MasterClass in Bladder Cancer 2026

MULTIPARAMETRIC MRI FOR CLINICAL DECISION MAKING, DO WE REALLY NEED TURBT?

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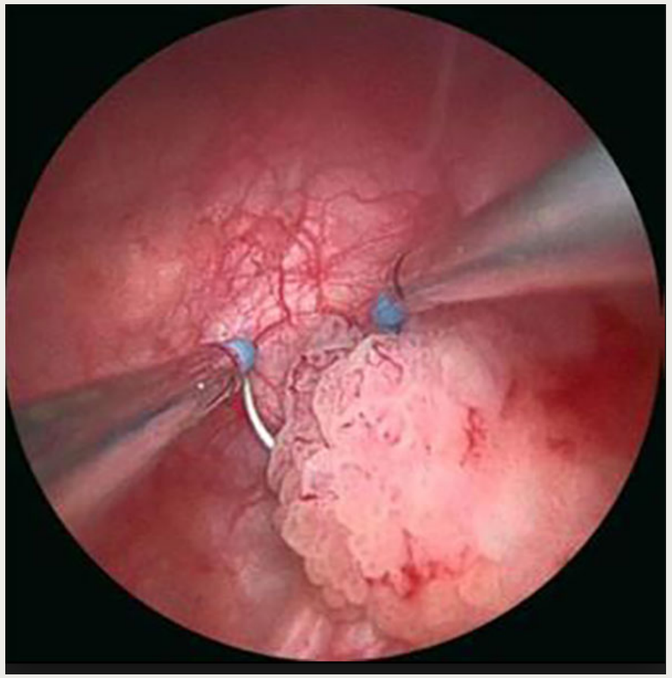
HENDERE HEALTHCARE
#BladderMasterClass26
Hospital Universitario 12 de Octubre
SaludMadrid

NO CONFLICTS OF INTEREST

TURBT



- Optimal pathological assessment.
- Prognostic information: T1 sub-staging, lymphovascular invasion.

- Presence of CIS or tumor in the prostatic urethra.
- Identify histologycal subtypes.

Restaging TURB

Pecoraro M et al.. Radiology. 2025 Mar;314(3):e23345
Del Giudice F et al. Cancers (Basel). 2020 Oct 15;12(10):2994. .

CONS TURBT

- Delay definitive treatment
- Perioperative complicactions
- Increase costs
- Under-report MIBC

A delay of ≥56 days from diagnosis to neoadjuvant chemotherapy is associated with pathologic upstaging and increased mortality.

Pecoraro M et al.. Radiology. 2025 Mar;314(3):e23345
Del Giudice F et al. Cancers (Basel). 2020 Oct 15;12(10):2994. .

TURBT COMPLICATIONS

ELSEVIER
Urologic Oncology: Seminars and Original Investigations 38 (2020) 40.e9–40.e15
UROLOGIC ONCOLOGY

Clinical-Bladder cancer

Comparison of standard vs. palliative management for bladder cancer in patients older than 85 years: multicenter study of 317 de novo tumors

Albert Carrion, M.D.[a,*], Jorge Huguet, M.D.[b], Maria José Ribal, M.D.[c], Arturo Domínguez, M.D.[d], Xavier Bonet, M.D.[c], Pol Servián, M.D.[f], Olga Mayordomo, M.D.[b], Tarek Ajami, M.D.[c], Natalia Picola, M.D.[e], Roger Freixa, M.D.[f], Fernando Díaz, M.D.[a], Fernando Lozano, M.D.[a], Carles Raventós, M.D.[a], Juan Morote, M.D.[a]

TURB intraoperative complications, *n* (%)	7 (2.2)
TURB postoperative complications, *n* (%)	64 (20.2)
Clavien-Dindo, *n* (%)	
I–II	43 (13.5)
III–IV	21 (6.7)
Emergency visits, *n* (%)	102 (32.2)
Hospital readmissions, *n* (%)	33 (10.4)
Hospital stay (days), *n* (%)	3 (1–60)

Carrion A et al. Urol Oncol. 2020 Feb;38(2):40.

MAXIMAL TURBT

- TURBT is considered necessary for reducing tumor volume before bladder-sparing treatment.
- There is no accepted definition of maximal TURBT.
- The advantage is the improvement in complete response (CR) following TMT.
- No clear data regarding the benefit in long-term oncologycal outcomes.
- Risk of bladder perforation (10%)

Avolio PP et al. Int J Radiat Oncol Biol Phys
Sheybaee Moghaddam F et al. Cancers (Basel). 2024 Sep 30;16(19):3361.

OUTPATIENT CYSTOSTCOPY

Type of tumor

- Papilary or solid tumor.
- Location.
- Multifocality.
- Size

Biopsy & Histology

- Urothelial Carcinoma,
- Pure escamous
- Pure adenocarcinoma.
- Neuroendocrine.

.

Grade

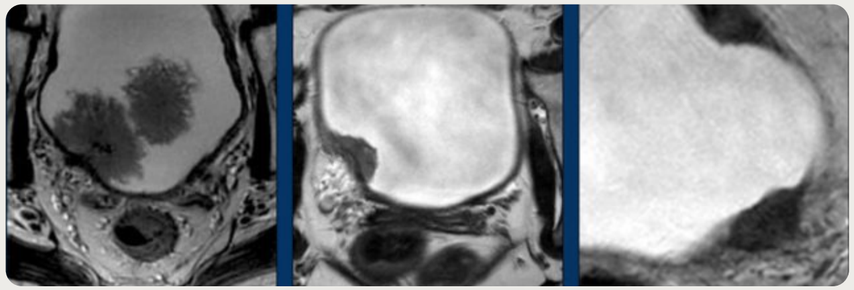
Low grade/ High grade

EAU Guidelines 2025
During VA, et al. Ann R Coll Surg Engl 98:547-551, 2016.

VIRADS

The Vesical Imaging-Reporting and Data System has been introduced to provide preoperative staging

- Local staging.
- Before TURBT.
- Likehood of MI disease.



Applicability

- Predict MIBC, avoid Re-TURB
- Evaluate local response to NAC
- Avoid initial TURBT in MIBC.

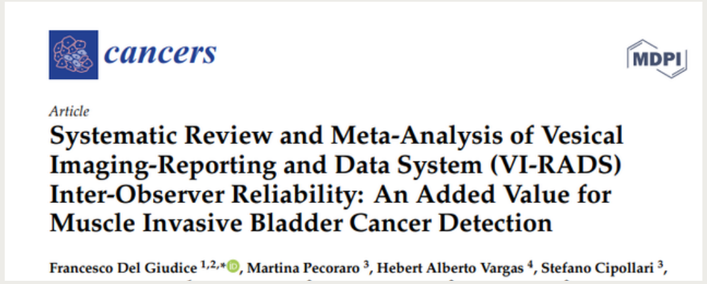
Richard T et al. European Urology, Volume 80, Issue 1, 2021, Pages 12-15,

VI-RADS	Probability of Muscle Invasion	Estimated Risk	Clinical Interpretation
1	Very low	**0–10%**	Muscle invasion is highly unlikely
2	Low	**0–10%**	Low probability of muscle invasion
3	Intermediate	**60–70%**	Equivocal findings / moderate suspicion
4	High	**90–100%**	High probability of muscle invasion
5	Very high	**90–100%**	Very high probability of muscle invasion

VI-RADS Score	Muscularis Propria Description	Lesion Description
1	Uninterrupted low SI muscularis propria at T2W imaging, intermediate continuous SI at DWI, and no early enhancement of the muscularis propria at DCE imaging	Exophytic tumor (<1 cm) with an intermediate SI tumor at T2W imaging, high SI tumor at DWI/ADC, and tumor early enhancement on DCE image with or without stalk and/or thickened inner layer, hyperintense at DWI and hypointense at ADC and enhancing tumor on DCE image
2	Same as score 1	Same as score 1, but ≥1 cm in size and including sessile/broad-based tumor with high SI thickened inner layer on T2W image, low/intermediate SI thickened inner layer on DWI scan, with early enhancement of the lesion and of the inner layer on DCE image
3	No clear disruption of low SI muscle layer at T2W imaging, DWI, and DCE imaging	Lack of score 2 findings on all sequences, with associated presence of an exophytic tumor without stalk, or sessile/broad-based tumor without high SI thickened inner layer at T2W imaging
4	Interruption of low SI line muscle layer on T2W image, interrupted intermediate continuous SI at DWI, and early enhancement of the muscle layer at DCE, suggesting tumor extension to muscularis propria	Intermediate SI tumor on T2W image, high SI tumor at DWI/ADC, and tumor early enhancement on DCE image extending to the muscle layer; tumors belonging to this category most likely do not manifest with tumor stalk, thickened and enhancing inner layer and rather they often manifest with a sessile morphologic structure
5	Same as score 4	Intermediate SI tumor at T2W imaging, high SI tumor at DWI/ADC, and tumor early enhancement at DCE extending to the entire bladder wall and to extravesical fat and/or beyond

The accuracy for primary tumor staging is between 73% to 96%.

Pecoraro M et al.. Radiology. 2025 Mar;314(3):e23345



cancers

MDPI

Article

Systematic Review and Meta-Analysis of Vesical Imaging-Reporting and Data System (VI-RADS) Inter-Observer Reliability: An Added Value for Muscle Invasive Bladder Cancer Detection

Francesco Del Giudice [1,2,*], Martina Pecoraro [3], Hebert Alberto Vargas [4], Stefano Cipollari [3],

- 8 studies
- Prospective/Retrospective
- >1000 patients
- Heterogeneity

Table 1. Clinical and demographic characteristics of the studies enrolled in the systematic review and meta-analysis. SD, Standard Deviation, IQR, Inter Quartile Range; MIBC, Muscle Invasive Bladder Cancer; TUR, Trans-Urethral Resection; RC, Radical Cystectomy; NA, Not Applicable; PC, Partial Cystectomy.

Author, Year, Location	Period (Range of Time)	Study Design	Sample Size	N. of Lesions Assessed	Age (Year) Mean (SD)/Range (IQR/Range)	T-Stage Assessed Range	MIBC n, % ≥T2	Tumor Histology % Urothelial	Reference Standard	MRI Interval	Level of Evidence
Barchetti et al. [19], 2019, Italy	September 2017–July 2018	Retrospective	75	75	69 (62–78)	Tis–T3a	22, 29.3%	100	TUR	<6 wk	III-a
Ueno et al. [20], 2019, Japan	January 2010–August 2018	Retrospective	74	74	NA	Tis–≥T2	37, 50%	95.9	TUR	NA	III-a
Wang et al. [21], 2019, China	November 2011–August 2018	Retrospective	340	340	64 (27–87)	Ta–T4	85, 25%	100	TUR, PC, RC	<2 wk	III-a
Makboul et al. [22], 2019, Egypt	NA	Prospective	50	50	57.2	T1–T4	18, 36%	NA	TUR	NA	II
Del Giudice et al. [8], 2019, Italy	September 2017–May 2019	Prospective	231	231	65.5 (47–79)	Ta–T4	62, 27%	100	TUR, RC	<6 wk	II
Hong et al. [23], 2020, Korea	July 2018–January 2019	Retrospective	32	66	73 (50–90)	NA	10, 15.2%	NA	TUR, RC	<2 wk	III-a
Marchioni et al. [24], 2020, Italy	NA	Prospective	38	68	72.5 (66.5–81.0)	Ta–T3	7, 10.3%	NA	TUR	NA	II
Sakamoto et al. [25], 2020, Japan	January 2013–September 2018	Retrospective	176	176	73 (30–95)	Ta–≥T2	46, 26%	100	TUR	NA	III-a

- **MRI for MIBC staging has a sensitivity up to 89% and specificity up to 86%**
- **Excellent inter-observer variability.**

Limitation: There is a lack of data regarding accuracy of the VIRADS among different centers with less experience in reading MRIs.

Van Der Heijden, A.G. Eur. Urol. Oncol. 2020, 3, 316–317.
Del Giudice F et al. Cancers (Basel). 2020 Oct 15;12(10):2994. .

BLADDER-PATH

RANDOMIZED CONTROL TRIAL

Objective: Avoid TURBT and decrease time to defnitive treatment in MI tumors.

MRI TRIAL

Patient Stratification by Endoscopic Appearance

Patients are stratified according to a 5-point Likert scale for endoscopic appearance: (1) strongly agree or (2) agree that the lesion is NMIBC, or (3) equivocal, (4) agree, or (5) strongly agree that the lesion is MIBC.

5-POINT LIKERT SCALE FOR ENDOSCOPIC APPEARANCE

1	2	3	4	5
STRONGLY AGREE lesion is NMIBC	AGREE lesion is NMIBC	EQUIVOCAL uncertain	AGREE lesion is MIBC	STRONGLY AGREE lesion is MIBC

PATIENT STRATIFICATION

PROBABLE NMIBC — Likert scores 1–2

POSSIBLE MIBC — Likert scores 3–5

NMIBC = Non-Muscle-Invasive Bladder Cancer

MIBC = Muscle-Invasive Bladder Cancer

SIMPLIFIED CLASSIFICATION FLOW

Endoscopic Assessment

↓

Assign Likert Score (1–5)

↓

Scores 1–2 Probable NMIBC

Scores 3–5 Possible MIBC

The Likert scale standardizes endoscopic evaluation and helps stratify patients according to the suspected invasiveness of the bladder lesion.

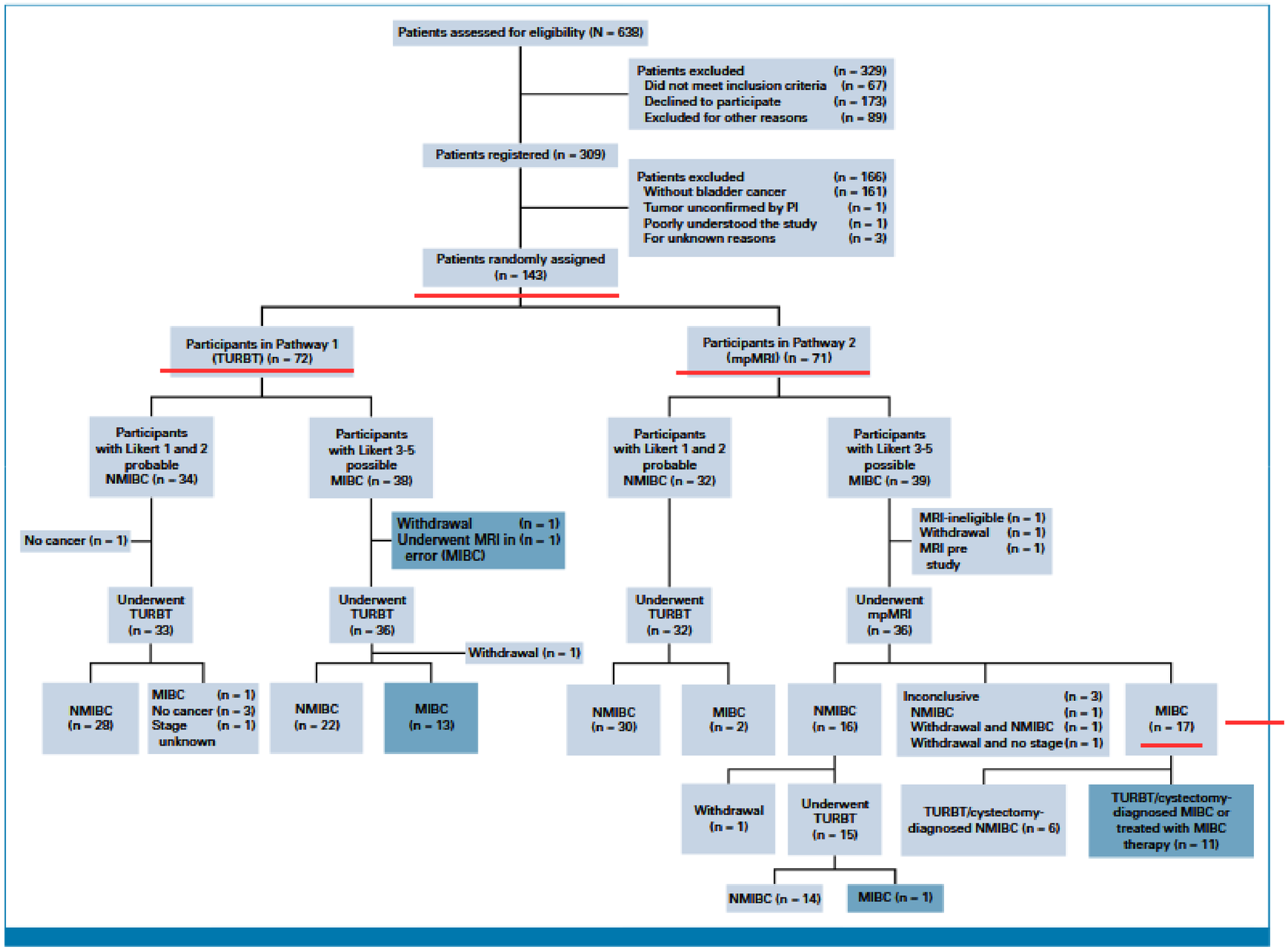
RANDOMIZATION

Standard of care ⟶ pathway 1 --› TURBT

Risk-stratified MRI-directed therapy⟶ pathway 2

- LIKERT 1–2 UNDERGO TURBT
- LIKERT 3–5 UNDERGO FLEXIBLE CYSTOSCOPY WITH A TISSUE BIOPSY AND MRI (VIRADS).

Bryan RT, J Clin Oncol. 2025 Apr 20;43(12):1417-1428.



TURBTccurred in 83% patients (main reasons: staging doubts, debulking, histologiical subtypes).

Bryan RT, J Clin Oncol. 2025 Apr 20;43(12):1417-1428.

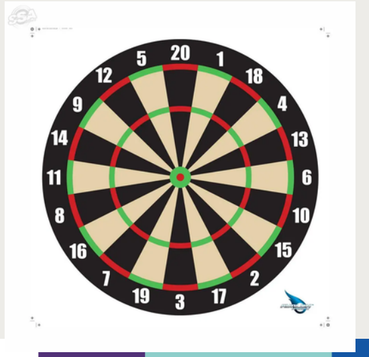
STUDY DESING

PRIMARY OUTCOME: TIME TO CORRECT TREATMENT (TTCT) FOR PATIENTS CLASSIFIED AS POSSIBLE MIBC AND CONFIRMED TO HAVE MIBC.

SECONDARY OUTCOMES INCLUDED TTCT FOR ALL PATIENTS AND FOR THOSE WITH PROBABLE NMIBC CONFIRMED AS NMIBC.

THE CORRECT TREATMENT WAS EVALUATED ACCORDING:

- TURBT for NMIBC
- Chemotherapy, radiotherapy, cystectomy, or palliative care for MIBC.



Primary Outcome

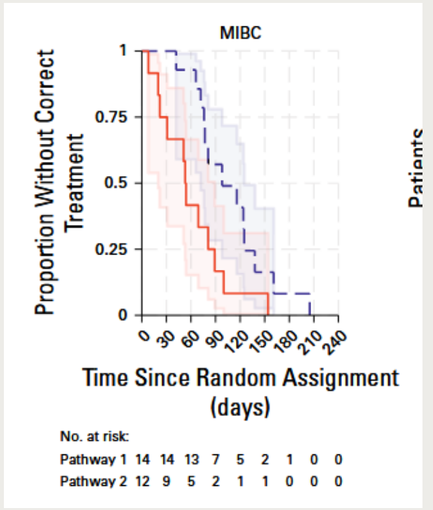
Time to Correct Treatment Stage for participants with possible MIBC

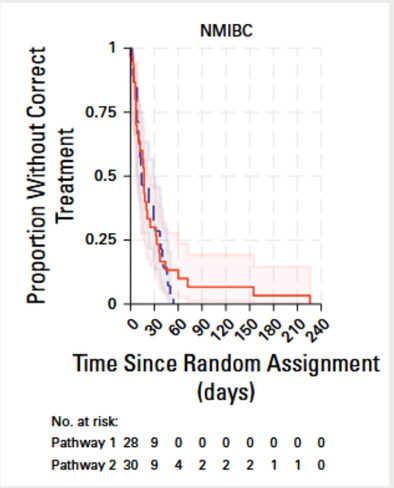
- **Of 26 participants assessed as possible MIBC and confirmed as MIBC (14 in Pathway 1, 12 in Pathway 2), 25 received a correct treatment.**
- **Median TTCT for all 26 participants with MIBC was 77 days.**
- **Pathway 2 was significantly quicker: median time for Pathway 1 was 98 days vs. 53 days in Pathway 2.**

TABLE 2. Correct Treatment(s) Received by Pathway for All Participants

Arm	Pathway 1: TURBT (n = 72)	Pathway 2: mpMRI (n = 71)	Overall (N = 143)
Whether or not correct treatment received, No. (%)			
No	9 (12.5)	4 (5.6)	13 (9.1)
Yes	63 (87.5)	67 (94.4)	130 (90.9)
First correct treatment, No. (%)			
Chemotherapy	4 (5.6)	5 (7.0)	9 (6.3)
Cystectomy	2 (2.8)	3 (4.2)	5 (3.5)
Palliative care	4 (5.6)	3 (4.2)	7 (4.9)
Radiotherapy	3 (4.2)	2 (2.8)	5 (3.5)
TURBT	50 (69.4)	54 (76.1)	104 (72.7)
Not known	9 (12.5)	4 (5.6)	13 (9.1)
Time to a correct treatment, days, median (95% CI)	37 (23 to 47)	25 (18 to 35)	31 (22 to 37)
Time to chemotherapy, days, median (95% CI)	66 (42 to NR)	54 (22 to NR)	66 (22 to 81)
Time to cystectomy, days, median (95% CI)	81 (81 to NR)	74 (51 to NR)	81 (51 to NR)
Time to palliative, days, median (95% CI)	125 (76 to NR)	20 (8 to NR)	76 (8 to 138)
Time to radiotherapy, days, median (95% CI)	116 (98 to NR)	69 (69 to NR)	98 (69 to NR)
Time to TURBT, days, median (95% CI)	18 (12 to 29)	20 (17 to 29)	20 (16 to 26)

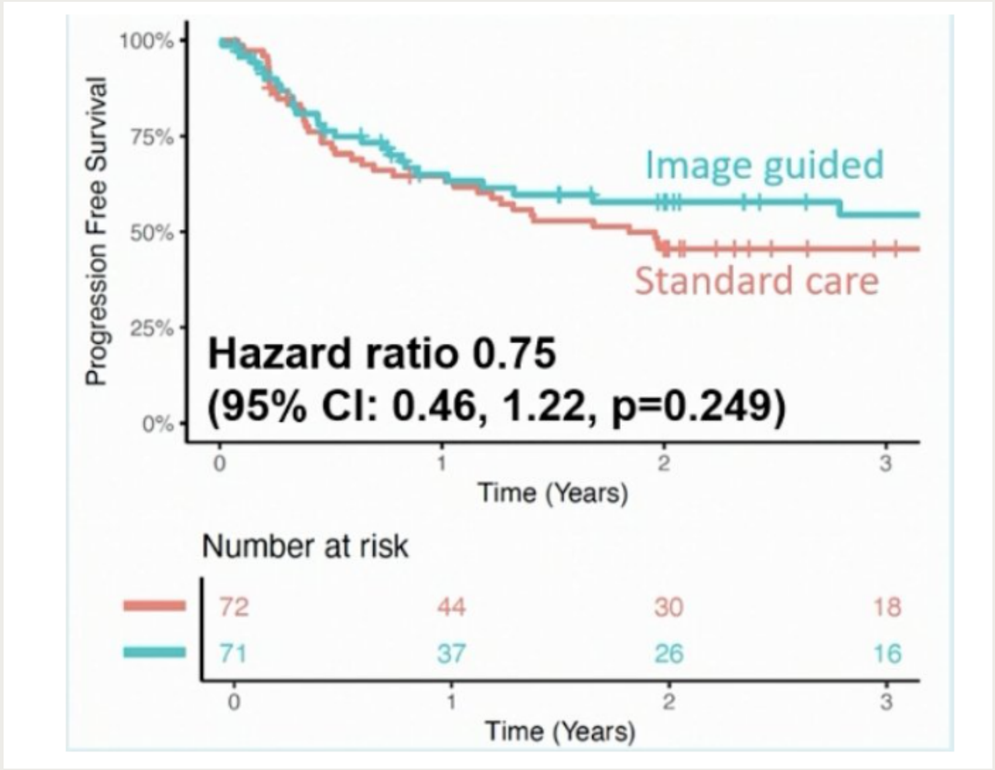
Kaplan Meier Curves for TTCT by pathway for participants with possible MIBC/NMIBC who were confirmed MIBC/NMIBC and received a correct treatment



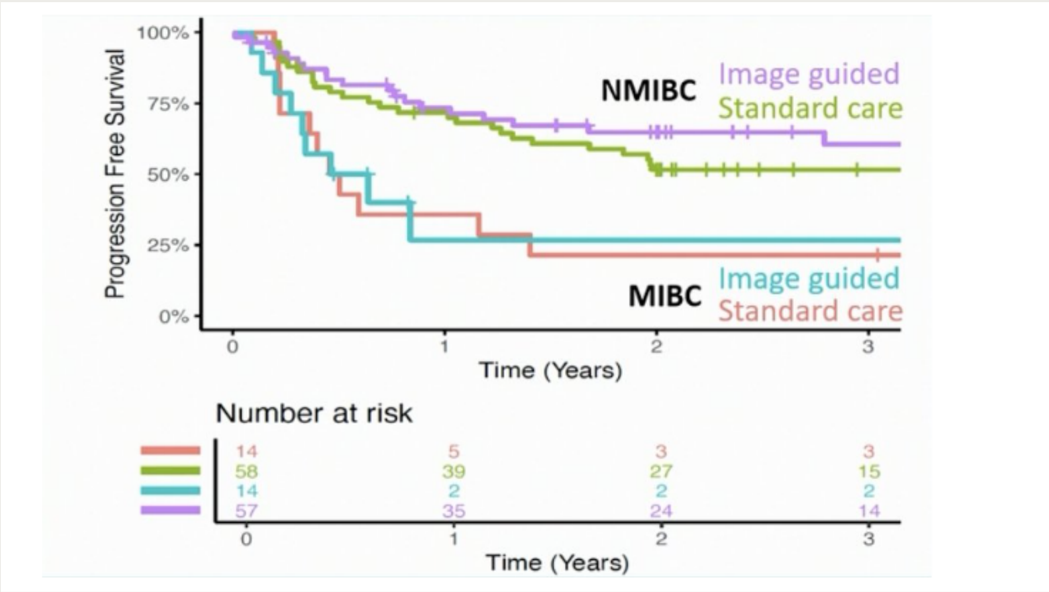


Oncological Outcomes

Progression free survival



No differences.

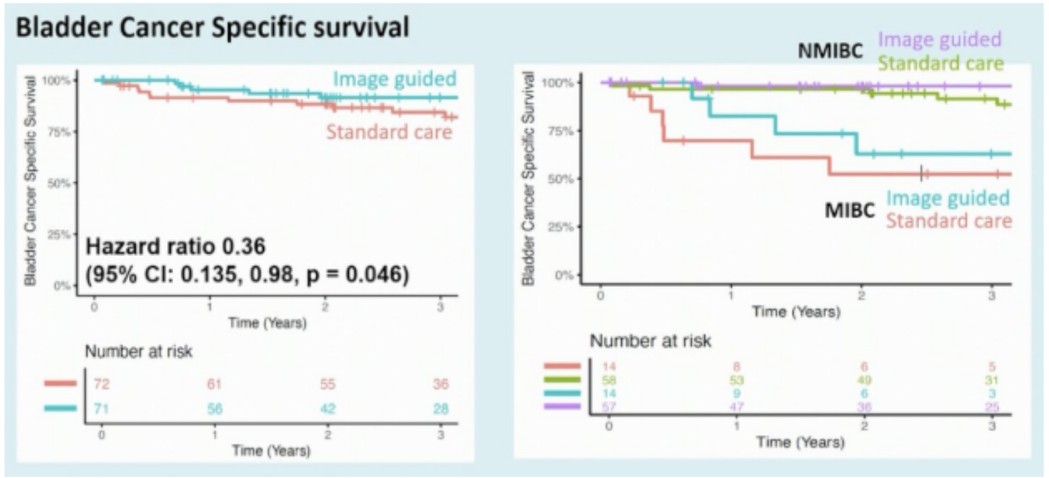


Clinically benefit for the MRI pathway among non muscle invasive bladder cancer patients.

Cancer specific survival

There was a statistical benefit for MRI versus standard of care, driven by early separation of deaths for muscle invasive bladder cancer:

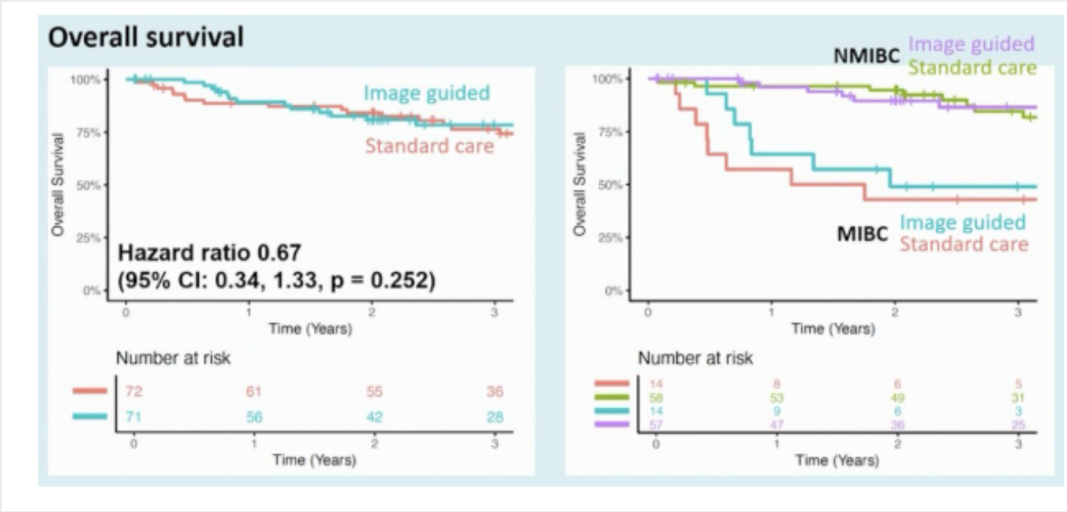
Benefit for the MRI pathway among muscle invasive bladder cancer patients:



Overall survival

There were 28% of patients that died in the standard pathway and 23% in the MRI.

There was no difference in overall survival between the two cohorts.



Conclusions

- It is feasible and safe to omit TURBT in patients with suspected MIBC in the cystoscopy and the MRI.
- MRI staging can decrease TTCT by over 6 weeks in MIBC.
- With no detriment in NMIBC patients.

Limitations

- The pathologic stage in MIBC patients diagnosed with MRI and who underwent chemotherapy, radiotherapy, or palliation was unknown, and it is impossible to know whether these were correct treatments.
- More data for survival outcomes.

CONCLUSIONS

mpMRI

- Accuracy for local staging
- Learning curve
- Can reduce TTCT
- Availability

TURBT

- Pathological assessment
- Peroperative complications
- Role in bladder-sparing therapies
- Delay definitive treatment

Unresolved questions

- The impact of TURBT on pathological response after NAT
- The impact of avoiding TURBT on the onclogical outcomes
- Differences in the waiting list among countries (MRI vs TURBT)

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THANK YOU!