Surgery



Original Research Paper

CHRONIC RENAL FAILURE, IS IT A REAL THREAT FOLLOWING RADICAL NEPHRECTOMY FOR RENAL CELL CARCINOMA? A RETROSPECTIVE STUDY.

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ABSTRACT

Renal cell carcinoma is 14th most common cancer in the world. Radical or partial nephrectomy are well established treatments.

Aim: To evaluate the patients developing renal dysfunction post radical nephrectomy and progression of renal dysfunction and various factors associated with it.

Patients And Methods: Retrospective data on patients who underwent radical nephrectomy between 2009 and 2018 at tertiary care hospital was collected. Patient characteristics like age, sex, medical diseases, type of surgery, pre-operative, immediate post-operative and follow-up renal function, staging, histology were evaluated. Renal dysfunction was defined as creatinine more than or equal to 1.3mg/dl. **Results:** Retrospective data of 150 patients undergoing radical nephrectomy was collected. Out of which 106 were males and 44 were females.44 open,96 laparoscopic, 10 robotic radical nephrectomies. Out of 150 patients, 5 patients had renal dysfunction preoperatively and 15 developed renal dysfunction post operatively.

Out of 20 who had renal dysfunction ,1 patient had DM,6 had HTN, 3 had both DM and HTN, 2 had CKD,8 had no DM/HTN.Among these 15 patients who developed renal dysfunction postoperatively,4 patients creatinine level came back to normal on successive follow-up.Out of these,1 had DM,2 had HTN, 1 had no medical illness.Out of 130 patients with normal renal function,22 had DM and 26 had HTN.

Conclusion: In our study after the initial postoperative decline, renal function remained stable over a period of average followup of around 4 years. Out of the 15 patients who developed renal dysfunction post operatively, in 4 patients serum creatinine levels came down to normal during follow-up. In remaining patients serum creatinine levels remain stable during followup. The average rise in creatinine level was 0.4mg/dl. The maximum creatinine level in these patient was 2.0mg/dl. None of them in this study progressed to extent that needed dialysis.

KEYWORDS:

INTRODUCTION

Renal cell carcinoma (RCC) is the ninth most common cancer in men and the 14th most common cancer in women. Renal cell carcinoma is the third most common malignancy in the genitourinary tract. Renal cell carcinoma originates from the proximal tubule of the kidneys and is the most common form of kidney cancer. It accounts for about 85% of solid renal masses¹. At present it is often detected incidentally and early. Partial nephrectomy and radical nephrectomy are well establishes surgeries. The former is invasive, but nephronsparing; the other is considered less invasive but with more loss of renal mass. Traditionally, emphasis has been placed on oncologic outcomes. However, a patient with an excellent oncologic outcome may suffer from morbidity and mortality related to renal failure. Decreased renal function is an independent risk factor for cardiovascular events and allcause mortality². Though radical and partial nephrectomy are well established treatments for renal cell carcinoma, In recent years there is increasing trend for nephron sparing surgery, especially in diabetics for fear of renal failure. So we chose this topic to study renal function in our patients who underwent radical nephrectomy.

Aim

To evaluate the patients with renal dysfunction post radical nephrectomy, progression of renal dysfunction and various factors associated with it.

MATERIAL AND METHODS

Retrospective data on patients who underwent radical nephrectomy between 2009 and 2018 at tertiary care hospital was collected. Patient characteristics like age, sex, medical diseases, type of surgery, pre-operative, immediate postoperative and follow-up renal function, staging, histology were evaluated. Renal dysfunction was defined as creatinine more than or equal to 1.3mg/dl in males and >0.9mg/dl in females. Inclusion Criteria: Patients who underwent radical nephrectomy for renal cell carcinoma. Exclusion Criteria: Patients with pre-existing renal dysfunction and patients who lost to followup.

RESULTS

Total 150 patients who underwent radical nephrectomy were included in the study. Out of which 106 were males and 44 were females. Mean age for males was 54.21 years and for females 53.48 years. Out of 150 patients 44 underwent open,96 underwent laparoscopic and 10 underwent robotic radical nephrectomies. 81 were T1 tumors 19 were T2 tumors,42 were T3 tumors and 8 were T4 tumors.

Out of 150 patients 132 had normal postoperative renal function and 18 had deranged renal function (Figure 1).



Figure 1:- Prevalence of renal dysfunction.

Out of 18 patients with renal dysfunction 2 had diabetes, 6 had hypertension, 3 had diabetes and hypertension both while 7 had no comorbidities(Figure 2).



Figure 2:- Renal Dysfunction With Comorbidities.

Out of 132 patients with normal renal function 24 had diabetes, 26 had hypertension while 82 had no comorbidities(Figure 3).



Figure 3:- Prevalence of normal renal function with comorbidities.

Mean serum creatinine in patients with normal renal function was $1.02\,\rm mg/dl$ and in patients with renal dysfunction was $1.63\,\rm mg/dl$

DISCUSSION

In our study we have observed that 18 {12%} patients developed renal dysfunction with raised creatinine and fall in GFR. Out of these 18 patients, 4 {22%} patients creatinine came back to normal on successive followup.

Even though there was renal dysfunction in remaining 14 patients, creatinine and GFR remained stable over average 3yrs period of followup. In our study no patient had deterioration of renal function to the extend that needed dialysis.

CONCLUSION

In our study with limited number of patients and with intermediate duration of follow up, even though the renal function declined in 12% of patients, it remained stable on followup. Out of 18 patients who developed renal dysfunction, in 4 {22%} patients the creatinine levels came within normal limits in followup period.

So from our study we can conclude that, while deciding between nephron sparing surgery or radical nephrectomy, oncological principles should not be compromised for the fear of postoperative renal dysfunction.

Studies have found out that CKD due to medical diseases will progress as medical disease continues but CKD due to Surgery is because of loss of nephrons and will stabilize and will not deteriorate further. The results of our series of patients are in accordance with these studies as renal function remained stable in CKD due to surgery.

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