stage III~IV	4.694	2.951	0.013	3.515	1.025~5.997
Cancer metastasis	5.171	3.678	0.000	2.982	1.017~11.655

3 讨论

肺癌临床症状十分复杂,其病因目前尚不明确,研究证实,该病和吸烟、空气污染以及致癌物等均存在密切联系^[14]。大部分肺癌患者会伴有一定程度负性心理,并且该问题可能和疾病发病、进展以及预后情况等关系密切^[15]。当前,世界范围内的肺癌发病率以及死亡率均长期位居恶性肿瘤的前列位置,并且肺癌死亡的患者数目已经超越了乳腺癌、前列腺癌以及结直肠癌等造成的死亡人数之和,可见肺癌对患者的生命安全造成了十分严重的影响^[16,17]。因此,肺癌的治疗及预后已经变成了世界范围内的公共健康难题。据统计,在肺癌患者群体中,发生焦虑或抑郁的几率甚至高达20%~50%^[18,19]。若负性情绪如不加以重视,则可能影响到疾病治疗和康复以及患者的预后。化疗属于一种全身性的治疗措施,其可延长肺癌患者的生存时间,并推迟其复发和转移的时间^[20]。但临床数据表明,持续性的化疗容易产生不良反应,同时对患者的家庭带来较大的经济压力,这些情况均会困扰肺癌患者,使其心理负性情绪不断增强,进而可能影响其预后康复^[21,22]。同时经研究发现,通过对患者进行必要心理干预,其化疗副反应情况得到有效改善,生活质量获得明显提升,进而重拾信心积极接受治疗,以促进疾病控制情况^[23]。因此,心理护理有助于改善患者抑郁情况,减轻痛苦感并激励内心潜能,对患者全面康复起到极大促进作用。而有关造成老年肺癌患者化疗期间抑郁情况以及其相关因素等问题,目前相关研究报道较少,仍需深入调查总结。因此,分析老年肺癌患者在接受化疗期间的抑郁情况以及与其相关的因素显得十分必要。

本文研究发现,300例老年肺癌的患者当中,在化疗期间有抑郁者164例,占54.67%。其中59例是轻度抑郁,占35.98%;90例是中度抑郁,占54.88%;15例是重度抑郁,占9.15%。这提示了在老年肺癌群体中,发生化疗期间抑郁的患者比例超过了50%,且抑郁程度以中度为主。原因可能与患者在患病治疗期间饱受病魔的折磨,心理情绪因此失衡有关^[24]。同时,本文发现,老年肺癌患者抑郁发生率与年龄、收入水平、TNM分期及有无癌症转移有关(均 $P<0.05$),且进一步经过Logistic回归分析发现,结果显示影响患者抑郁的危险因素有年龄 ≥ 70 岁、收入水平<3000元/月、TNM分期为III~IV期以及癌症转移($P<0.05$)。这提示了以上四类因素可能是导致老年肺癌患者出现化疗期间抑郁症状的重要诱因,具体而言,患者通常在诊疗各个时期当中,心理状态会发生相应改变。初步调查发现,患者年龄较大,心理接受能力减弱,最初确诊时无法

接受患病事实,即使接受现实之后对疾病治疗的不抱有信心,同时治疗带来的副反应给身体造成巨大的损伤,加之高昂的医疗费用和疾病进展对生命的威胁等,均对患者造成较大心理伤害,这种心理上的担心加上病痛的折磨,最终造成患者出现抑郁心理,严重影响患者治疗和预后效果^[25-27]。肺癌治疗相关费用较高,如患者本身收入水平较低(收入水平<3000元/月),患病后无法正常工作失去经济来源,则不但无法支付高昂的医疗费用,还会因此给家庭带来巨大经济负担。此种情况下患者会经常担心治疗所需花费,并逐渐发展为抑郁心理^[28]。而TNM分期为III~IV期患者抑郁的情况较多,原因在于患者对于疾病严重程度的直接感受主要来源于自身体力状态以及临床症状。早期患者通常症状较轻甚至无明显症状,患者体力情况以及日常生活等均不受到严重影响。而当患者进入晚期阶段时,其临床症状较严重,患者通常需要卧床休息,严重者无法生活自理,并且随时有死亡危险。这对患者心理带来巨大压力,同时临床症状中疼痛对患者造成巨大痛苦,患者极易产生抑郁心理。多数患者因为发生癌症转移,身体其他器官组织受到侵袭,病情不断加重,认为疾病无法治愈,随时面临失去生命危险而郁郁寡欢,并因此失去求生信念,长期陷入抑郁状态,这和张金梅等人^[29,30]的研究结果一致。需要指出的是,本次研究过程中也存在着一定程度的局限性,例如研究方式缺少对其他医疗机构的协同性调查统计,同时也调查的时间范围也相对较小,今后可考虑进一步增加相应的同级或者上级医疗机构进行数据资料的整理分析,并进一步扩大时间范围,从而能够获得更加精准的调查研究结果。

综上所述,老年肺癌患者在化疗期间较容易出现抑郁症状,临床上应加以重视,对于与之相关的影响因素应尽早的采取干预措施,从而有利于改善患者的负性心理情绪。

参考文献(References)

- [1] Borghaei H, Paz-Ares L, Horn L, et al. Nivolumab versus Docetaxel in Advanced Nonsquamous Non-Small-Cell Lung Cancer [J]. *N Engl J Med*, 2015, 373(17): 1627-1639
- [2] 刘银芳,张春玲,牛瑞兰,等.综合护理干预对肺癌化疗患者生存质量的影响[J].*中华健康管理学杂志*, 2014, 8(2): 116-119
- [3] Liu Yin-fang, Zhang Chun-ling, Niu Rui-lan, et al. Effect of combination nursing intervention on quality of life in cancer patients undergoing chemotherapy[J]. *Chinese Journal of Health Management*, 2014, 8(2): 116-119
- [3] Proto C, Imbimbo M, Gallucci R, et al. Epidermal growth factor receptor tyrosine kinase inhibitors for the treatment of central nervous system metastases from non-small cell lung cancer: the present and

- the future[J]. *Transl Lung Cancer Res*, 2016, 5(6): 563-578
- [4] Liu Y, Liu Y, Fan ZW, et al. Meta-analysis of the risks of hypertension and QTc prolongation in patients with advanced non-small cell lung cancer who were receiving vandetanib [J]. *Eur J Clin Pharmacol*, 2015, 71(5): 541-547
- [5] Cardoso G, Graca J, Klut C, et al. Depression and anxiety symptoms following cancer diagnosis: a cross-sectional study[J]. *Psychol Health Med*, 2016, 21(5): 562-570
- [6] Chen J, Li W, Cui L, et al. Chemotherapeutic Response and Prognosis among Lung Cancer Patients with and without Depression [J]. *J Cancer*, 2015, 6(11): 1121-1129
- [7] Quist M, Adamsen L, Rørth M, et al. The Impact of a Multidimensional Exercise Intervention on Physical and Functional Capacity, Anxiety, and Depression in Patients With Advanced-Stage Lung Cancer Undergoing Chemotherapy [J]. *Integr Cancer Ther*, 2015, 14(4): 341-349
- [8] 李金江, 庞英, 唐丽丽, 等. 团体心理治疗改善肺癌患者生活质量及情绪状态的开放对照研究[J]. *中国心理卫生杂志*, 2014, 28(9): 657-662
- Li Jin-jiang, Pang Ying, Tang Li-li, et al. An open controlled study of group psychotherapy on quality of life and mood in patients with lung cancer[J]. *Chinese Mental Health Journal*, 2014, 28(9): 657-662
- [9] 许梦丹, 张晓晔, 林佳, 等. 度洛西汀联合米氮平治疗肺癌化疗患者抑郁的临床研究[J]. *实用药物与临床*, 2014, 17(9): 1147-1150
- Xu Meng-dan, Zhang Xiao-hua, Lin Jia, et al. Research on the treatment of duloxetine combined with mirtazapine for lung cancer patients with depression [J]. *Practical Pharmacy and Clinical Remedies*, 2014, 17(9): 1147-1150
- [10] Brocken P, van der Heijden EH, Oud KT, et al. Distress in suspected lung cancer patients following rapid and standard diagnostic programs: a prospective observational study [J]. *Psychooncology*, 2015, 24(4): 433-441
- [11] Maric D, Jovanovic D, Nagorni-Obradovic L, et al. Assessment of health-related quality of life in end-stage chronic obstructive pulmonary disease and non-small-cell lung cancer patients in Serbia [J]. *Palliat Support Care*, 2016, 14(1): 60-68
- [12] 张志文, 张丰, 李洁, 等. 成人胶质瘤诊断的分子遗传学研究进展[J]. *现代生物医学进展*, 2016, 16(12): 2363-2367
- Zhang Zhi-wen, Zhang Feng, Li Jie, et al. Genetic Molecular Progress of Adult Glioma Diagnosis [J]. *Progress in Modern Biomedicine*, 2016, 16(12): 2363-2367
- [13] 樊安英, 史文文, 高淑红, 等. 中晚期肺癌患者抑郁状态与家庭亲密度和适应性的相关性分析 [J]. *国际护理学杂志*, 2015, 34(22): 3049-3051
- Fan An-ying, Shi Wen-wen, Gao Shu-hong, et al. Correlation analysis of depression and family cohesion and adaptability in patients with advanced lung cancer [J]. *International Journal of Nursing*, 2015, 34(22): 3049-3051
- [14] Hosgood HD, Song M, Hsiung CA, et al. Interactions between household air pollution and GWAS-identified lung cancer susceptibility markers in the Female Lung Cancer Consortium in Asia (FLCCA)[J]. *Hum Genet*, 2015, 134(3): 333-341
- [15] 张欢, 周英, 李红梅, 等. 肺癌患者心理弹性及影响因素的研究[J]. *中华现代护理杂志*, 2015, 21(30): 3640-3645
- Zhang Huan, Zhou Ying, Li Hong-mei, et al. Psychological resilience and its influencing factors of patients with lung cancer [J]. *Chinese Journal of Modern Nursing*, 2015, 21(30): 3640-3645
- [16] McGranahan T, Nagpal S. A Neuro-oncologist's Perspective on Management of Brain Metastases in Patients with EGFR Mutant Non-small Cell Lung Cancer [J]. *Curr Treat Options Oncol*, 2017, 18(4): 22
- [17] 邹鑫, 程少毅, 李小飞, 等. 肺癌生存质量量表在晚期肺癌使用的研究进展[J]. *现代生物医学进展*, 2014, 14(12): 2364-2368, 2382
- Zou Xin, Cheng Shao-yi, Li Xiao-fei, et al. Progresses and Perspectives of The Lung Cancer Quality of Life Questionnaire in Advanced Lung cancer[J]. *Progress in Modern Biomedicine*, 2014, 14(12): 2364-2368, 2382
- [18] Bar-Sela G, Danos S, Visel B, et al. The effect of complementary and alternative medicine on quality of life, depression, anxiety, and fatigue levels among cancer patients during active oncology treatment: phase II study[J]. *Support Care Cancer*, 2015, 23(7): 1979-1985
- [19] Nakamura Y, Kanemoto E, Kajizono M, et al. Investigation of Mental Disorders in Lung Cancer Outpatients: A Retrospective Analysis[J]. *Yakugaku Zasshi*, 2017, 137(2): 241-246
- [20] 张俊芝, 张明艳. 非小细胞肺癌患者化疗期间抑郁危险因素分析[J]. *中国医学前沿杂志(电子版)*, 2016, 8(8): 80-83
- Zhang Jun-zhi, Zhang Ming-yan. Analysis of risk factors of depression in patients with non-small cell lung cancer during chemotherapy period [J]. *Chinese Journal of the Frontiers of Medical Science (Electronic Version)*, 2016, 8(8): 80-83
- [21] Kim HS, Oh EG, Lee H, et al. Predictors of symptom experience in Korean patients with cancer undergoing chemotherapy [J]. *Eur J Oncol Nurs*, 2015, 19(6): 644-653
- [22] 杨志彦, 楚新霞. 化疗前后肺癌患者生活质量、焦虑抑郁情绪变化及生活质量影响因素[J]. *中国医药导报*, 2016, 13(5): 122-125
- Yang Zhi-yan, Chu Xin-xia. Influence factor living quality, anxiety, depression emotion change and living quality in lung cancer patients before and after chemotherapy[J]. *China Medical Herald*, 2016, 13(5): 122-125
- [23] Jansen F, Krebber AM, Coupé VM, et al. Cost-Utility of Stepped Care Targeting Psychological Distress in Patients With Head and Neck or Lung Cancer[J]. *J Clin Oncol*, 2017, 35(3): 314-324
- [24] Sullivan DR, Ganzini L, Duckart JP, et al. Treatment receipt and outcomes among lung cancer patients with depression [J]. *Clin Oncol (R Coll Radiol)*, 2014, 26(1): 25-31
- [25] 程丽, 郭红桃. 老年肺癌患者化疗期间抑郁相关危险因素分析[J]. *中国医学前沿杂志(电子版)*, 2016, 8(7): 119-122
- Cheng Li, Guo Hong-tao. Risk factors of depression in elderly patients with lung cancer during chemotherapy period [J]. *Chinese Journal of the Frontiers of Medical Science (Electronic Version)*, 2016, 8(7): 119-122
- [26] 顾芬, 侯黎莉, 李玉梅, 等. 非小细胞肺癌化疗患者抑郁状况及其影响因素[J]. *中国慢性病预防与控制*, 2016, 24(5): 359-362

- [5] 缪学建. CDK2 及 CyclinE 在脑膜瘤中的表达及意义[D]. 四川大学, 2015
Miao Xue-jian. The expression and significance of CDK2 and CyclinE in meningioma[D]. Sichuan Medical University, 2015
- [6] 张桂东, 尹清臣. CyclinE/CDK2 及 p27 在胃癌细胞周期 G₁/S 调控中的研究[J]. 现代中西医结合杂志, 2014, 23(3): 251-253
Zhang Gui-dong, Yin Qing-chen. Study on Cyclin E/CDK2 and p27 in the cell cycle G₁/S regulation of gastric cancer[J]. Modern Journal of Integrated Traditional Chinese and Western Medicine, 2014, 16 (23): 251-253
- [7] 李娜, 曲芃芃. 滋养细胞疾病中 CyclinE 及其相关蛋白的表达[J]. 国际妇产科学杂志, 2014, 41(03): 324-326
Li Na, Qu Peng-peng. Expression of Cyclin E and Its Related Proteins in Gestational Trophoblastic Disease [J]. Journal of International Obstetrics and Gynecology, 2014, 41(03): 324-326
- [8] 于英君, 韩松洋, 姜颖, 等. 基于肝癌 CDK2 基因敲减对 CyclinE 表达及树舌多糖 GF 对其影响的研究 [J]. 现代生物医学进展, 2016, 23(16): 4434-4437+4461
Yu Ying-jun, Han Song-yang, Jiang Ying, et al. Study on the Effect of CDK2 Knockdown Decreases on the Expression of CyclinE and GAPS.GF in Hepatocellular Carcinoma [J]. Progress in Modern Biomedicine, 2016, 16(23): 4434-4437+4461
- [9] 刘科, 刘盛来, 杨林, 等. 不同性别 BALB/c 裸小鼠血液学及脏器系数观测[J]. 实验动物与比较医学, 2014, 34(1): 65-70
Liu Ke, Liu Sheng-lai, Yang Lin, et al. Observation of Hematology and organ coefficients in BALB/c nude mice of different sex [J]. Laboratory Animal and Comparative Medicine, 2014, 34 (1): 65-70
- [10] 尤金伟, 张立波, 方天. 绿色荧光裸鼠血液生理生化指标检测分析 [J]. 中国比较医学杂志, 2013, 23(9): 24-26
You Jin-wei, Zhang Li-bo, Fang Tian, et al. Measurement of the blood biochemical parameters in GFP transgenic nude mice [J]. Chinese Journal of Comparative Medicine, 2013, 23(9): 24-26
- [11] 张修颜, 詹纯列, 肖育华. SPF 级 Balb/c 小鼠脏器质量、脏器系数、血常规、血生化指标的测定与比较[J]. 中国组织工程研究与临床康复, 2011, 15(41): 7734-7737
Zhang Xiu-yan, Zhan Chun-lie, Xiao Yu-hua, et al. Measurement and comparisons of organ coefficient, hematological parameters and hematological biochemical parameters of specific pathogen free Balb/c mice[J]. Journal of Clinical Rehabilitative Tissue Engineering Research, 2011, 15(41): 7734-7737
- [12] 邓洪新, 魏于全. 肿瘤基因治疗的研究现状和展望[J]. 中国肿瘤生物治疗杂志, 2015, 22(2): 170-176
Deng Hong-xin, Wei Yu-quan. Tumor gene therapy: Current status and future prospective [J]. Chin J Cancer Biother Apr, 2015, 22(2): 170-176
- [13] Jacobs F, Wang L. Adeno-associated viral vectors for correction of inborn errors of metabolism: progressing towards clinical application [J]. Curr Pharm Des, 2011, 17(24): 2500-2515
- [14] Mei Wang, Jun-jiang Sun, Ashley Crosby, et al. Direct Interaction of Human Serum Proteins with AAV Virions to Enhance AAV Transduction: Immediate Impact on Clinical Applications [J]. Gene Ther, 2017, 24(1): 49-59
- [15] Nguyen GN, George LA, Siner JI, et al. Novel factor VIII variants with a modified furin cleavage site improve the efficacy of gene therapy for hemophilia A[J]. Thromb Haemost, 2017, 15(1): 110-121
- [16] Nathwani AC, Reiss UM, Tuddenham EG, et al. Long-term safety and efficacy of factor IX gene therapy in hemophilia B [J]. The New England journal of medicine, 2014, 371(21): 1994-2004
- [17] Daniela Hüser, Dina Khalid, Timo Lutter, et al. High Prevalence of Infectious Adenoassociated Virus (AAV) in Human Peripheral Blood Mononuclear Cells Indicative of T Lymphocytes as Sites of AAV Persistence[J]. Journal of Virology February, 2017, 91(4): e0213
- [18] Murphy SL, Li H, Zhou S, et al. Prolonged Susceptibility to Antibody-mediated Neutralization for Adeno-associated Vectors Targeted to the Liver[J]. Mol Ther, 2008, 16(1): 138-145
- [19] Arruda VR, Stedman HH, Haurigot, et al. Peripheral transvenular delivery of adeno-associated viral vectors to skeletal muscle as a novel therapy for hemophilia B[J]. Blood, 2010, 115(23): 4678-4688
- [20] Finn JD, Nichols TC, Svoronos N, et al. The efficacy and the risk of immunogenicity of FIX Padua (R338L) in hemophilia B dogs treated by AAV muscle gene therapy[J]. Blood, 2012, 120(23): 4521-4523
- [21] Kolosenko I, Edsbacker E, Björklund AC, et al. RNAi prodrugs targeting Plk1 induce specific gene silencing in primary cells from pediatric T-acute lymphoblastic leukemia patients [J]. Control Release, 2017, 261: 199-206
- [22] Geoffrey L. Rogers, Roland W. Herzog. Gene therapy for hemophilia [J]. Front Biosci, 2015, 20: 556-603
- [23] Q Ru, W Li, X Wang, et al. Preclinical study of rAAV2-sTRAIL: pharmaceutical efficacy, biodistribution and safety in animals [J]. Cancer Gene Therapy, 2017, 24: 251-258
- (上接第 753 页)
- Gu Fen, Hou Li-li, Li Yu-mei, et al. The depression status and its influencing factors of chemotherapy in patients with non-small cell lung cancer[J]. Chinese Journal of Prevention and Control of Chronic Diseases, 2016, 24(5): 359-362
- [27] Shimizu K, Nakaya N, Saito-Nakaya K, et al. Personality traits and coping styles explain anxiety in lung cancer patients to a greater extent than other factors[J]. Jpn J Clin Oncol, 2015, 45(5): 456-463
- [28] Hendriksen E, Williams E, Sporn N, et al. Worried together: a qualitative study of shared anxiety in patients with metastatic non-small cell lung cancer and their family caregivers[J]. Support Care Cancer, 2015, 23(4): 1035-1041
- [29] 张金梅, 颜美琼, 刘晓蕊, 等. 肺癌化疗患者心理体验的质性研究[J]. 国际护理学杂志, 2014, 33(11): 3185-3187
Zhang Jin-mei, Yan Mei-qiong, Liu Xiao-xin, et al. Qualitative research on psychological experience of lung cancer patients during chemotherapy [J]. International Journal of Nursing, 2014, 33 (11): 3185-3187
- [30] Park SA, Chung SH, Lee Y. Factors Associated with Suicide Risk in Advanced Cancer Patients: A Cross-Sectional Study [J]. Asian Pac J Cancer Prev, 2016, 17(11): 4831-4836