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ORIGINAL ARTICLE

Treatment and Prognosis of Upper Tract Urothelial Cancer

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ABSTRACT

Background: The uncommon tumor known as Upper Tract Urothelial Carcinoma (UTUC) can begin anywhere in the urinary tract, from the calyces of the kidneys to the openings of the ureter.

Objective: Aim was to determine the effectiveness of treatment upper tract urothelial cancer among patients admitted to hospital.

Methods: Total 30 patients of both genders were presented in this study. All the patients had upper tract urothelial cancer and admitted for treatment. 30 Patients received laparoscopic nephroureterectomy in group I and and 30 patients of group II received chemotherapy or radiation for treatment. Outcomes among both groups were compared. SPSS 24.0 was used to analyze all data.

Results: Mean age of the patients in group I was 70.8 years and in group II mean age was 68.15 years. Majority of the patients were males among both groups. 17 cases of group I and 14 cases of group II had smoking history. We found group I had better outcomes as compared to group II but results were statistically insignificant. Recurrence rate in group II was 6 (20%) higher as compared to group I was 4 (13.3%).

Conclusion: We concluded in this that both treatment was effective for UTUC carcinoma and had minimum recurrence rate.

Keywords: UTUC, laparoscopic nephroureterectomy, Chemotherapy radiation, Recurrence

INTRODUCTION

Up to five percent of all neoplasms affecting the lining of the urinary tract are upper tract urothelial carcinomas (UTUCs), which are uncommon and diverse diseases[1]. Optimal therapeutic care for each patient requires accurate diagnosis and risk assessment. As an alternative to radical nephroureterectomy (RNU), kidney-sparing surgeries (KSS) have become more common for UTUC treatment. Segmental ureterectomy, which keeps the ipsilateral renal unit intact, is part of KSS, as is endoscopic management with ureteroscopy or a percutaneous approach[2].

Urothelial carcinomas (UTUCs) can develop in a variety of places, including the renal calyces and ureteric orifices. Tumors originating in the renal pelvis are four times as common than ureteral lesions. Compared to LTUCs, the more prevalent kind of urothelial carcinoma, UTUCs occur at a much lower frequency of about 5-10%[3]. Both kinds of cancers are currently included as UTUC3 in the tumor, nodes, metastasis (TNM) classification system. Despite their shared histology, UTUC and LTUC are easily distinguishable due to their unique clinical, biological, and molecular features. Because of this, people often use the term "dissimilar twins" to describe the two tumor forms[4]. Despite its rarity in Western countries, UTUC may be becoming more widespread in Eastern countries, where our knowledge of its genetic makeup and biology is severely lacking[5]. One of the intriguing aspects of the environmental-genetic continuum from a biological perspective is the strong correlation between known exposure to substances like nicotine and genetic predisposition. The disease is clinically heterogeneous and has a complex natural history; treatment for UTUC is dangerous because of its placement in the upper urinary tract, which can cause or worsen chronic kidney disease. Therefore, it is imperative that physicians caring for UTUC patients have extensive training and experience with a variety of diagnostic and treatment tools[6]

The surgical method, chemotherapy regimen, and subsequent follow-up plan are determined by stratification, with the help of diagnostic technologies. To help with risk stratification and reliable UTUC detection, new diagnostic tools, prognostic models, and nomograms have been developed, notwithstanding potential challenges. With this study, we hope to provide a concise summary of what is currently known about cytology, endoscopic evaluation, prognostic factors, nomograms, and risk stratification for UTUC. New biomarkers and imaging techniques are the subject of another piece in the same issue. We emphasize the need for new categories and speak about pre- and post-operative prediction tools.

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MATERIALS AND METHODS

This study was conducted at Department of Urology/Surgery DHQ teaching Hospital Mardan from jan 2023 to august 2023 and comprised of 60 patients. All the patients provided written consent for detailed demographics. Patients >18 years of age with UTUC and did not receive treatment before were included. Patients with severe medical illness and those did not provide any written consent were excluded.

All the patients were equally divided in two groups. Patients of group I received laparoscopic nephroureterectomy in 30 patients and 30 patients of group II were underwent for chemotherapy or radiation. Outcomes among both groups were compared. T-test was applied. Frequencies and percentages were used for categorical variables. SPSS 24.0 was used for data analysis.

RESULTS

Mean age of the patients in group I was 70.8 years and in group II mean age was 68.15 years. Majority of the patients were males among both groups. 17 cases of group I and 14 cases of group II had smoking history.(table 1)

Table-1: Demographics of the presented cases

Variables	Group I (30)	Group II (30)
Mean age (years)	70.8	68.15
Gender		
Male	18 (60%)	20 (66.7%)
Female	12 (40%)	10 (33.3%)
Smoking History		
Yes	17 (56.7%)	14 (46.7%)
No	13 (43.3%)	16 (53.3%)

We found group I had better outcomes as compared to group II but results were statistically insignificant.(table 2)

Recurrence rate in group II was 6 (20%) higher as compared to group I was 4 (13.3%).(fig 1)

Table-2: Post-treatment comparison of outcomes

Variables	Group I (30)	Group II (30)
Outcomes		
Good	12 (40%)	10 (33.3%)
Fair	17 (56.7%)	16 (53.3%)
Poor	1 (3.3%)	4 (13.3%)

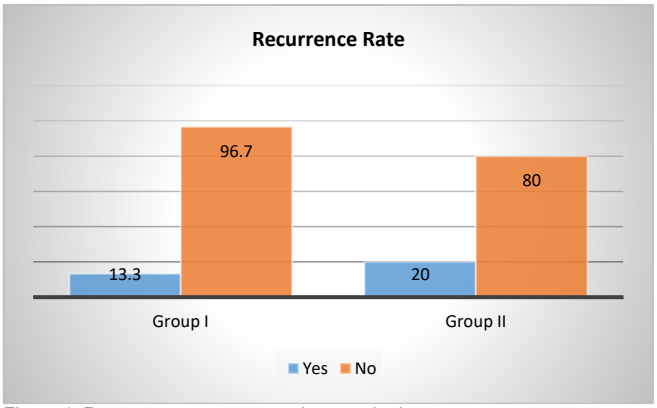

Figure-1: Recurrence rate compared among both groups

DISCUSSION

Patients with muscle-invasive malignancy cannot get neoadjuvant chemotherapy prior to RNU in UTUC cases because preoperative pathology specimens are unreliable. For UTUC, obtaining sufficient tissue for a meaningful preoperative specimen to diagnose stage T2 (muscle-invasive) or T3 (peripelvic or ureteral) disease is technically challenging. In order to prevent perforation of the upper tract, a diagnostic ureteroscopy with biopsy may assess grade instead of stage[16]

This may explain why neoadjuvant chemotherapy for UTUC has been tested in so few tertiary centers; even fewer studies with more than 50 patients have been published. Phase 2 trials at the MD-Anderson Cancer Center are looking at several neoadjuvant chemotherapy regimens for high-grade UTUC, and preliminary results show pathological downstaging rates of 60%-75%.37,[17]. A new retrospective analysis involving 55 patients was performed in Japan. The results showed that the 5-year overall survival rate was significantly higher in the 24-patient group that had neoadjuvant chemotherapy (44% vs. 29%) compared to the 31-patient group that just had surgery. There was a significant reduction in risk (0.47 HR, 95% CI 0.22 to 0.99, p=0.047) in this comparison compared to the other[18]

The benefits of neoadjuvant chemotherapy are clearly visible. One important factor in determining a patient's ability to endure chemotherapy is the presence of two healthy kidneys prior to RNU. Second, when pathological downstaging is achieved, clinicians receive vital prognostication information. Thirdly, level 1 evidence from bladder urothelial cancer strongly indicates neoadjuvant treatment prior to radical cystectomy[19-23]

There are certain downsides to neoadjuvant chemotherapy. One of these is the potential increase in perioperative morbidity and the postponement of definitive surgical care, both of which become more problematic in cases of chemoresistant illness. At the MD Anderson Cancer Center in the United States, researchers looked back at the perioperative outcomes of two groups of patients: 56 who had laparoscopic RNU alone and[24] who had UTUC and had neoadjuvant chemotherapy prior to the procedure. The rates of perioperative problems, estimated blood loss, intraoperative blood transfusion rates, and length of hospital stay were all similar[25] The time it takes to recover from chemotherapy and go under the knife can increase. Last but not least, as indicated before, there are limitations to preoperative staging and diagnosis, and there is a risk of hazardous medication administration to patients without pathologically proven muscle invasive sickness during neoadjuvant chemotherapy. People with low-risk diseases may end up being overtreated because of this.

CONCLUSION

We concluded in this that both treatment was effective for UTUC carcinoma and had minimum recurrence rate.

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