UDC 616.61-006.61-089.87+159.922:303.6

Life quality of patients with renal cell carcinoma after tumor resection

Y.P. Sernyak, Y.V. Roshchyn, A.S. Fukszon, V.A. Mekh
M.Gorky Donetsk National Medical University, Urology department, FIPE

During the period from 2001 till 2012 we conducted and studied more than 207 patients with renal cell cancer (RCC). Of all the patients RNE was performed in 113 (54,6%) patients, and PR – in 94 (45,4%). The average size of tumor in RNE group of patients was 5,83±1,09 sm (4,5–8,2 sm), and in PR group it was 4,92±0,67 sm (1,6–5,7 sm). The patients of these groups were performed both traditional and laparoscopic operations. To assess the functional state of kidneys of the patients the level of serum creatinine was studied, proteinuria and glomerula filtration of kidneys were estimated, evaluation of the life quality of patients was tested with the help of EORTC Quality of Life Questionnaire Core 30 (QLQ-C30, version 3.0).

The purpose of the present article was the relative analysis of the remote functional results and the life quality of patients in performing radical nephrectomy (RNE) and partial resections (PR) due to renal cell carcinoma (RCC).

So, our results demonstrate that PN is a safe and viable alternative to RNE for small renal tumors, with comparable surgical and functional outcomes. In particular, laporoscopic PN may facilitate the preservation of more healthy renal tissue because of the advantages afforded by a minimally invasive operating platform.

Key words: *renal cell carcinoma, tumor resection, life quality.*

The renal cellular cancer (RCC) is the third cancer due to frequency of urinogenital system, with a lethality about 9 cases per 100 000 population [1, 2]. Till the last decade the standard for treatment of renal cancer was radical nephrectomy, offered by Robson and his colleagues in 1969, when removal of fascia Gerota, the paranephral fat and lymphadenactomy for bifurcation of aorta was caPRied out [3]. With development of modern radial methods of diagnostics there appeared a possibility to reveal small tumors in an early stage of their development, to define the exact localization of a tumor, its connection with vessels, with elements of pyelocaliceal system (PCS) and to establish the staging of a renal cellular cancer (RCC), the development of new methods of surgical techniques has allowed to prefer the renal resection with the small sizes of a tumor [4].

Multicenter independent trials have been fulfilled with a partial kidneyresection (PR) and radical nephrectomy (RNE) and the comparable remote ontological results were found [5–13].

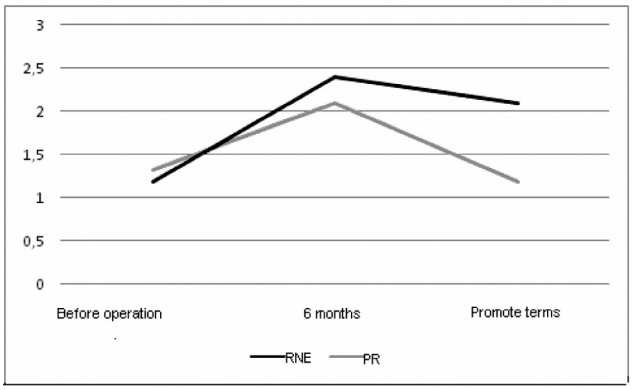
The significant distinctions of the functional state of kidneys have been noted, after radical nephrectomy (RNE) more than 10% of patients were observed to have an increased level of creatinine, 1,8% of patients needed hemodialysis, 10% of patients had the high risk of development of metachronic tumors in a single kidney. All this confirms again and again the importance of the problem and the necessity in differentiation of the approach in surgical technics of small tumors of a kidney.

The purpose of the present work was the relative analysis of the remote functional results and the life quality of patients survived the RNE and (PR) due to the RCC.

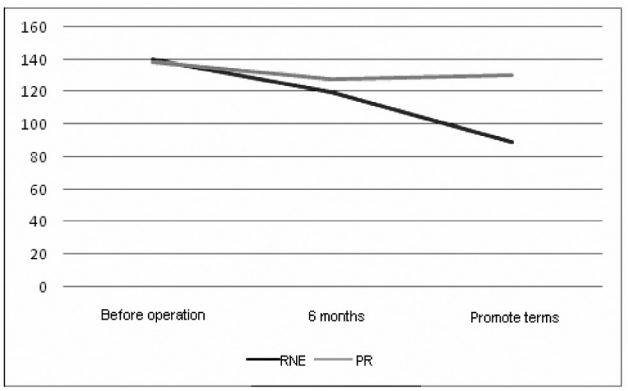
MATERIALS AND METHODS

During the period from 2001 till 2012 we conducted and studied 207 patients with a renal cellular cancer (RCC), who received treatment in urological clinic of M. Gorky Donetsk national medical university. RNE was performed in 113 (54,6%) patients, and PR – in 94 (45,4%) patients. RNE was performed by an open method in 88 (42,5%), and laparoscopic RNE in 25 (12%) patients. PR has been performed by a laparoscopic method in 15 (7,2%) cases, and traditional PR in 79 (38,3%) patients (table 1).

The average tumor size in patients of RNE group was 5,83±1,09 sm (4,5–8,2 sm), and in PR group – 4,92±0,67 sm (1,6–5,7 sm). To assess the functional state of kidneys in patients, the level of serum creatinine was studied, proteinuria was estimated before the operation, 24 hours after operation, in 6 months and in 1–5 years after operation. For a separate assessment of kidney function radioisotopic renography was



Graph 1. Dynamics of serum creatinine in patients after RNE and PR



Graph 2. Dynamics of glomerula filtration (ml/min) in patients after RNE and PR

performed, studying, in particular, a glomerulal filtration of kidneys in 6 and 18 months after operation.

To estimate the life quality the test EORTC Quality of Life Questionnaire Core 30 (QLQ-C30, version 3.0) was used, which included 28 questions divided into 7 subgroups: physical activity, pain, the general health, life stability, social adaptation, emotional health, mental health.

In addition there were 2 questions connected with the health state and the life quality during the last week from very bad to excellent (from 1 to 7 marks).

Each of questions mattered from 1 (the best value) to 4 (the worst value). The data were collected before the operation (basic values) and in the period of supervision 1, 4, 12 and 24 months after operation.

With the development of new methods of surgical techniques and the perfection of experience in laparoscopic surgery, the laparoscopic renal resections (LPR)are caPRied out more often in clinic.

Techniques for LPR

The operation was started with laying the patient in the position of lateral decubitus.

Optical port (10 mm) was positioned pararectally at the umbilical level. Ports for the surgeon – 1 port (5 mm) in hypochondrium on an anterior axillary line, and 2 port (10 mm) on a medial axillary line. Port of the assistant (5 mm) for 2 sm anterior from spina iliaca anterior superior. The following stage consisted in allocation of renal vessels for making an artificial ischemia of the organ in order to avoid hemoPRhage. Discharged renal vessels are the original insurance for the surgeon in case of an uncontrollable bleeding from a parenchyma of the organ. During the next stage of the operation the tumor was searching, the boarders of resection were determining, removal was performing with adipose capsule conservation over a tumor. The following important stage is preparation for stopping renal blood flow: preparation of instruments and their ergonomic aPRangement.

For stitching the kidney we used suture material Vikryl 2.0 with a needle of 26 mm, 15 sm in length, preliminarily having fixed on its end a fragment of the polypropylene net(gauze). The suture was introduced into abdominal cavity and the needle was fixed safely in fitted tissues so that it would be possible to take it quickly with a needle holder.

At the following stage a clip «DeBakey» was putting on a renal artery and the time of the beginning of an ischemia was fixed. Retreating from tumor edge for 3–5 mm, removal was performed without coagulation for the confident visualization of unchanged tissue of the kidney following the ontological principles of abastics. Tumor having been removed, the careful survey of its bed, suturing of large intraparenchymatous vessels and the vessels of pyelocaliceal system, if they were opened, were performed. Then a continuous suture on a parenchyma was done with picking up a bottom of the wound and bracing of each stitch by a clip. After that the clip «DeBakey» was removed from a renal artery and an assessment of residual hemoPRhage was performed. Tissue «Surgicel®Ethicon» was put on the wound and the additional sutures were put for the second row.

Table 1

	RNE – 113 (54,6%)	PR – 94 (45,4%)
Open	88 (42,5%)	79 (38,3%)
Laparoscopic	25 (12%)	15 (7,2%)

Table 2

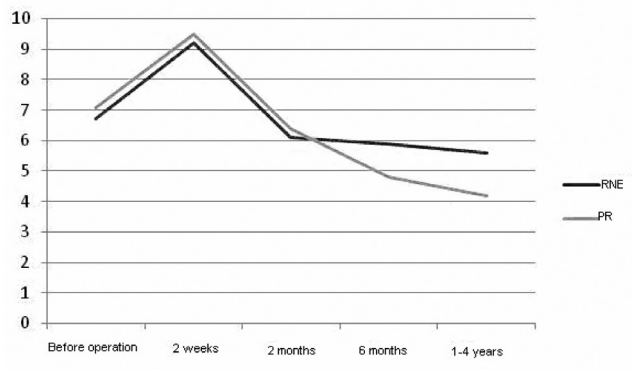
Test EORTC Quality of Life Questionnaire Core 30 (QLQ-C30, version 3.0)

	RNE	PR	P
Physical activity	4,3±0,3	6,2±0,9	>0,05
Pain	4,09±0,23	4,15±0,13	<0,05
The general health	5,2±0,4	7,1±1,3	>0,01
Life stability	4,4±0,5	6,1±0,9	>0,05
Social adaptation	4,7±1,0	6,3±0,4	>0,05
Emotional health	4,12±0,32	4,43±0,12	<0,05
Mental health	4,2±0,12	4,01±0,67	>0,05

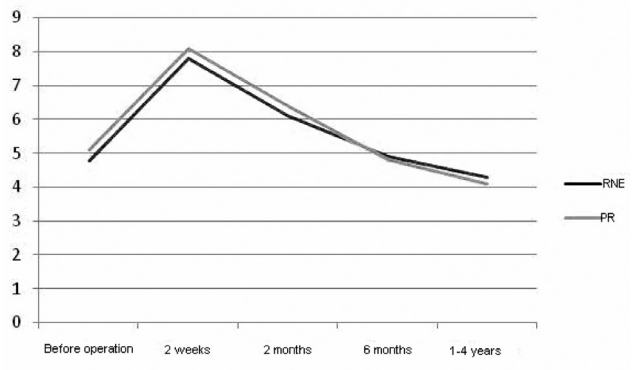
DISCUSSION

With the development of new methods of diagnostics which allow to reveal tumors in early stages, with the development of new methods of surgical techniques, saving organ operations are performed more often. The remote functional results and the life quality of patients during performing RNE and PR with RCC have been analyzed.

The average level of creatinine before the operation in RNE group was 1,19±0,08 mg/dl, and in PR group – 1,32±0,12 mg/dl. No chronic insufficiency was revealed in any patients before the operation. After control examination approximately in 40,2 months the average level of creatinine became 1,31±0,09 (0,66–5,58) mg/dl in RNA group and 1,19±0,06 (0,85–1,78) mg/dl in PR group (graph 1). While studying the assessment of dynamics of glomerulal filtration in the remote terms in RNE group the decrease rate of glomerulal



Graph 3. Dynamics of an assessment of the general health in patients of RNE and PR groups



Graph 4. Dynamics of an assessment of mental health in patients of RNE and PR groups

filtration was marked (graph 2). But in 11 (10,0%) patients of RNE group renal insufficiency has developed, 2 (1,8%) patients needed hemodialysis. No renal insufficiency was revealed in patients of PR group. While evaluating the life quality it was marked that the patients surviving PR have shown considerably best results in such groups as physical activity (4,7±0,3 vs 6,2±0,9), the general health (5,2±0,4 vs 7,1±1,3), Life stability (4,4±0,5 vs 6,1±0,9), social adaptation (4,7±1,0 vs 6,3±0,4). And such indexes as emotional health, pain, mental health had no statistical distinctions in both groups (table 2, graph 3, 4).

CONCLUSIONS

So, our results demonstrate that PN is a safe and viable alternative to RNE for small renal tumors, with comparable surgical and functional outcomes. In particular, laporoscopic PN may facilitate the preservation of more healthy renal tissue because of the advantages afforded by a minimally invasive operating platform.

Качество жизни больных с почечно-клеточным раком после резекции опухоли

Ю.П. Серняк, Ю.В. Рощин, А.С. Фуксзон, В.А. Мех

За период с 2001 по 2012 г. были обследованы 207 пациентов с почечно-клеточным раком (ПКР). Из них РНЭ выполняли у 113 (54,6%), а РП – у 94 (45,4%) больных. Средние размеры опухоли у пациентов группы РНЭ составили 5,83±1,09 см (4,5–8,2 см), а в группе РП – 4,92±0,67 см (1,6–5,7 см). Больным обеих групп выполняли как традиционные, так и лапароскопические операции. Для оценки функционального состояния почек у пациентов изучали уровень сывороточного креатинина, оценивали протеинурию, клубочковую фильтрацию почек, оценки качества жизни пациентов с помощью опросника EORTC Quality of Life Questionnaire Core 30 (QLQ-C30, version 3.0).

Цель данного исследования – сравнительный анализ отдаленных функциональных результатов и качества жизни больных при выполнении радикальной нефрэктомии (РНЭ) и резекции почки (РП) при почечно-клеточном раке (ПКР).

Таким образом, результаты исследования показали, что РП является безопасной альтернативой РНЭ для опухолей небольших размеров при сопоставимых хирургических и функциональных результатах. В частности, лапароскопическая РП способствует сохранению большего объема здоровой почечной ткани из-за преимуществ, которые предоставляют минимально инвазивное хирургическое пособие.

Ключевые слова: *почечно-клеточный рак, резекция опухоли.*

Якість життя хворих з нирково-клітинним раком після резекції пухлини

Ю.П. Серняк, Ю.В. Рощин, О.С. Фуксзон, В.А. Мєх

За період з 2001 по 2012 р. були досліджені 207 пацієнтів з нирково-клітинний раком (НКР). З них РНЕ виконували у 113 (54,6%), а РН – у 94 (45,4%) хворих. Середні розміри пухлини у пацієнтів групи РНЕ склали 5,83±1,09 см (4,5–8,2 см), а в групі РН – 4,92±0,67 см (1,6–5,7 см). Хворим обох груп виконували як традиційні, так і лапароскопічні операції. Для оцінювання функціонального стану нирок у пацієнтів вивчали рівень сироваткового креатиніну, оцінювали протеїнурію, клубочкову фільтрацію нирок, оцінку якості життя пацієнтів за допомогою опитувальник EORTC Quality of Life Questionnaire Core 30 (QLQ-C30, version 3.0).

Мета даного дослідження – порівняльний аналіз віддалених функціональних результатів і якості життя хворих при виконанні радикальної нефректомії (РНЕ) і резекції нирки (РН) при нирково-клітинному раку (НКР).

Таким чином, результати дослідження свідчать, що РН є безпечною альтернативою РНЕ для пухлин невеликих розмірів, при порівнянних хірургічних і функціональних результатах. Зокрема, лапароскопічна РН сприяє збереженню більшого обсягу здорової ниркової тканини через переваги, які надає мінімально інвазивний хірургічний посібник.

Ключові слова: *нирково-клітинний рак, резекція пухлини.*

LIST OF REFERENCES

1. Jemal A, Siegel R, Ward E. et al. Cancer statistics, 2009. CA Cancer J Clin 2009; 59: 225–249.
2. Lipworth L, Tarone RE, McLaughlin JK. The epidemiology of renal cell carcinoma. J Urol 2006; 176: 235.
3. Robson C.J., Churchill B.M., Anderson W. The results of radical nephrectomy for renal cell carcinoma. J. Urol 1969; 101: 297–310.
4. Lam JS, Shvarts O, Pantuck AJ. Changing concepts in the surgical management of renal cell carcinoma. Eur Urol 2004;45: 692–705.
5. Matin SF, Gill IS, Worley S, Novick AC. Outcome of laparoscopic radical and open partial nephrectomy for the sporadic 4 cm or less renal tumor with an normal contralateral kidney. J Urol 2002;168: 1356–60.
6. Fergany AF, Hafez KS, Novick AC. Long term results of nephron sparing surgery for localized renal cell carcinoma: 10 year follow up. J Urol 2000;163:442–5.
7. Van Poppel H. Partial nephrectomy: the standard approach for small renal cell carcinoma? Curr Opin Urol 2003;13: 431–2.
8. Van Poppel H, Bamelis B, Oyen R, Baert L. Partial nephrectomy for renal cell carcinoma can achieve long-term tumor control. J Urol 1998;160: 674–8.
9. Lau WK, Blute ML, Weaver AL, Torres VE, Zincke H. Matched comparison of radical nephrectomy vs nephron sparing surgery in patients with unilateral renal cell carcinoma and a normal contralateral kidney. Mayo Clin Proc, 2000;75: 1236–42.
10. Novick AC. Nephron sparing surgery for renal cell carcinoma. Annu Rev Med 2002;53: 393–407.
11. Rassweiler JJ, Abbou C, Janetscheck G, Jeschke K. Laparoscopic partial nephrectomy. The European experience. Urol Clin North Am 2000;27: 721–36.
12. Winfield HN, Donovan JF, Lund GO, et al. Laparoscopic partial nephrectomy: initial experience and comparison to the open surgical approach. J Urol 1999;153: 1409–14.
13. Patard JJ, Shvarts O, Lam JS, et al. Safety and efficacy of partial nephrectomy for all T1 tumors based on an international multicenter experience. J Urol 2004;171: 2181–5.

Статья поступила в редакцию 05.11.2013