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## 后腹腔镜下肾部分切除术对肾癌患者肾功能和预后的影响\*

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**摘要 目的:**探讨后腹腔镜下肾部分切除术对肾癌患者肾功能以及近远期预后的影响。**方法:**回顾性分析 2012 年 1 月~2017 年 8 月在我院接受手术治疗的肾癌患者 92 例,根据不同手术治疗方法分为观察组(n=48)和对照组(n=44)。对照组行传统开放手术治疗,观察组行后腹腔镜下肾部分切除术。对比两组患者术前、术后血清肌酐(Cr)、血尿素氮(BUN)、 $\beta_2$ -微球蛋白( $\beta_2$ -MG)、C 反应蛋白(CRP)、白细胞介素-6(IL-6)水平的变化,术后 1 年、3 年、5 年生存率及切口感染、肺部感染、腹部疼痛、肾周血肿等并发症的发生情况。**结果:**观组患者手术时间、术后胃肠功能恢复时间、住院时间均明显短于对照组( $P<0.05$ ),术中出血量、术后引流管引流量均显著低于对照组( $P<0.05$ )。术后 1 个月、术后 2 个月,两组患者血清 Cr、BUN、 $\beta_2$ -MG 表达水平均较治疗前上升,且观察组以上指标显著低于对照组( $P<0.05$ )。术后,两组患者血清 CRP、IL-6 水平虽有升高,但观察组以上指标明显低于对照组( $P<0.05$ )。两组患者术后 3 年、5 年的生存率均较术前下降,但观察组均分别高于对照组( $P<0.05$ )。术后,两组患者均有出现切口感染、肺部感染、腹部疼痛、肾周血肿等并发症,观察组总发生率(10.42%)明显低于对照组(29.54%, $P<0.05$ )。**结论:**后腹腔镜下肾部分切除术治疗肾癌患者可缩短患者的住院时间,对肾功能影响小,明显提高患者术后 3 年、5 年生存率,且安全性更高。

**关键词:**后腹腔镜下;肾癌;肾部分切除术;血尿素氮

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## Effect of Retroperitoneal Laparoscopic Partial Nephrectomy on Renal Function and Prognosis in Patients with Renal Cancer Cell Carcinoma\*

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**ABSTRACT Objective:** To investigate the effect of retroperitoneal laparoscopic partial nephrectomy on renal function and long-term prognosis in patients with renal cancer. **Methods:** A retrospective analysis was made on 92 patients with renal cancer who underwent surgery in our hospital from January 2012 to August 2017. According to different surgical methods, the patients were divided into observation group(n=48) and control group (n=44). The control group received traditional open surgery, while the observation group received retroperitoneal laparoscopic partial nephrectomy. The changes of serum creatinine (Cr), blood urea nitrogen (BUN), beta-2-microglobulin (beta-2-MG), C-reactive protein (CRP), interleukin-6 (IL-6) levels before and after operation, the 1-year, 3-year and 5-year survival rates, incision infection, pulmonary infection, abdominal pain, perirenal hematoma and other complications were compared between the two groups. **Results:** The operation time, recovery time of gastrointestinal function and hospitalization time in the observation group were significantly shorter than those in the control group ( $P<0.05$ ). The amount of bleeding during operation and the drainage volume after operation were significantly lower than those in the control group( $P<0.05$ ). One month after operation and two months after operation, the levels of serum Cr, BUN and beta 2-MG in the two groups were higher than those before treatment, and the above indexes in the observation group were significantly lower than those in the control group( $P<0.05$ ). After operation, the serum CRP and IL-6 levels in the two groups increased, but the above indexes in the observation group were significantly lower than those in the control group ( $P<0.05$ ). The 3-year and 5-year survival rates of the two groups were lower than those of the control group, but the survival rates of the observation group were higher than those of the control group ( $P<0.05$ ). After operation, incision infection, pulmonary infection, abdominal pain, perirenal hematoma and other complications occurred in both groups. The total incidence of the observation group (10.42%) was significantly lower than that of the control group (29.54%,  $P<0.05$ ). **Conclusion:** Retroperitoneal laparoscopic partial nephrectomy can shorten the hospitalization time of patients with renal cancer, has little effect on renal function, and significantly improves the 3-year and 5-year survival rate of patients with renal cancer, and has higher safety.

**Key words:** Retroperitoneal laparoscopy; Renal cancer; Partial nephrectomy; Blood urea nitrogen

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## 前言

肾癌是临床上泌尿系统常见的恶性肿瘤,起源于肾实质内各泌尿小管,临床特征呈多样化,症状不明显,因此早期难以发现且诊断困难,导致诸多患者确诊时已处于晚期,丧失了最佳治疗时间<sup>[1]</sup>。手术切除是治疗肾癌的主要手段,可最大限度延长患者生存时间<sup>[2]</sup>。随着健康意识以及医疗水平的提高,肾癌的检出率也有所提高,但对于身体素质下降、机体代偿机制差的患者而言,根治术虽可以根治疾病,但同时也会损伤机体。因此,临床治疗多以肾部分切除术为主<sup>[3,4]</sup>,不仅可最大限度的保留患者的肾单位,且对机体组织产生的损伤小<sup>[5]</sup>。本研究对行后腹腔镜下肾部分切除术的肾癌患者进行回顾性分析,探讨了后腹腔镜下肾部分切除术对肾癌患者肾功能以及近远期预后的影响,结果作如下报道:

## 1 资料与方法

### 1.1 一般资料

选取 2012 年 1 月~2017 年 8 月在我院接受手术治疗的肾癌患者 92 例进行回顾性分析,根据不同手术治疗方法分为观察组(n=48)和对照组(n=44)。对照组中,男 26 例,女 18 例,患者年龄范围 58~78 岁,平均年龄(68.45±3.56)岁;肾癌直径 1.82~3.45 cm,平均直径(2.61±0.25)cm;肿瘤位置:肾上极 15 例,肾中部 17 例,肾下极 12 例;观察组中,男 27 例,女 21 例,患者年龄范围 57~79 岁,平均年龄(67.58±3.45)岁;肾癌直径 1.75~3.50 cm,平均直径(2.62±0.24)cm;肿瘤位置:肾上极 16 例,肾中部 20 例,肾下极 12 例。纳入标准<sup>[6]</sup>:①术前超声、CT 检查确诊为肾癌,且术后获得病理检验证实;②心、脑、肝功能正常;③患者精神状态正常,符合手术适应症;排除标准:①合并严重心、肺疾病患者;②排除过度肥胖患者;③排除糖尿病、高血压严重患者。两组患者的一般临床资料对比差异均无统计学意义(P<0.05),具有可比性。

### 1.2 治疗方法

对照组:给予传统开放手术治疗。全麻,于腹膜后建立手术入路,抬高腰桥,取患者健侧卧位,消毒手术区,提供皮肤保护膜,于肋下作手术切口,将皮肤、皮下组织、腹外以及腹横肌、背

阔肌、肋间肌逐一切开,过程中尽量避免损伤胸膜,分离肾周筋膜和脂肪,游离肾动脉、肾脏,使得肿瘤充分暴露,采用电凝刀在距肿瘤边缘 0.5 cm 位置将肾包膜切开,标记切除范围,采用剪刀顺标记切线将肿瘤和周边部位正常组织切除,选取 2.0 可吸收线在肾实质创伤边缘距离 1.0 cm 位置进针,对肾脏创伤边缘间断缝合,待血供恢复后,留置肾周引流管,对切口逐层缝合。

观察组:给予后腹腔镜下肾部位切除术治疗。全麻,抬高腰桥,选取健侧卧位,常规气囊法促使腹膜后间隙扩张,于液后线肋缘下、前线肋缘下各置 1 个 1 次性穿刺套管,>12 mm 左右,利于手术操作。于腋中线肋缘上方 2 cm 置穿刺套管,约 10 mm,选用超声刀将清理干净脂肪,切开肾周围筋膜,对肾动脉游离,选用 CT 扫描获取肿瘤准确位置,使用电凝刀在距肿瘤 0.5 cm 处将肾包膜切开,明确肿瘤切除范围和切除位置。对肾脏热缺血起始时间记录,以剪刀顺标记线将肿瘤和周围部位正常肾实质完整切除,缝合同上。

### 1.3 观察指标

对比两组患者术后相关指标,记录患者术前、术后血清肌酐(Cr)、血尿素氮(BUN)、β<sub>2</sub>-微球蛋白(BMG)、C 反应蛋白(CRP)、白细胞介素-6(IL-6)水平的变化,术后 1 年、3 年、5 年生存率,术后切口感染、肺部感染、腹部疼痛、肾周血肿等并发症的发生情况。

抽取术前、术后 2 周静脉血 4 mL,经离心处理后分离血清,放置于 -45℃ 冰箱中等待检测,采用酶联免疫吸附法(生产厂家:上海宏盛科技有限公司)检测患者血清 CRP、IL-6 含量,步骤严格按照说明书进行。

### 1.4 统计学分析

采用 SPSS19.0 分析数据,计量数据以( $\bar{x} \pm s$ )表示,组间比较采用 t 检验,计数数据以(%)表示,组间比较采用  $\chi^2$  检验,以 P<0.05 表示差异具有统计学意义。

## 2 结果

### 2.1 两组患者术后相关指标比较

观察者手术时间、术后胃肠功能恢复时间、住院时间均短于对照组(P<0.05);观察组患者术中出血量、术后引流管引流量均低于对照组(P<0.05),见表 1。

表 1 两组患者术后相关指标比较( $\bar{x} \pm s$ )

Table 1 Comparison of the postoperative indicators between two groups( $\bar{x} \pm s$ )

| Groups            | Number of cases | Operative time<br>(min) | Intraoperative<br>bleeding volume(mL) | Postoperative recovery                  |                   | Postoperative<br>drainage(mL) |
|-------------------|-----------------|-------------------------|---------------------------------------|-----------------------------------------|-------------------|-------------------------------|
|                   |                 |                         |                                       | time of gastrointestinal<br>function(d) | Length of stay(d) |                               |
| Observation group | 48              | 102.12±12.12            | 98.56±8.89                            | 2.56±0.78                               | 7.45±1.45         | 32.89±5.78                    |
| Control group     | 44              | 118.23±10.89            | 125.45±13.02                          | 4.18±0.98                               | 9.58±2.02         | 45.12±8.55                    |
| t                 |                 | 6.683                   | 11.651                                | 8.808                                   | 5.846             | 8.097                         |
| P                 |                 | 0.000                   | 0.000                                 | 0.000                                   | 0.000             | 0.000                         |

### 2.2 两组患者术前、术后血清 Cr、BUN、β<sub>2</sub>-MG 变化比较

术前,两组患者 Cr、BUN、BMG 表达水平比较无差异(P>0.05);术后 1 个月、术后 2 个月两组患者 Cr、BUN、BMG 表达水平均有上升,观察组以上指标低于对照组(P<0.05),见表 2。

### 2.3 两组患者手术前后血清 CRP、IL-6 水平的比较

术前,两组患者血清 CRP、IL-6 水平比较差异无统计学意义(P>0.05);术后,两组患者血清 CRP、IL-6 水平虽有升高,但观察组以上指标明显低于对照组(P<0.05),见表 3。

表 2 两组患者术前、术后血清 Cr、BUN、β2-MG 水平的变化比较( $\bar{x} \pm s$ )

Table 2 Comparison of the changes of serum creatine, BUN and β2-MG levels before and after operation between two groups( $\bar{x} \pm s$ )

| Groups            | Number of cases | Cr(μmol/L)   |                              |                               | BUN(mmol/L)  |                              |                               | BMG(μmol/L)  |                              |                               |
|-------------------|-----------------|--------------|------------------------------|-------------------------------|--------------|------------------------------|-------------------------------|--------------|------------------------------|-------------------------------|
|                   |                 | Preoperation | At One month after operation | At Two months after operation | Preoperation | At One month after operation | At Two months after operation | Preoperation | At One month after operation | At Two months after operation |
| Observation group | 48              | 245.23±10.23 | 258.12±10.89                 | 269.23±12.58                  | 12.25±2.47   | 13.58±2.88                   | 17.12±3.66                    | 32.56±4.45   | 35.12±5.10                   | 38.78±6.55                    |
| Control group     | 44              | 246.23±11.45 | 274.56±9.89                  | 289.56±13.02                  | 12.47±2.68   | 15.25±3.02                   | 19.45±2.98                    | 32.58±5.02   | 38.78±6.02                   | 42.02±5.80                    |
| t                 |                 | 0.442        | 7.556                        | 7.614                         | 0.409        | 2.714                        | 3.330                         | 0.020        | 3.154                        | 2.634                         |
| P                 |                 | 0.659        | 0.000                        | 0.000                         | 0.683        | 0.000                        | 0.001                         | 0.983        | 0.002                        | 0.009                         |

表 3 两组患者手术前后血清 CRP、IL-6 水平的比较( $\bar{x} \pm s$ )

Table 3 Comparison of the serum CRP and IL-6 levels before and after operation between two groups( $\bar{x} \pm s$ )

| Groups            | Number of cases | CRP(mg/L)    |               | IL-6(ng/L)   |               |
|-------------------|-----------------|--------------|---------------|--------------|---------------|
|                   |                 | Preoperative | Postoperative | Preoperative | Postoperative |
| Observation group | 48              | 6.45±2.10    | 8.74±2.14     | 3.56±0.45    | 6.78±1.10     |
| Control group     | 44              | 6.58±1.89    | 11.02±3.02    | 3.58±0.67    | 8.56±2.56     |
| t                 |                 | 0.311        | 4.205         | 0.169        | 4.396         |
| P                 |                 | 0.756        | 0.001         | 0.865        | 0.000         |

#### 2.4 两组患者 1 年、3 年、5 年生存率的比较

年、术后 5 年生存率均较术前下降,但观察组均分别高于对照

通过电话的方式对患者进行长达 5 年随访,两组患者术后

组(72.92% vs. 50.00%,58.33% vs. 36.36%, $P < 0.05$ ),见表 4。

1 年生存率比较差异无统计学意义 ( $P > 0.05$ ); 两组患者术后 3

表 4 两组患者 1 年、3 年、5 年生存率比较[例(%)]

Table 4 Comparison of the 1-, 3- and 5-year survival rates of 1, 3 and 5 years in two groups were compared[n (%)]

| Groups            | Number of cases | 1 years   | 3 years   | 5 years   |
|-------------------|-----------------|-----------|-----------|-----------|
| observation group | 48              | 40(83.33) | 35(72.92) | 28(58.33) |
| control group     | 44              | 32(72.72) | 22(50.00) | 16(36.36) |
| $\chi^2$          |                 | 1.517     | 7.200     | 4.440     |
| P                 |                 | 0.217     | 0.007     | 0.035     |

#### 2.5 两组患者并发症发生率比较

血肿等并发症, 观察组总发生率 (10.42%) 显著低于对照组

术后, 患者均有出现切口感染、肺部感染、腹部疼痛、肾周

(29.54%)( $P < 0.05$ ),见表 5。

表 5 两组患者并发症发生率的比较[例(%)]

Table 5 Comparisons of the incidence of complications between the two groups[n(%)]

| Groups            | Number of cases | Incisional infection | Pulmonary infection | Abdominal pain | Perirenal hematoma | Total     |
|-------------------|-----------------|----------------------|---------------------|----------------|--------------------|-----------|
| observation group | 48              | 1(2.08)              | 1(2.08)             | 2(4.16)        | 1(2.08)            | 5(10.42)  |
| control group     | 44              | 3(6.82)              | 2(4.55)             | 5(11.36)       | 3(6.82)            | 13(29.54) |
| $\chi^2$          |                 | 1.237                | 0.441               | 1.691          | 0.314              | 5.337     |
| P                 |                 | 0.265                | 0.506               | 0.193          | 0.575              | 0.020     |

### 3 讨论

高,但其早期临床症状不明显,多数患者确诊时已处于晚期,丧失了治疗的最佳时间<sup>[7-10]</sup>。虽然肾癌根治术是临床公认的治疗

肾癌是临床泌尿外科常见的恶性肿瘤疾病,发病率逐年升

肾癌的标准术式,但临床不主张采用该方法治疗肾癌,尤其是

针对年老或体质较差的患者,因其不利于患者术后恢复<sup>[11-13]</sup>。随着内镜技术的不断发展,国内外已有研究表明肾部分切除术与根治性切除术用于治疗肾癌疗效相当<sup>[14]</sup>。肾部分切除术主要包括传统开放性肾部分切除术和后腹腔镜下肾部分切除术,传统开放性手术给机体造成的损伤较大,术后并发症高,患者术后恢复缓慢,难以满足患者的要求<sup>[15-17]</sup>。

随着健康意识的不断提高,微创手术理念已经在泌尿外科手术中得到广泛推广,且因疗效显著,已得到医生患者认可<sup>[18-20]</sup>。研究表明后腹腔镜下肾部分切除术对机体组织产生的损伤小,能最大限度保留患者的肾脏组织,利于患者术后快速止血,治疗效果理想<sup>[21-23]</sup>。本研究结果显示后腹腔镜下肾部分切除术治疗的患者手术时间、术中出血量、术后住院时间等均优于采用传统开放性手术治疗患者,表明后腹腔镜下肾部分切除术对患者机体组织产生的损伤小,可促进患者术后快速康复。分析原因在于该手术是通过小切口手术入路实行的,切口小,无需过多组织分离,可避免牵拉损伤到周围组织,不会影响胃肠道功能,促进机体快速康复,与 Garzon S<sup>[24]</sup>等研究报道相似。研究表明<sup>[25-27]</sup>后腹腔镜下肾部分切除术在操作过程中可阻断肾动脉减少术中出血量,利于手术开展以及术后精确缝合,且能够有效延长肾脏耐受热缺血损伤的时间,从而有效保护机体肾脏功能。本研究结果显示患者经后腹腔镜下肾部分切除术治疗后患者肾脏功能得到有效改善,且效果优于采用传统开放性手术治疗患者,提示后腹腔镜下肾部分切除术对机体产生损伤小,应激反应小,对肾功能产生的损伤小,利于患者术后康复。

当机体受到创伤后,CRP、IL-6 表达水平将快速升高,且表达水平与机体损伤程度呈正相关,是可作为判断机体受损伤程度的炎症因子<sup>[28,29]</sup>。本结果表明经手术治疗后,患者 CRP、IL-6 表达水平均明显均有提高,但经后腹腔镜下肾部分切除术治疗患者炎症反应表达水平明显低于采用传统开放性手术治疗患者。此外,经后腹腔镜下肾上部分切除术治疗后,患者 3 年、5 年生存率明显高于采用传统开放性手术治疗患者。由此可见,经后腹腔镜下肾部分切除术可改善患者的预后。分析原因在于<sup>[30]</sup>后腹腔镜下肾部分切除手术通过在腹壁位置行小型切口,并且能够将特殊气体冲进腹腔,提供清晰视野,对机体组织以及周围组织的损伤小,提高患者生存率。此外,经后腹腔镜下肾部分切除术治疗患者并发症发生率明显低于传统开放性手术治疗患者,提示其安全性更高。

综上所述,后腹腔镜下肾部分切除术治疗肾癌患者可缩短患者的住院时间,对肾功能影响小,明显提高患者术后 3 年、5 年生存率,且安全性更高。

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