IP02-26

Real-world Treatment Patterns and Clinical Outcomes in Bacillus Calmette-Guérin (BCG)-experienced or BCG-unresponsive Patients With Papillary-only High-risk Non-muscle Invasive Bladder Cancer (HR NMIBC)

Girish S. Kulkarni[1]*, Sarah Cote[2], Michael Kelleher[3], Xin Yin[4], Dee Lin[4], Stephen B. Williams[5]

[1]Division of Urology and Surgical Oncology, Department of Surgery, Princess Margaret Cancer Centre, University of Toronto, Toronto, Canada; [2]Global Market Access, Global Commercial Strategy Organization, Toronto, Canada; [3]Global Medical Affairs, Global Commercial Strategy Organization, High Wycombe, UK; [4]Johnson & Johnson, Raritan, NJ, USA; [5]Division of Urology, Department of Surgery, University of Texas Medical Branch Health System, Galveston, TX, USA

*Presenting author

Key Takeaway

Most patients with BCG-experienced or BCG-unresponsive papillary-only HR-NMIBC experience recurrence within 12 months after BCG discontinuation and often fail to achieve durable response to subsequent treatment with standard of care options. This underscores a significant unmet need for more effective bladder-sparing treatments following BCG failure

Conclusions

- Most BCG-experienced or BCG-unresponsive patients who recurred with papillary only HR NMIBC experienced early recurrence
- Although radical cystectomy is recommended for patients with BCG unresponsive disease, it is rarely performed (2.6%), with most patients receiving bladder-sparing treatments instead
- Among patients who underwent active treatment after recurrence, the majority were managed using guidelines-recommended treatment options, including intravesical chemotherapy for early recurrence and BCG rechallenge for late recurrence after BCG discontinuation. Nonetheless, both early and late recurrence patients demonstrated suboptimal median time to recurrence with or without progression of 7.41 and 10.22 months, respectively

Please scan QR code

Poster

https://www.congresshub.com/Oncology/AUA2025/TAR-200/Kulkarni

The QR code is intended to provide scientific information for individual reference, and the information should not be altered or reproduced in any way.

Acknowledgments

The authors thank the participants and investigators for their participation in the study. Authors thanks Yi Zhe (Izzy) Wang, PhD (contracted researcher of Johnson & Johnson Innovative Medicine) for her significant contribution to data analysis. Himabindu Guthia, PhD CMPP (SIRO Medical Writing Pvt. Ltd., India) provided editorial assistance. Amit Kavle (SIRO Medical Writing Pvt. Ltd., India) provided graphic designing support.

Disclosures

Girish S. Kulkarni, MD, PhD, FRCSC: Honoraria: AbbVie, Astellas Pharma, AstraZeneca Canada, Bayer, BioSyent, Knight Pharmaceuticals, Pfizer, Tersera, Tolmar; Consulting or Advisory Role: Bristol-Myers Squibb, EMD Serono, enGene, Ferring, Johnson & Johnson, Merck, Photocure, Theralase, Verity Pharmaceuticals.

The study was funded by Johnson & Johnson Innovative Medicines.

Introduction

- Non-muscle invasive bladder cancer (NMIBC) accounts for more than 75% of newly diagnosed bladder cancers,[1] with approximately 90% of these cases being papillary disease (stage Ta or T1)[2]
- While Bacillus Calmette-Guérin (BCG) is the standard of care in frontline setting for patients with high risk (HR) NMIBC, up to 50% of patients experience recurrence within 1 year and 90% within 5 years[3]
- In the AUA guidelines, recommended treatment options after recurrence following BCG therapy depend on the type of recurrence and prior BCG exposure, and may include radical cystectomy (RC) and intravesical treatments[4]
  - However, additional BCG becomes less effective if recurrence occurs within 12 months[5]
  - The standard treatment for patients who meet the definition of BCG-unresponsive disease is RC, which is associated with increased morbidity, mortality, and a reduction in quality of life[6]
  - The recently FDA-approved alternative treatment options are limited to BCG-unresponsive HR NMIBC patients with carcinoma in situ[7,8]

Objective

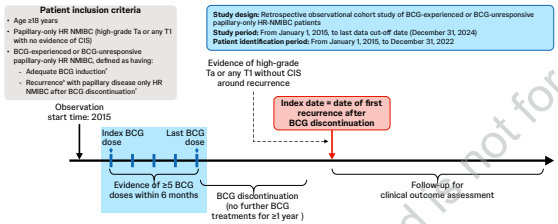
- **To describe treatment patterns and clinical outcomes in BCG-experienced or BCG-unresponsive papillary-only HR NMIBC patients in a real-world setting**

Methods

Data source

- Patients with HR-NMIBC, both newly diagnosed and recurrent or prevalent cases, were identified from the American Urology Association Quality (AQUA) Registry, which collects real-world data from more than 2,200 active providers in the US
- De-identified patient records from AQUA were integrated and linked with corresponding de-identified patient records in Komodo's Healthcare Map, a healthcare claims database, using Datavant's software

Figure 1: Study design



*Adequate BCG induction was defined as ≥5 doses within 6 months of index BCG. †Recurrence was defined by evidence of a small/medium/large TURBT, a biopsy, or a new line of treatment. ‡BCG discontinuation was defined as no further BCG treatments for ≥1 year after the last BCG dose. BCG, Bacillus Calmette-Guerin; CIS, carcinoma in situ; HR, high risk; NMIBC, non–muscle invasive bladder cancer; TURBT, transurethral resection of the bladder tumor.

Study assessments

- Baseline demographics and disease characteristics were described during the 6 months before the index date
- Patients were further stratified by the timing of disease recurrence post-BCG discontinuation
  - Early recurrence, defined as having a recurrence ≤12 months of BCG discontinuation
  - Late recurrence, defined as having a recurrence >12 months of BCG discontinuation
- Recurrence was defined as having any of the following:
  - Evidence of small, medium, or large TURBT
  - Evidence of biopsy
  - Evidence of a change in treatment
- Treatment initiation on or within 1 month of the post-BCG recurrence was described to understand treatment use after BCG failure
- Treatment outcomes were evaluated by assessing the time from the treatment initiation to the next recurrence with or without progression where progression was defined as:
  - Evidence of disease progression (MIBC or ≥T2)
  - Evidence of metastasis

Statistical analysis

- Baseline demographic and clinical characteristics were summarized using descriptive statistics
- Treatment patterns post initial recurrence were summarized using descriptive statistics
- Kaplan–Meier method was used to assess time to recurrence with or without progression

BCG, Bacillus Calmette-Guerin; MIBC, muscle-invasive bladder cancer; TURBT, transurethral resection of the bladder tumor.

Results

Baseline demographics and clinical characteristics

- A total of 1,690 patients who recurred with papillary-only HR NMIBC after discontinuing BCG (**Table 1**)
- Of these, majority (63.9%) experienced early recurrence
- On average, patients were 72 years old, primarily male (79.4%), White (94.1%), non-Hispanic or Latino (96.4%)
- The majority of patients (67.0%) received 5 or 6 BCG doses before discontinuation
- The median duration of BCG treatment before discontinuation was 42 days

Table 1: Baseline demographics and clinical characteristics

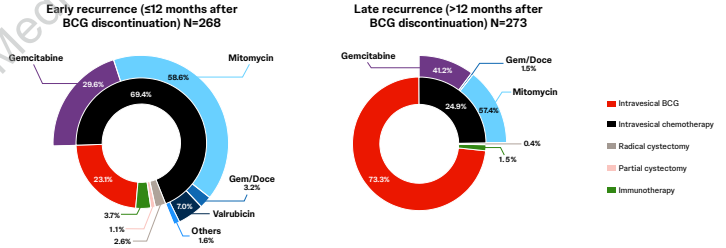
Characteristic	Overall N=1,690	Early recurrence N=1,080	Late recurrence N=610
Age, mean (SD)	72 (9.3)	71 (9.25)	73 (9.23)
Age, median (IQR)	73 (66–80)	73 (65–79)	75 (67–81)
Age category, n (%)			
<65	353 (20.9)	253 (23.4)	100 (16.4)
65–69	251 (14.9)	157 (14.5)	94 (15.4)
70–74	316 (18.7)	219 (20.3)	97 (15.9)
≥75	770 (45.6)	451 (41.8)	319 (52.3)
Sex , n (%)			
Male	1,342 (79.4)	847 (78.4)	495 (81.1)
Female	348 (20.6)	233 (21.6)	115 (18.9)
Race, n (%)*			
White	1,281 (94.1)	819 (94.2)	462 (93.7)
Black or African American	69 (5.1)	42 (4.8)	27 (5.5)
Native American and Alaska Native	4 (0.3)	3 (0.3)	1 (0.2)
Asian or Pacific Islander	6 (0.4)	4 (0.5)	2 (0.4)
Other	2 (0.1)	1 (0.1)	1 (0.2)
Ethnicity, n (%)**			
Not Hispanic or Latino	1,267 (96.4)	825 (97.1)	442 (95.3)
Hispanic or Latino	47 (3.6)	25 (2.9)	22 (4.7)
Median follow-up (IQR) (in months)	44.5 (32.8–63.4)	51.09 (38.7–68.4)	30.38 (17.3–48.1)
Year of index date			
2015–2019	914 (54.1)	708 (65.6)	206 (33.8)
2020–2024	776 (45.9)	372 (34.4)	404 (66.2)
Tumor stage*, n (%)**			
T1	1,079 (63.8)	725 (67.1)	354 (58.0)
Hg Ta	611 (36.2)	355 (32.9)	256 (42.0)
BCG doses received before discontinuation, median (IQR)	6 (6–8)	6 (6–7)	6 (6–9)
5–6 doses, n (%)	1,133 (67.0)	756 (70.0)	377 (61.8)
≥7 doses, n (%)	557 (33.0)	324 (30.0)	233 (38.2)
Time between index and last BCG dose, days, median (IQR)	42 (35–128)	42 (35–167)	40 (35–98)

*Calculated out of 1,362 patients with known race information; **Calculated out of 1,314 patients with known ethnicity information; ***Tumor stage within 180 days before and 30 days after index date.
BCG, Bacillus Calmette-Guérin; IQR, interquartile range; SD, standard deviation; T1 and Ta, tumor stages.

Treatment patterns

- Among those who received active treatment (N=541), most patients who had an early recurrence received intravesical chemotherapy (69.4%), while most of those who had late recurrence were retreated with BCG (73.3%; **Figure 2**)

Figure 2: Subsequent treatment patterns stratified by timing of recurrence

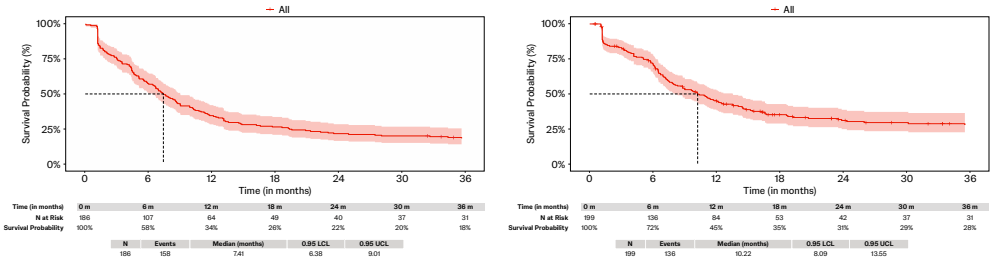


BCG, Bacillus Calmette-Guerin; Gem/Doce, gemcetabine/docetaxel.

Time to recurrence with or without progression

- Among patients who received active treatment, median time to recurrence with or without progression was 7.41 months (95% confidence interval [CI]: 6.38, 9.01) in those with early recurrence and received intravesical chemotherapy (**Figure 3A**), and 10.22 months (95% CI: 8.09, 13.55) in those with late recurrence who underwent BCG rechallenge (**Figure 3B**)

Figure 3: Time to recurrence with or without progression in patients who received active treatment within 1 month of initial recurrence



BCG, Bacillus Calmette-Guerin; LCL, lower confidence limit; m, months; UCL, upper confidence limit.

Limitations:

- The electronic medical record database, linked with healthcare claims, does not capture detailed clinical information, including test results and reasoning for procedures such as TURBT and biopsy, which may limit our ability to accurately interpret and confirm potential recurrence events
- The AQUA Registry primarily collects data from community urologists and other urologic care providers. Therefore, information on patient's non-urological medical care (e.g., non-cancer-related comorbidities managed outside of specific institutions) may be incomplete or unavailable
- Participation in the AQUA Registry is voluntary and may not fully reflect the diversity of urologic practice across the US, potentially limiting the generalizability of results to populations beyond those represented in the registry
- Mortality data was not available at the time of initial data analysis and therefore not considered as part of the outcomes assessment

References

1. Grabe-Heyne K, et al. *Front Oncol.* 2023;13:1170124. 2. Van Rhijn BW, et al. *Eur Urol.* 2009;56(3):430–42. 3. Lightfoot AJ, et al. *Sci World J.* 2011;11:602–13. 4. Holzbeierlein JM, et al. *J Urol.* 2024;211:533–538. 5. Steinberg RL, et al. *Bladder Cancer.* 2016;2(2):215–224. 6. Jung A, et al. *BJU Int.* 2020;125(1):38–48. 7. Balar AJ, et al. *Lancet Oncol.* 2021;22:919–930. 8. Black PC, et al. *Eur Urol.* 2023;84:536–544.

Urothelial Cancer

Presented by Girish S. Kulkarni at American Urological Association (AUA) Annual Meeting 2025; April 26–29, 2025; Las Vegas, Nevada, USA