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Research Article

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THE STUDY OF MITOMYCIN AND BCG COMPARISON IN URINARY BLADDER TUMOR TREATMENT IN A TERTIARY CARE HOSPITAL

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ABSTRACT

Objective: The primary aim of this research was to Compare mitomycin C and BCG in urinary bladder treatment to determine better agents with lower complications and good results. **Materials and Methods:** The study was conducted between May 2019 and January 2020 at Nishtar Hospital in Multan, Pakistan. There were 60 patients with a urinary bladder tumor. **Results:** Complications such as fever, hematuria, and dysuria were more linked to BCG, though the recurrence rate compared to MMC was lower. **Conclusion:** BCG is more suitable than MMC for the treatment of urinary bladder cancer.

KEYWORDS: MMC, BCG, bladder cancer.

INTRODUCTION

The 9th most common cancer of the urinary bladder in the world. It can be considered the 4th most common in the U.S. and the 5th in Europe. Its prevalence increases every day (Irie et al., 2003). The majority of patients arrive at a non-invasive, superficial, muscular disease clinic. It is a combination of tumors with different results (Kassouf & Black, 2017). The disease is noted as lamina propria (T1) or urothelium in the early stages (Ta). It is more prevalent in men than in women. These tumors are initially controlled through cystoscopic observation followed by transurethral resection (TUR) and biopsy (Cockerill et al., 2015). Most of the tumor has been resected; however, two thirds may recur despite complete surgical resection.

High-risk patients are given adjuvant intravesical therapy to avoid recurrence (Jung et al., 2017). The most common agents used in this regard are Mitomycin C (MMC) and Bacillus Calmette Guerin (BCG). Invasive non-muscle cancer is highly recurrent after resection, resulting in invasive muscle cancer (Zhu et al., 2013). Centanni and Rezzesi first revealed the use of BCG against cancer in 1926 A.D. Different experiments were subsequently performed to apply lung, colon, melanoma, and leukemia (Friedrich et al. 2007). Different intravesical cytotoxic agents such as epirubicin, bleomycin, mitomycin C, adriamycin, cytosine-arabinoside, and thiotepa are used for treating superficial bladder cancers. The MMC is a highly appropriate antibiotic for superficial bladder cancer (Verdeja-Robles et al., 2018). It has a 7-81% recurrence rate. Adverse results, such as contact dermatitis and chemical cystitis, however.

On the other hand, BCG is another agent used for non-specific bladder cancer immunotherapy since 1976 A.D. (Sutton et al. 2000). A recent development in this field suggests that MMC, BCG, doxorubicin, or epirubicin should be treated with a high recurrence risk of tumors. BCG is considered the best recurrence rate among these agents. It is more toxic than MMC, however. Some studies have shown that BCG preference over MMC is absurd (Witjes et al., 2013). The purpose of this study is to compare MMC and BCG outcomes in individuals with urinary bladder tumors. This helps patients to improve their therapy and prevent recurrence in the future.

MATERIALS AND METHODS

This study took place in the Department of Urology of the Nishtar Hospital Multan. It consisted of 60 patients and lasted between May 2019 and January 2020. History was recorded for all patients, followed by a clinical exam. Provisional diagnosis included ultrasound, bare abdomen, C.T., and pelvic scanning. Preparation for cystoscopic biopsy and surgery was performed after the diagnosis stage. Following histopathology, MMC or BCG immunotherapy was assigned to each patient. The age range for studied patients was between 18 and 80 years. The present study included patients with Ta and T1 only non-muscle invasive tumors, while people with advanced bladder tumors have been excluded.

RESULTS

Of the 60 patients, 50 were male (83.33 percent), and 10 were female (16.66 percent). The selected medicines were administered according to the stage of the disease. Persons with T1, G1, and G2 were administered with MMC. 40mg in 20ml normal saline was rendered, followed by 6 hours of surgery. On the other hand, one vial of BCG was administered after 14 hours of surgery and diluted in 50 ml of normal saline. The agent was kept for about 2 hours in the bladder. The medicines were associated with different side effects. Hematuria was evident in 5% and 3% of the MMC and BCG patients. Dysuria in MMC and BCG patients showed 19% and 9%. Fever was present in 8% and 3% of patients with BCG and MMC. In 43% and 32% of BCG and MMC patients, cystitis was developed. For BCG, the rate of recurrence was lower, which was only 1%.

DISCUSSION

Cancers of the urinary bladder are the most common urinary tract malignancy. It has a 19 percent prevalence in women, while it is the sixth common cancer in men. After 60 years of age, the majority of patients are diagnosed. Recurrence is a significant problem for patients and surgeons following TUR. It is estimated that its recurrence rate is 80%. BCG and MMC are highly recommended for bladder cancer treatment. Previous research has shown that BCG treatment is better than MMC treatment. These results are similar to the current study. Intensive side effects of BCG were mentioned in many studies. The same has been demonstrated in the current study. However, the advantage of BCG is to reduce tumor recurrence. In this study, cystitis following BCG was 43%. The Di Stasi et al. study showed similar findings. In this study, however, hematuria was found to be less than in previous studies. Previous Correa et al. work showed a 38 percent recurrence rate affiliated with BCG. However, only 1 percent of recurrence in current work has been found. Accordingly, many studies have recommended the use of BCG in reducing bladder tumor recurrence rate. Although the AUA Guidelines recommend using both agents, their criteria for bladder cancer treatment are still unclear.

CONCLUSION

The conclusion is that the use of Bacillus Chalmette Bureau (BCG) is more advisable than Mitomycin C based on its low recurrence rate and the impairment of cancer progression. MMC was, however, associated with fewer side effects than BCG.

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