

NON-MUSCLE-INVASIVE BLADDER CANCER: THE ROLE OF MITOMYCIN C IN RECURRENCE MANAGEMENT

Luis Henrique de Oliveira Moreira; Thiago Eustaquio Silva Asevedo; Emanuel Fagundes Scotta; Bruno Henrique de Oliveira Moreira; Bruno Mello Ribeiro dos Santos

Federal University of Minas Gerais Medical School, Brazil

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Introduction

Bladder cancer is the tenth most common malignancy worldwide, with non-muscle-invasive bladder cancer (NMIBC) accounting for over three-quarters of cases. The prognosis of NMIBC largely depends on the recurrence and progression rates. Standard treatment for recurrent NMIBC involves transurethral resection of the bladder tumor (TURBT), occasionally followed by chemoablation. Among the available agents, mitomycin C (MMC) has emerged as a promising option. This study aims to compare the efficacy and adverse effects of MMC chemoablation versus TURBT in the management of recurrent NMIBC.

Methods

A systematic review was conducted in May 2024 using the PubMed, EMBASE, and Cochrane databases. The primary outcomes analyzed included the occurrence of cystitis, dysuria, hematuria, incontinence, and complete response to treatment. Only randomized, placebo-controlled trials were included. The search terms used were: (Chemoablation OR Chemoresection OR "Mitomycin-C") AND ("Non-muscle-invasive Bladder Cancer" OR NMIBC OR "Bladder Cancer"). The risk of bias was assessed using the Revised Cochrane Risk of Bias Tool for Randomized Trials (RoB 2).

Results

Three randomized clinical trials including 466 patients were selected, with 250 (53%) receiving MMC. Compared to TURBT, MMC showed a lower incidence of cystitis [RR 0.22 (I^2 0%, $P = 0.37$)] and incontinence [RR 0.40 (I^2 0%, $P = 0.32$)]. However, no significant difference was found in the rates of dysuria [RR 1.34 (I^2 94%, $P < 0.01$)] or hematuria [RR 0.74 (I^2 28%, $P = 0.25$)]. In terms of treatment efficacy, MMC was significantly inferior, with a lower complete response rate [RR 0.55 (I^2 0%, $P < 0.01$)].

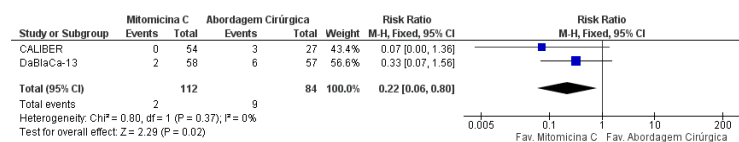


Figure 1. Forest plot comparing cystitis in patients receiving MMC vs TURBT

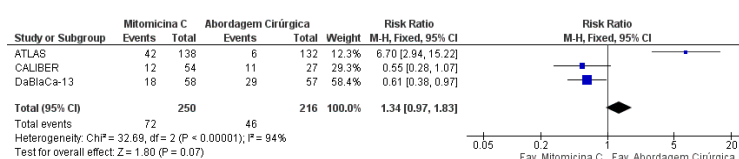


Figure 2. Forest plot comparing dysuria in patients receiving MMC vs TURBT

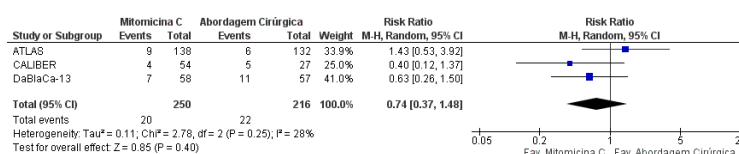


Figure 3. Forest plot comparing hematuria in patients receiving MMC vs TURBT

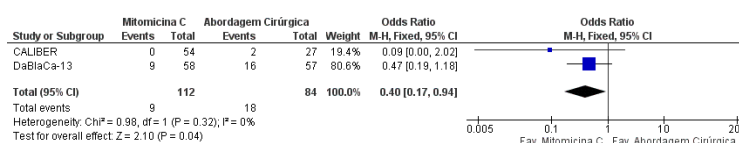


Figure 4. Forest plot comparing incontinence in patients receiving MMC vs TURBT

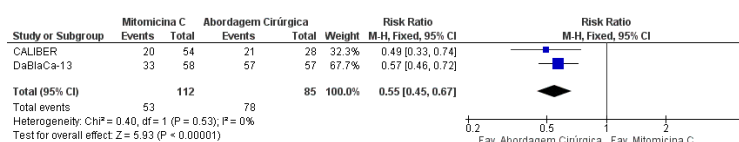


Figure 5. Forest plot comparing treatment efficacy in patients receiving MMC vs TURBT

Conclusions

Although MMC demonstrates promising results, particularly in reducing adverse effects, it cannot yet replace TURBT as the standard of care due to its lower complete response rates. Further research with larger patient cohorts and long-term oncological outcomes is essential to establish more definitive evidence regarding its potential as a primary treatment for recurrent NMIBC.

References

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