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全胸腔镜与后外侧开胸手术对非小细胞肺癌患者炎症因子及免疫功能的影响

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摘要目的:探讨全胸腔镜与后外侧开胸手术对非小细胞肺癌患者炎症因子及免疫功能的影响。**方法:**选择我院 80 例非小细胞肺癌患者,按随机数字表法平均分为两组各 40 例,研究组患者使用全胸腔镜手术,对照组采用后外侧开胸手术治疗,比较两组患者手术时间、术中出血量、输血量及住院天数,同时比较两组患者治疗前后炎症因子及免疫细胞水平变化。**结果:**研究组患者手术时间、术中出血量、输血量及住院天数均明显低于对照组,差异有统计学意义($P < 0.05$);两组患者术后细胞炎症因子 C-反应蛋白(CRP)、淀粉样蛋白 A(SAA)、白细胞介素-6(IL-6)及可溶性白介素 2 受体(IL-2R)均较术前明显升高,且对照组患者各因子水平升高程度明显高于研究组,差异有统计学意义($P < 0.05$);两组患者术后 T 淋巴细胞中 $CD4^+$ 、 $CD8^+$ 及 $CD4^+/CD8^+$ 均较术前明显下降,且对照组患者下降程度明显高于研究组,比较差异具有统计学意义($P < 0.05$)。**结论:**全胸腔镜手术治疗早期非小细胞肺癌疗效显著,且利于保护机体免疫功能,值得临床应用。

关键词:非小细胞肺癌;开胸术;全胸腔镜手术

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Effect of Total Thoracoscopy and Thoracotomy Operation on Inflammatory Factor and Immune Function in Patients with Non Small Cell Lung Cancer

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ABSTRACT Objective: To investigate the effect of total thoracoscopy and thoracotomy operation on inflammatory factor and immune function in patients with non small cell lung cancer. **Methods:** 80 patients with non small cell lung cancer in our hospital were selected and randomly divided into two groups, 40 in each group. The study group was treated with total thoracoscopic operation, while the control group, used posterolateral thoracotomy operation. The operation time, intraoperative bleeding, transfusion, and hospital stay of the patients in the two groups, as well as inflammatory factors and immune cell levels before and after treatment were compared. **Results:** The operation time, intraoperative bleeding, transfusion and hospital stay of the study group were significantly lower than those of the control group, with significant difference ($P < 0.05$); Inflammatory cytokines CRP, SAA, IL-6 and IL-2R of the two groups after treatment obviously increased compared to before operation, and each factor level in the control group elevated significantly higher than that in the study group, with significant difference ($P < 0.05$); $CD4^+$, $CD8^+$ and $CD4^+/CD8^+$ in T lymphocytes of the two groups after treatment decreased compared to before operation, and that in the control group obviously decreased higher than that of the study group, with statistical significance ($P < 0.05$). **Conclusion:** Total thoracoscopic operation has a significant effect in treatment of early stage non small cell lung cancer, can protect the body's immune function, and is worthy of clinical application.

Key words: Non small cell lung cancer; Thoracotomy; Thoracoscopic operation

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前言

非小细胞肺癌是临床常见的恶性肿瘤疾病,手术是最直接有效的治疗手段,但传统开胸手术对人体造成一定创伤,且影响患者术后免疫功能,不利于其术后恢复^[1,2]。近年来,随着微创技术的发展,胸腔镜手术(Video-assisted thoracoscopic surgery, VATS)逐渐在临床中应用于胸科手术,该手术方法具有创伤小、出血量少、疼痛轻、对心肺功能影响小、恢复快等优势受到

广大患者一致认可^[3,4]。本研究选择我胸外科收治的 40 例非小细胞肺癌患者,使用全胸腔镜手术治疗,分析其对患者术后机体炎症因子及免疫功能的影响,为临床胸科手术中全胸腔镜的应用提供理论依据。

1 资料与方法

1.1 一般资料

选择我院 2013 年 1 月至 2014 年 6 月收治的 80 例首次入院行手术治疗的非小细胞肺癌患者,均符合 WHO 中非小细胞肺癌诊断标准。其中男 45 例,女 35 例;年龄 35~72 岁,平均(52.3±8.7)岁;吸烟史 10~45 年,平均(32.5±12.5)年;体重

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52~71 kg, 平均(65.9± 8.3) kg; 肿瘤直径 1.5~4.6 cm, 平均(3.2± 1.3) cm; 肿瘤分期: I 期 46 例, II 期 34 例。所有患者均排除合并严重心、脑、肾等重要器官功能障碍及免疫系统疾病; 排除术前有明显阻塞性肺炎患者; 排除主支气管受侵犯或远处转移及术前接受放疗、化疗治疗者。本研究符合医学伦理委员会研究标准并经患者及家属知情同意, 所有患者按随机数字表法平均分为两组, 研究组及对照组各 40 例, 两组患者在性别、年龄、肿瘤情况及吸烟史等方面比较差异无统计学意义 (P> 0.05), 具有可比性。

1.2 治疗方法

两组患者均采用健侧卧全麻手术, 双腔气管插管后解剖性切除肺叶, 术中健侧单肺通气。对照组患者采用传统后外侧开胸手术, 于第 4 肋间上叶或中叶及第 5 肋间下叶后外侧选择切口入路, 作一 25~30 cm 长切口, 切开肋间肌, 于竖脊肌外侧缘处将切口下缘剪断肋骨, 胸腔撑开肋间约 10~20 cm, 切除肺叶, 术中血管及支气管采用切割缝合器或直接结扎缝合。研究组患者使用全胸腔镜手术, 腋中线第 7~8 肋间作一 1.5 cm 长切口, 置入胸腔镜; 于腋前线第 4~5 肋间作一约 3 cm 切口作为主操作孔; 于腋后线第 7~8 肋间作 1~2 个操作孔。整个手术过程在胸腔镜直视下完成, 肺叶切除依据单向式肺叶切除

理念操作。肺部支气管和血管以及肺裂的处理方法均采用腹腔镜直线切割缝合器来完成。所有患者均行解剖性肺叶切除加系统性肺门纵膈淋巴结清扫术。

1.3 观察指标

统计两组患者手术时间、术中出血量、输血量、住院天数及并发症发生情况等一般手术指标; 术前及术后 3 d、7 d 取患者上肢静脉血 5 mL, 检测其外周血清中 C 反应蛋白(creactive protein, CRP)、血清淀粉样蛋白 A (serum amyloid A, SAA)、白细胞介素 6(interleukin 6, IL-6)以及白细胞介素 2 受体(IL-2R)的水平。采用流式细胞术检测患者血清中 T 淋巴细胞亚群 CD4⁺T 淋巴细胞、CD8⁺T 淋巴细胞及 CD4⁺/CD8⁺ 水平。

1.4 统计学处理

应用 SPSS16.0 分析数据, 计量资料以平均数($\bar{x} \pm s$)表示, 进行 t 检验, 以 P<0.05 差异有统计学意义。

2 结果

2.1 两组患者一般手术指标比较

研究组患者手术时间、术中出血量、输血量及住院天数均明显低于对照组, 比较差异具有统计学意义(P<0.05), 见表 1。

表 1 两组患者一般手术指标比较($\bar{x} \pm s$)

Table 1 Comparison of general operation index between the two groups($\bar{x} \pm s$)

组别	例数	手术时间(min)	出血量(mL)	输血量(mL)	住院天数(d)
Groups	N	Operation time (min)	Amount of bleeding (mL)	Volume of blood transfusion (mL)	Days of hospitalization (d)
研究组	40	136.8± 24.9	307.9± 36.5	150.4± 65.9	8.6± 2.6
Study group					
对照组	40	225.4± 34.6	457.6± 41.6	329.5± 80.3	14.1± 4.0
Control group					
t		13.14	17.11	10.90	7.29
P		< 0.05	< 0.05	< 0.05	< 0.05

2.2 两组患者手术前后血清炎症因子水平比较

两组患者术后细胞炎症因子 CRP、SAA、IL-6 及 IL-2R 均

较术前明显升高, 且对照组患者各因子水平升高程度明显高于研究组, 比较差异具有统计学意义(P<0.05), 见表 2。

表 2 两组患者手术前后血清炎症因子水平比较($\bar{x} \pm s$)

Table 2 Comparison of serum levels of inflammatory factors before and after operation between the two groups($\bar{x} \pm s$)

组别	例数	CRP(mg/L)		SAA(mg/L)		IL-6(pg/mL)		IL-2R(U/mL)	
		术前	术后 3d	术前	术后 3d	术前	术后 3d	术前	术后 3d
Groups	N	Before operation	Postoperative 3d	Before operation	Postoperative 3d	Before operation	Postoperative 3d	Before operation	Postoperative 3d
研究组	40	10.82± 2.14	90.45± 45.32 ^{△▲}	28.54± 8.97	568.94± 412.32 ^{△▲}	72.34± 32.12	143.35± 56.57 ^{△▲}	356.52± 148.96	423.45± 165.76 ^{△▲}
Study group									
对照组	40	10.65± 2.35	120.20± 51.32 [△]	30.12± 9.03	670.23± 430.21 [△]	75.46± 35.22	186.56± 69.78 [△]	348.90± 150.02	459.36± 175.78 [△]
Control group									

注:与术前比较, [△]P<0.05, 与对照组同期比较, [▲]P<0.05。

Notes: Compared with the preoperative, [△]P<0.05; Compared with the control group during the same period, [▲]P<0.05.

2.3 两组患者手术前后免疫细胞水平变化比较

两组患者术后 T 淋巴细胞中 CD4⁺、CD8⁺ 及 CD4⁺/CD8⁺ 均较术前明显下降, 且对照组患者下降程度明显高于研究组,

比较差异具有统计学意义(P<0.05), 见表 3。

3 讨论

表 3 两组患者手术前后免疫细胞水平变化比较($\bar{x} \pm s$)
Table 3 Comparison of levels of immune cells before and after operation between two groups($\bar{x} \pm s$)

组别 Groups	例数 N	CD4 ⁺ (%)		CD8 ⁺ T(%)		CD4 ⁺ /CD8 ⁺	
		术前	术后 7d	术前	术后 7d	术前	术后 7d
		Before operation	Postoperative 7d	Before operation	Postoperative 7d	Before operation	Postoperative 7d
研究组 Study group	40	37.56± 5.76	33.42± 4.45 ^{△▲}	32.12± 2.34	31.79± 2.28 [▲]	1.18± 0.23	1.15± 0.19 [▲]
对照组 Control group	40	37.43± 5.64	30.12± 4.42 [△]	32.16± 2.40	29.25± 2.23 [△]	1.17± 0.22	1.00± 0.20 [△]

注:与术前比较,[△]P<0.05,与对照组同期比较,[▲]P<0.05。

Notes:Compared with the preoperative,[△]P<0.05;Compared with the control group during the same period,[▲]P<0.05.

近年来,随着微创技术的发展和运用,电视胸腔镜手术作为微创外科手术的代 表已逐渐广泛应用于临床胸科手术,尤其是早期非小细胞肺癌的治疗^[5,6]。VATS 具有切口小、无需撑开肋骨、出血量少、疼痛轻以及恢复快等优点备受广大患者欢迎,但 VATS 对患者术后免疫功能的影响仍存在争议,而全身免疫系统状态与患者治疗预后密切相关,具有重要的研究价值^[7-9]。

免疫是指机体识别 " 自己 "、排除 " 异己 " 借以维持内环境稳定的保护机制^[10]。有研究报道^[11,12],胸腔镜肺叶切除对机体免疫功能影响首先表现为患者炎症因子的改变,VATS 肺叶切除治疗早期非小细胞肺癌术后,外周血中 C 反应蛋白及 IL-6、IL-8、IL-10 等细胞因子水平升高的程度低于传统开胸手术。本研究结果显示两组患者术后细胞炎症因子 CRP、SAA、IL-6 及 IL-2R 水平较术前均明显升高,但研究组患者各炎症因子水平升高程度明显低于传统手术组,比较差异具有统计学意义(P<0.05),与相关报道结果一致^[13]。机体的免疫功能中以 T 淋巴细胞尤为重要^[14]。T 细胞在胸腺内成熟过程中,依据细胞表面分子表达的不同,可分化成表达 CD4 分子的 T 细胞和表达 CD8 分子的 T 细胞两个亚群^[15],CD4⁺T 细胞是辅助 T 细胞,CD8⁺T 细胞是细胞毒性 T 细胞,活化的 CD4⁺T 细胞可分泌细胞因子,并辅助 CD8⁺T 细胞活化消灭病毒感染细胞和肿瘤细胞^[16-18]。其中,CD4⁺/CD8⁺ 是监视人体细胞免疫功能、反映免疫状态的重要指标。CD4⁺/CD8⁺ 比值越低,表明细胞对肿瘤免疫应答能力就越低。本研究结果显示,两组患者术后 CD4⁺、CD8⁺ 及 CD4⁺/CD8⁺ 均较术前明显下降,且对照组患者下降程度明显高于研究组,比较差异具有统计学意义(P<0.05),提示全麻手术对患者免疫功能起到一定的抑制作用,但胸腔镜微创手术较传统开胸手术可更好的保护机体细胞免疫功能^[19,20]。

总之,使用微创全胸腔镜手术治疗早期非小细胞肺癌疗效显著优于传统开胸手术,且利于保护机体免疫功能,值得临床推广应用。

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(上接第 3486 页)

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