

Surgical Treatment of Kidney Cancer in Elderly

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ABSTRACT

The aim of this study was to analyze our patients over the age of 70 suffering from kidney cancer that had undergone surgical treatment. During the 2000–2012 period 634 patients with kidney cancer were treated, 197 of whom were over the age of 70. In this group there were 117 (59.4%) men and 80 (40.6%) women. In most of these patients (156 patients – 79.2%) the clear cell type of renal carcinoma was diagnosed. According to TNM classification the dominant stages were T1b in 62 patients (31.8%) and T1a in 48 patients (24.6%). The most common grade was G2 (73 patients – 37%). Radical nephrectomy was performed in 103 (52.3%) patients, simple nephrectomy in 86 patients (43.7%), enucleation of the tumor and resection of the kidney in 6 (3.1%) patients, while in 2 patients the tumor was inoperable. Early postoperative complications developed in 21 (10.8%) patients. They included complications in distant organs in 11 (5.6%) patients and surgical complications in 10 (5.4%) patients. Five patients (2.6%) died during early postoperative period. Surgery is recommended treatment for elderly patients with kidney cancer with complications comparable with those in younger patients.

Key words: kidney cancer, clear cell renal carcinoma, radical nephrectomy, postoperative complications, survival

Introduction

Renal cell cancer (RCC) is the most common type of kidney cancer. In the USA estimated number of new cases is 64,770 with 13,570 deaths in 2012¹. The incidence of RCC increased during the last decades^{2,3}. The reason for the increased incidence is aging population and widespread use of diagnostic imaging modalities. More than 70% of patients have localized form of disease and can be treated surgically. The standard treatment for localized RCC is still nephrectomy or nephron-sparing surgery. The number of elderly patients increased in the last decades due to newly discovered cancers including RCC⁴. We investigated surgical treatment of RCC in the elderly patients from our center.

Patients and methods

We retrospectively analyzed data about our patients undergoing surgery for RCC from January 2000 to December 2012 in the Department of Urology, University Hospital Rijeka. The patients' records were evaluated using information about the patients' age, gender, type of operation, pathological findings, complications and survival. We separated the patients according to their age, where term »elderly« was defined as age of 70 or older. From pathological findings we determined the histological

subtype, tumour staging (according to TNM classification) and grading (according to Fuhrman nuclear grading system). The histological subtype was divided into clear-cell RCC, chromophobe, papillary and others type of tumours. Written informed consent and approval was obtained from all participants. The study was in adherence with the Declaration of Helsinki.

Results

During the aforementioned period we were treating 634 patients with RCC. Among all the patients 197 (31.1%) were 70 years old or older. The number of elderly patients increased during the period (Table 1). In the elderly group there were 117 (59.4%) men and 80 (40.6%) women. The tumor was slightly predominating on the left side (105 patients – 53.3%). Radical nephrectomy was performed in 103 (52.3%) patients, simple nephrectomy in 86 patients (43.7%), nephron-sparing surgery (partial nephrectomy or enucleation of the tumour) in 6 (3.1%) patients, while in 2 patients the tumour was inoperable. Histologically, the most common subtype of tumour was clear cell RCC diagnosed in 156 patients 79.2% (Table 2). According to TNM classification the dominant stage was T1 in 110 patients (55.9%) and the most common grade was G2 (73 patients

TABLE 1DISTRIBUTION OF 197 PATIENTS ≥ 70 YEARS OLD OPERATED DUE TO RENAL CELL CANCER (2000–2012)

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
No. of patients	11	13	10	10	17	17	12	18	19	16	16	21	17

TABLE 2

HYSTOLOGICAL TYPE OF RENAL CELL CANCER IN ELDERLY PATIENTS (N=197)

Hystological type	No. of patients (%)
Clear-cell renal cell cancer	156 (79.2%)
Papillary renal cell cancer	26 (13.2%)
Chromophobe renal cell cancer	10 (5.1%)
Others (oncocytoma, Bellini, planocellulare)	5 (2.5%)

TABLE 3

TNM CLASSIFICATION IN ELDERLY PATIENTS WITH RENAL CELL CANCER (N=197)

TNM classification	No. of patients (%)
T1	110 (55.9%)
T2	37 (18.8%)
T3	48 (24.3%)
T4	2 (1%)

TABLE 4

CLASSIFICATION OF THE RENAL CELL CANCER ACCORDING TO GRADING IN ELDERLY PATIENTS (N=197)

Tumour grading	No. of patients (%)
G1	43 (21.8%)
G2	73 (37.1%)
G3	59 (29.9%)
G4	22 (11.2%)

– 37%) (Tables 3 and 4). Early postoperative complications developed in 21 (10.8%) patients. They included complications in distant organs in 11 (5.6%) patients and surgical complications in 10 (5.4%) patients. Surgical complications consisted of secondary wound healing (5 patients), bleeding (2 pts), ileus (1 pt) and splenectomy (1 pt). Distant complications included: myocardial infarction (4 pts), pneumonia (4 pts), cardiac arrest (1 pt), pulmonary embolism (1 pt) and pulmonary oedema (1 pt). Five patients (2.6%) died during early postoperative period.

Discussion

The life span of the individual is increasing worldwide due to major progress in healthcare. The population aged 65–84 will double from the year 2000 to 2050 and at the same time the elderly over the age of 85 will increase from

4.2 million to 20.8 million people. The ageing population will have an important impact on medical practice. Nearly all urologic diseases, including the urologic cancers, increase with age⁵.

RCC is the third most common urological cancer affecting about 3% of all adult population with predominance of men. Peak incidence is occurring between the ages of 60 and 70. Etiological factors include lifestyle factors smoking, obesity and hypertension⁶. Many renal masses remain asymptomatic until the late stages of the disease. Currently, more than 50% of RCCs are detected incidentally when non-invasive imaging is used to investigate a variety of nonspecific symptoms and other abdominal diseases⁷. The classic triad of flank pain, gross hematuria and palpable mass is now rare (up to 10% of patients). The same trend was seen in our patients where most of the patients were asymptomatic.

The general assessment of the patient in finding proper treatment modality is very important. This is especially true in elderly patients needing surgical treatment. Specific preoperative assessment using the American Society of Anesthesiologists' score (ASA score) may help to predict the morbidity of surgery⁸. The study on 1,023 patients with RCC showed that younger patients had lower ASA score⁹. Perioperative mortality was higher in the older patients but intraoperative and early postoperative complications were not increased. The morbidity and mortality were found to correlate with increasing ASA score, not to age.

In the elderly comprehensive geriatric assessment (CGA) can be used to help making therapeutic decision¹⁰. The objective of CGA is to improve diagnostic accuracy and optimize medical treatment and health outcome. With this evaluation patients are divided in the three groups: patients who should be treated like young patients, vulnerable patients and frail patients. Management should be individualized and should take into consideration the life expectancy and the preferences of the patient.

Most of the patients (75%) in our study had localized tumour (stage T1 and T2). Historically the curative treatment of localized RCC has been radical nephrectomy. This procedure can be done by open surgery, laparoscopic technique or using the robot. The overall reported complications rate in the patients over 75 years are up to 22.6%¹¹. With our 10.8% we are in the expected range but improvement can be done. One possibility is introduction of laparoscopic procedures that decrease blood loss, transfusion rate, pain and hospital stay.

Nephrectomy diminishes nephron mass and have potentially negative impact on renal function leading to chronic kidney disease. Patients who had developed chronic kidney disease have increased cardiovascular morbidity and mortality. In our previous study of patients under-

going nephrectomy for RCC the mean preoperative estimated glomerular filtration rate (eGFR) in the patients ≥ 65 years was lower comparing to younger patients¹². In the older group the mean preoperative eGFR was 69.2 mL/min and the mean postoperative eGFR was 47.4 mL/min comparing to 79.8 mL/min and 57.2 mL/min in the younger patients. It is obviously that in the elderly patients diminishing of renal function following nephrectomy is more prominent. These patients had more chance to develop chronic kidney disease which influence on quality of life, morbidity and mortality.

Hellenthal analysed Surveillance, Epidemiology, and End Results database with 59,944 patients who underwent partial or radical nephrectomy for RCC between 1988 and 2005 with special emphasis on the octogenarians¹³. The 4,227 (7.5%) of patients were over 80 years old. Older patients are less likely to undergo partial nephrectomy than younger counterparts. In this study the RCC related death rate was similar in both younger and older patients (15% vs 17%). Older patients were approximately 2.3 times more likely to die from other causes than RCC confirming their frail nature. Also octogenarians treated with partial nephrectomy are less likely to die of RCC than those who undergo radical nephrectomy.

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To prevent development of kidney failure nephron-sparing procedures are advocated in patients with localized tumour. More than 60% of newly discovered RCCs are 4 cm or less in diameter which means that they are amenable for partial nephrectomy. Nephron-sparing surgery and total nephrectomy is equally effective in patients with T1 RCC with regard to cancer-specific survival¹⁴. Nephron-sparing surgery should be the treatment of choice in patients with existing renal dysfunction or in the patients with recognized risk factors (elderly, proteinuria, diabetes) including oncologic outcome, as well. Since the number of partial nephrectomies has been low in our study by increasing the number of these operations we can improve quality of life of our patients.

Conclusion

The RCC affected people of different age including the elderly. In most of the patients tumour was asymptomatic and localized to the kidney. The use of nephron-sparing procedures and minimally invasive surgery can diminish rate of complications and improve the survival.

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KIRURŠKO LIJEČENJE KARCINOMA BUBREGA U OSOBA STARIJE DOBI

SAŽETAK

Cilj rada je prikazati naša iskustva u kirurškom liječenju bolesnika s karcinomom bubrega starijih od 70 godina. Tijekom 12 godina (2000–2012.) liječili smo 634 bolesnika s karcinomom bubrega, od kojih je njih 197 bilo starije od 70 godina. U toj grupi starijih bolesnika bilo je 117 (59,4%) muškaraca i 80 (40,6%) žena. U većine bolesnika (156 bolesnika – 79,2%) pronađen je svjetlostanični karcinom bubrega. Prema TNM klasifikaciji bolesnici su najčešće imali stadij T1b (62 bolesnika – 31,8%) i T1a (48 bolesnika – 24,6%), a najčešći gradus je bio G2 u 73 bolesnika (37%). Radikalna nefrektomija je bila učinjena u 103 (52,3%) bolesnika, nefrektomija u 86 (43,7%) bolesnika, enukleacija tumora i resekcija bubrega u 6 (3,1%) bolesnika, dok je u 2 bolesnika tumor bio inoperabilan. Rane poslijeoperacijske komplikacije su bile prisutne u 21 (10,8%) bolesnika. U 11 (5,6%) bolesnika radilo se o komplikacijama na udaljenim organima te o kirurškim komplikacijama u 10 (5,4%) bolesnika. U ranom poslijeoperacijskom razdoblju je umrlo 5 (2,6%) bolesnika. U bolesnika starije dobe s karcinomom bubrega kirurško liječenje je osnov liječenja, a komplikacije su usporedive s onima u mlađoj populaciji.