

Treatment Updates in Metastatic Urothelial Cancer

Debates and Didactics in Hematology and Oncology

July 26, 2024

Sea Island, GA

Bradley C. Carthon, MD. Ph.D.

Associate Professor, Genitourinary Medical Oncology

Emory University, Atlanta, GA

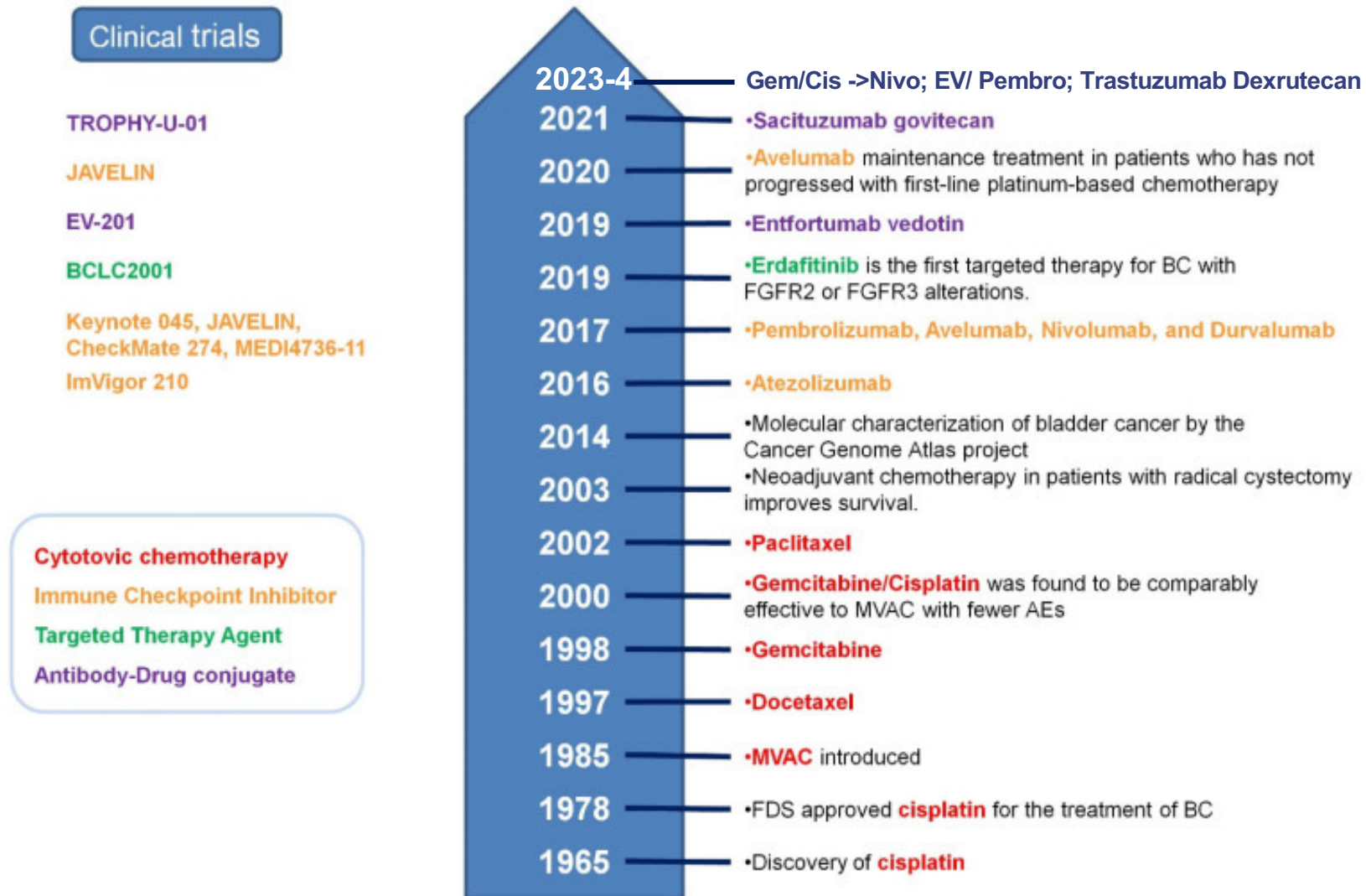
Disclosures

- Consultant:
 - Eisai
 - Bristol Myers-Squibb
 - Gilead
- Research funding to Institution:
 - Bristol Myers-Squibb
 - Immunomedics
 - AstraZeneca
 - Alkermes

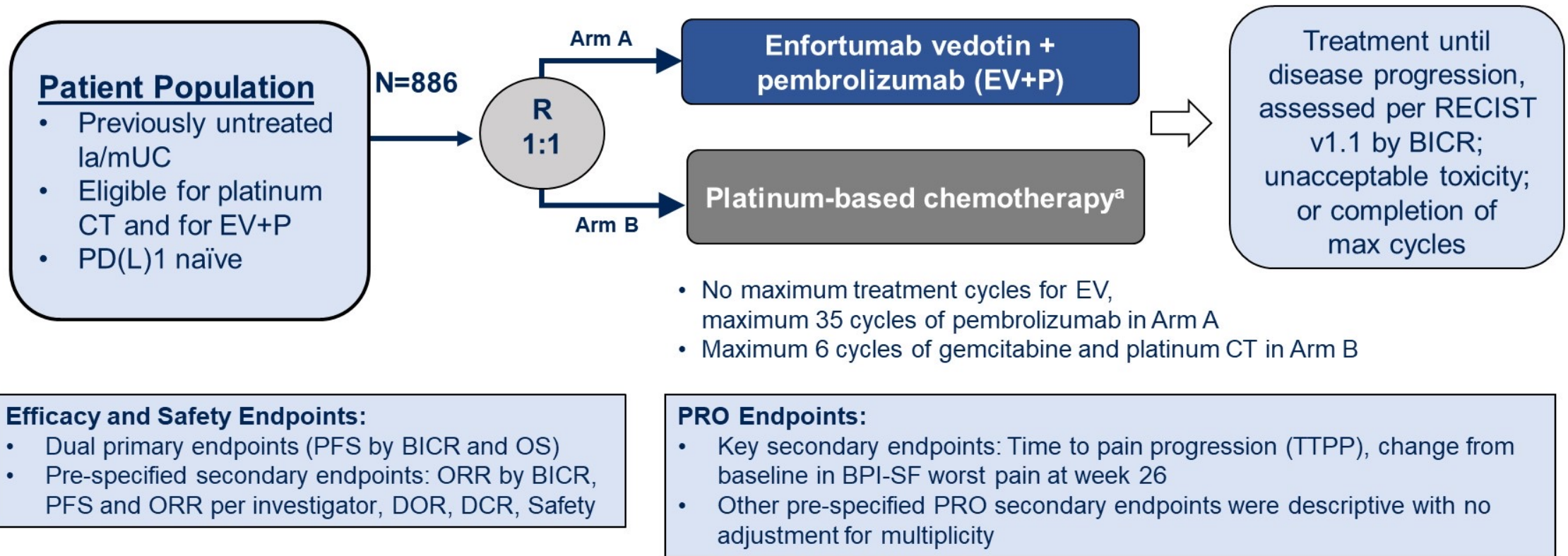
Objectives

- Review of Treatment Landscape 2024
- Examine Novel 1st Line Treatment Data
- Recap Current Recommendations for Metastatic Setting
- Examine Sequencing of Agents in Select Patients

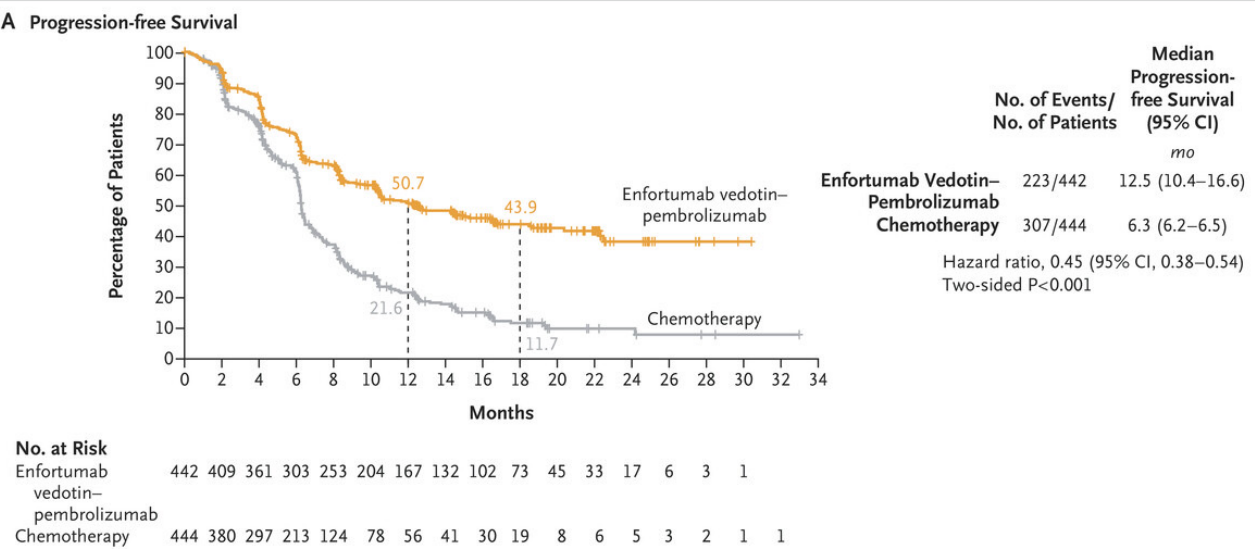
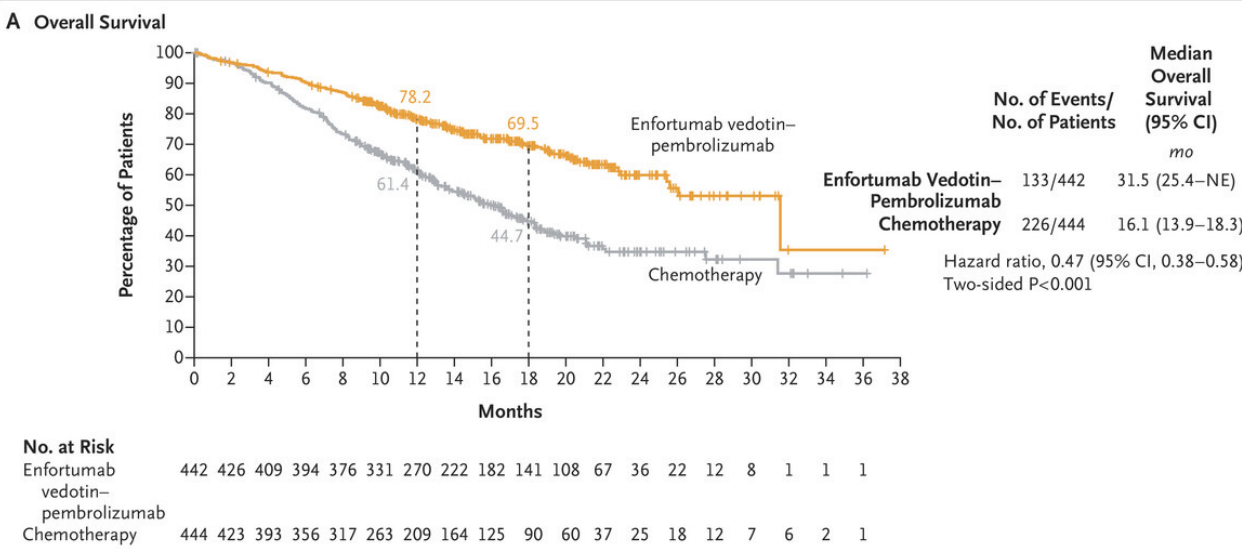
The Path From Cisplatin in Bladder Cancer



EV-302 Enfortumab Vedotin and Pembrolizumab in Metastatic Urothelial Carcinoma



EV-302 Enfortumab Vedotin and Pembrolizumab in Metastatic Urothelial Carcinoma



EV-302 Enfortumab Vedotin and Pembrolizumab in Metastatic Urothelial Carcinoma

Variable	Enfortumab Vedotin– Pembrolizumab (N=437)	Chemotherapy (N=441)
Confirmed best overall response — no. (%)		
Complete response	127 (29.1)	55 (12.5)
Partial response	169 (38.7)	141 (32.0)
Stable disease	82 (18.8)	149 (33.8)
Progressive disease	38 (8.7)	60 (13.6)
Could not be evaluated†	0	4 (0.9)
No assessment‡	21 (4.8)	32 (7.3)
Confirmed overall response (95% CI) — %§	67.7 (63.1–72.1)	44.4 (39.7–49.2)
Median time to response (range) — mo	2.1 (1.3–12.3)	2.1 (1.6–8.3)
Median duration of response (95% CI) — mo	Not reached (20.2–NE)	7.0 (6.2–10.2)

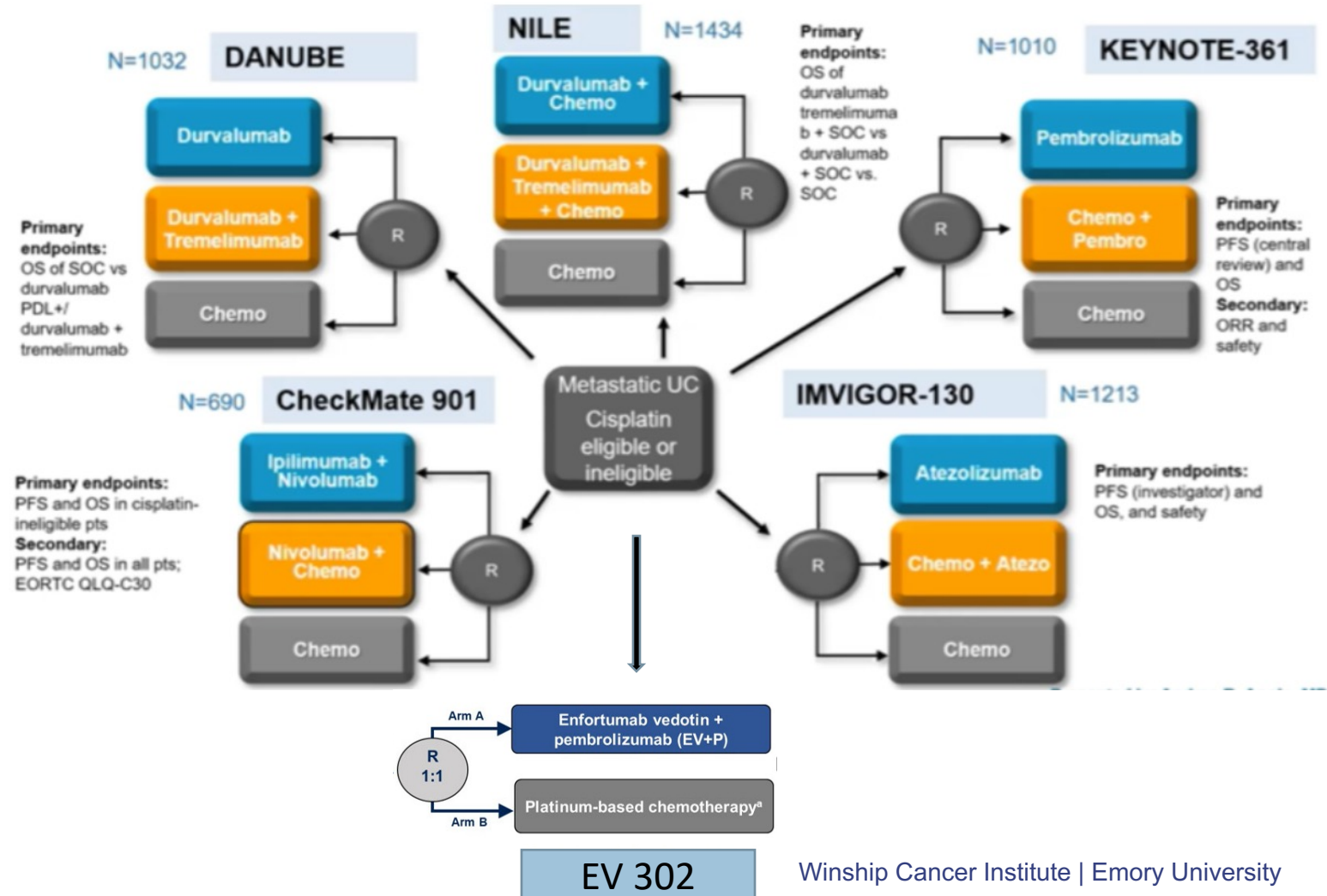
Powles T, et al. Enfortumab Vedotin and Pembrolizumab in Untreated Advanced Urothelial Cancer. N Engl J Med. 2024 Mar 7;390(10):875-888.

EV-302 Enfortumab Vedotin and Pembrolizumab in Metastatic Urothelial Carcinoma: Adverse Events

Adverse Event	Enfortumab Vedotin– Pembrolizumab (N=440)		Chemotherapy (N=433)	
	Any Grade	Grade ≥3	Any Grade	Grade ≥3
	Number of patients (percent)			
Any adverse event	427 (97.0)	246 (55.9)	414 (95.6)	301 (69.5)
Peripheral sensory neuropathy	220 (50.0)	16 (3.6)	43 (9.9)	0
Pruritus	175 (39.8)	5 (1.1)	21 (4.8)	0
Alopecia	146 (33.2)	2 (0.5)	34 (7.9)	1 (0.2)
Maculopapular rash	144 (32.7)	34 (7.7)	14 (3.2)	0
Fatigue	129 (29.3)	13 (3.0)	156 (36.0)	18 (4.2)
Diarrhea	121 (27.5)	16 (3.6)	48 (11.1)	3 (0.7)
Decreased appetite	118 (26.8)	5 (1.1)	98 (22.6)	6 (1.4)
Nausea	89 (20.2)	5 (1.1)	168 (38.8)	12 (2.8)
Anemia	61 (13.9)	15 (3.4)	245 (56.6)	136 (31.4)
Hyperglycemia	48 (10.9)	22 (5.0)	3 (0.7)	0
Neutropenia	40 (9.1)	21 (4.8)	180 (41.6)	130 (30.0)
Neutrophil count decreased	16 (3.6)	11 (2.5)	54 (12.5)	39 (9.0)
Thrombocytopenia	15 (3.4)	2 (0.5)	148 (34.2)	84 (19.4)
Platelet count decreased	3 (0.7)	0	63 (14.5)	28 (6.5)

Best Practice in Metastatic UC Patients?

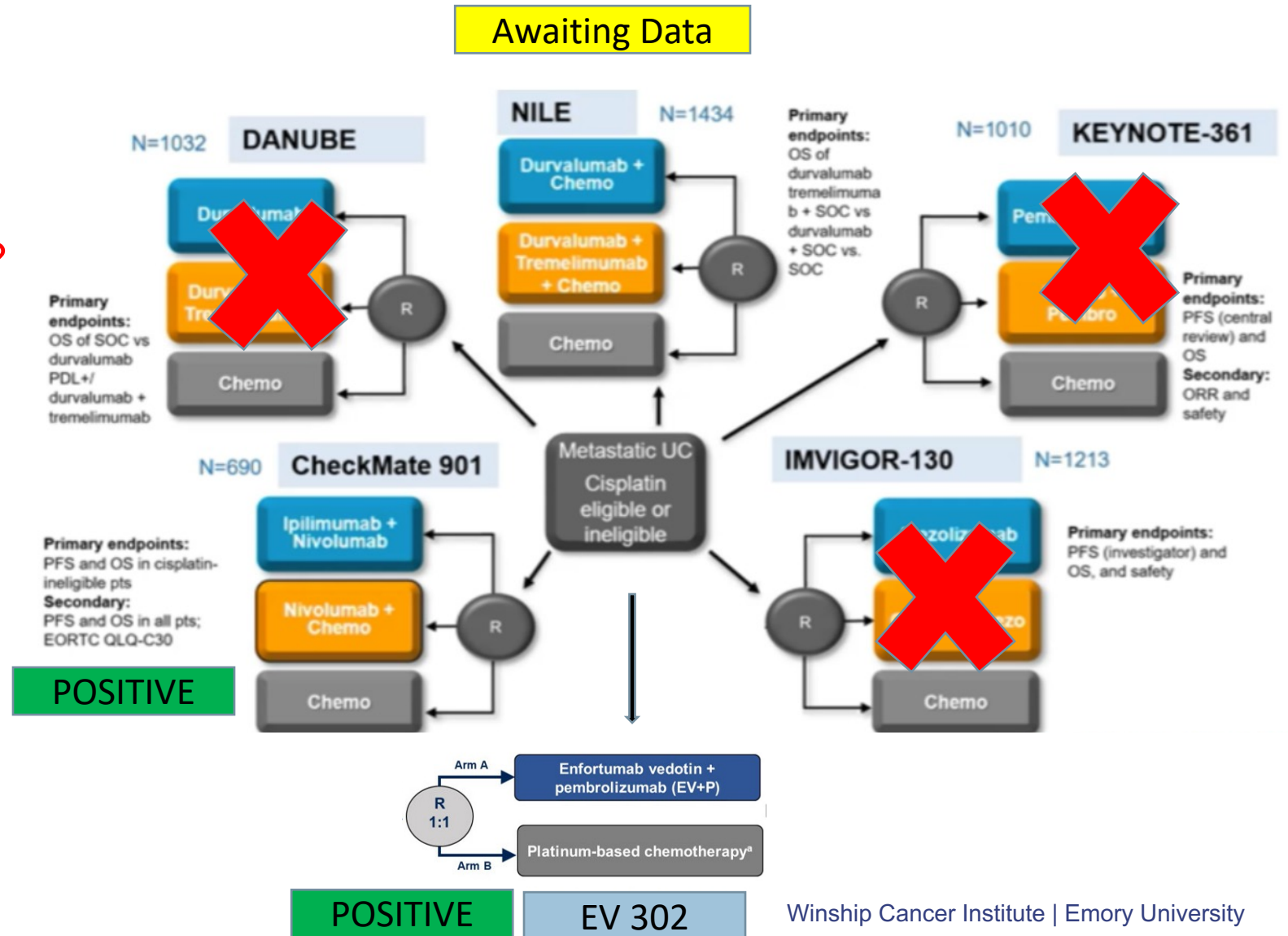
- Chemo + IO Upfront? IO Combos?
- Chemo → IO Maintenance?



Adapted from Apolo, A. ESMO 2023

Best Practice in Metastatic UC Patients?

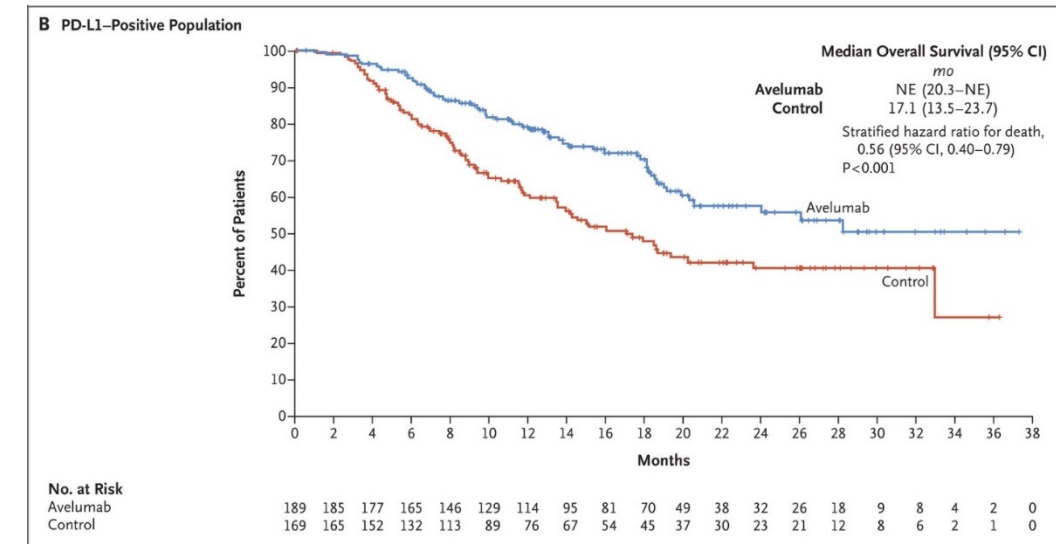
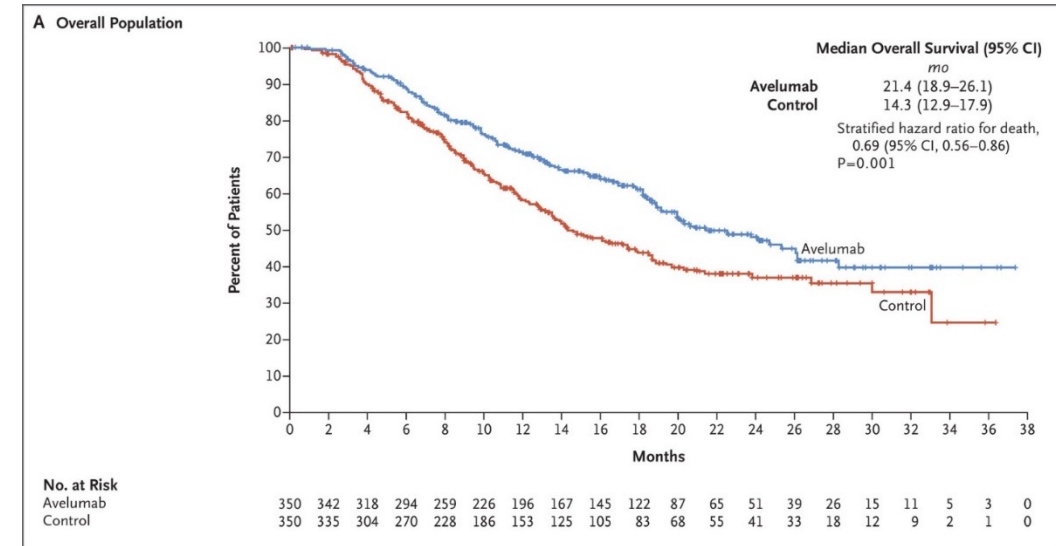
- Chemo + IO Upfront? IO Combos?
- Chemo → IO Maintenance?



Best Practice in Metastatic UC Patients?

- Chemo + IO Upfront?
- Chemo (+/- IO) → IO Maintenance?

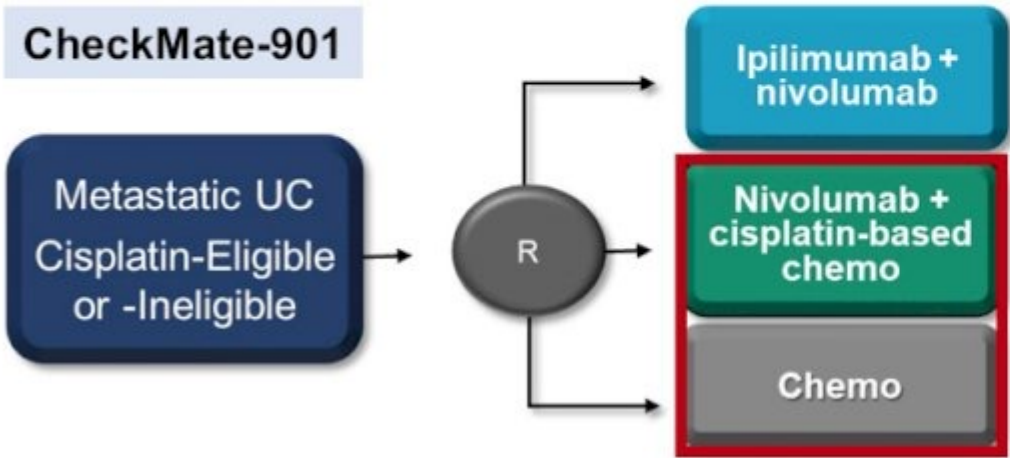
- *Javelin Bladder 100*
- *CheckMate-901**



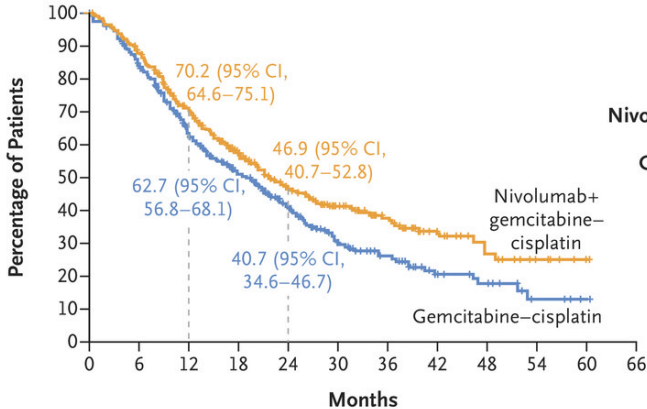
PD-L1 +

CheckMate- 901: Nivolumab + Cisplatin Based Chemo

First-line Metastatic



A Overall Survival

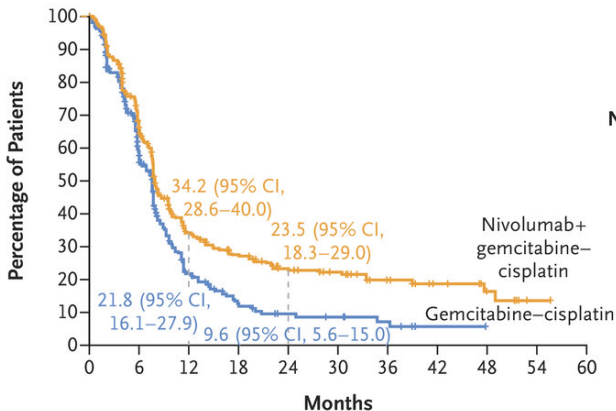


No. of Events/ No. of Patients	Median Overall Survival (95% CI) mo
172/304	21.7 (18.6–26.4)
193/304	18.9 (14.7–22.4)
Hazard ratio for death, 0.78 (95% CI, 0.63–0.96) P=0.02	

No. at Risk

Nivolumab+gemcitabine-cisplatin	304	264	196	142	97	69	48	25	15	7	2	0
Gemcitabine-cisplatin	304	242	166	122	82	49	33	17	13	4	1	0

B Progression-free Survival



No. of Events/ No. of Patients	Median Progression-free Survival (95% CI) mo
211/304	7.9 (7.6–9.5)
191/304	7.6 (6.1–7.8)
Hazard ratio for disease progression or death, 0.72 (95% CI, 0.59–0.88) P=0.001	

No. at Risk

Nivolumab+gemcitabine-cisplatin	304	179	82	57	41	31	19	11	6	1	0
Gemcitabine-cisplatin	304	119	35	17	10	8	5	1	0	0	0

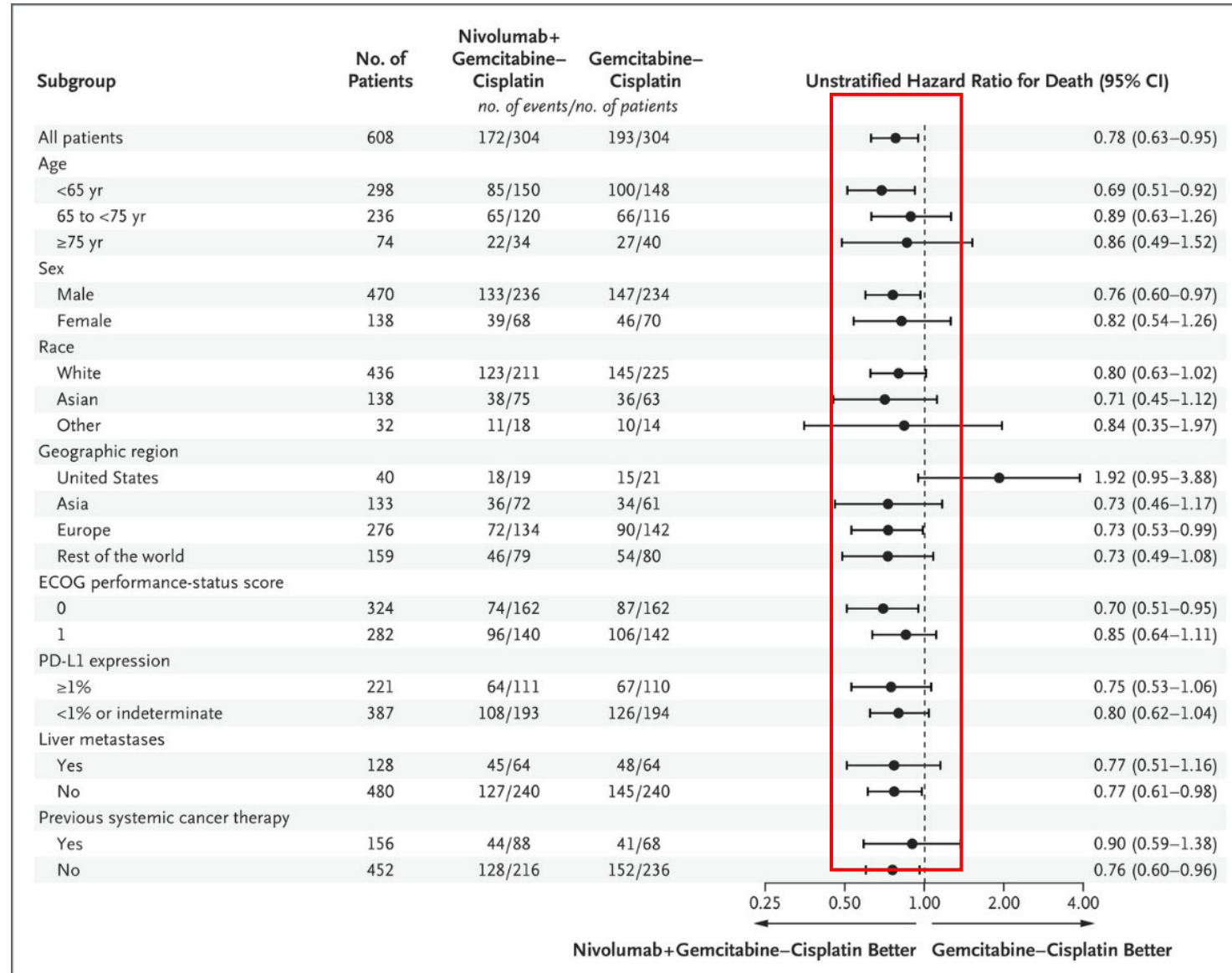
van der Heijden MS et al. Nivolumab plus Gemcitabine-Cisplatin in Advanced Urothelial Carcinoma. N Engl J Med. 2023 Nov 9;389(19):1778-1789

CheckMate- 901: Nivolumab + Cisplatin Based Chemo

Variable	Nivolumab plus Gemcitabine–Cisplatin (N=304)	Gemcitabine–Cisplatin Alone (N=304)
Objective response — % (95% CI)	57.6 (51.8–63.2)	43.1 (37.5–48.9)
Confirmed best overall response — no. (%)		
Complete response	66 (21.7)	36 (11.8)
Partial response	109 (35.9)	95 (31.2)
Stable disease	77 (25.3)	86 (28.3)
Progressive disease	29 (9.5)	39 (12.8)
Unevaluable	23 (7.6)	48 (15.8)
Median time until objective response (IQR) — mo		
Any objective response	2.1 (2.0–2.3)	2.1 (2.0–2.2)
Complete response	2.1 (1.9–2.2)	2.1 (1.9–2.2)
Median duration of objective response (95% CI) — mo		
Any objective response	9.5 (7.6–15.1)	7.3 (5.7–8.9)
Complete response	37.1 (18.1–NE)	13.2 (7.3–18.4)

CheckMate- 901: Nivolumab + Cisplatin Based Chemo

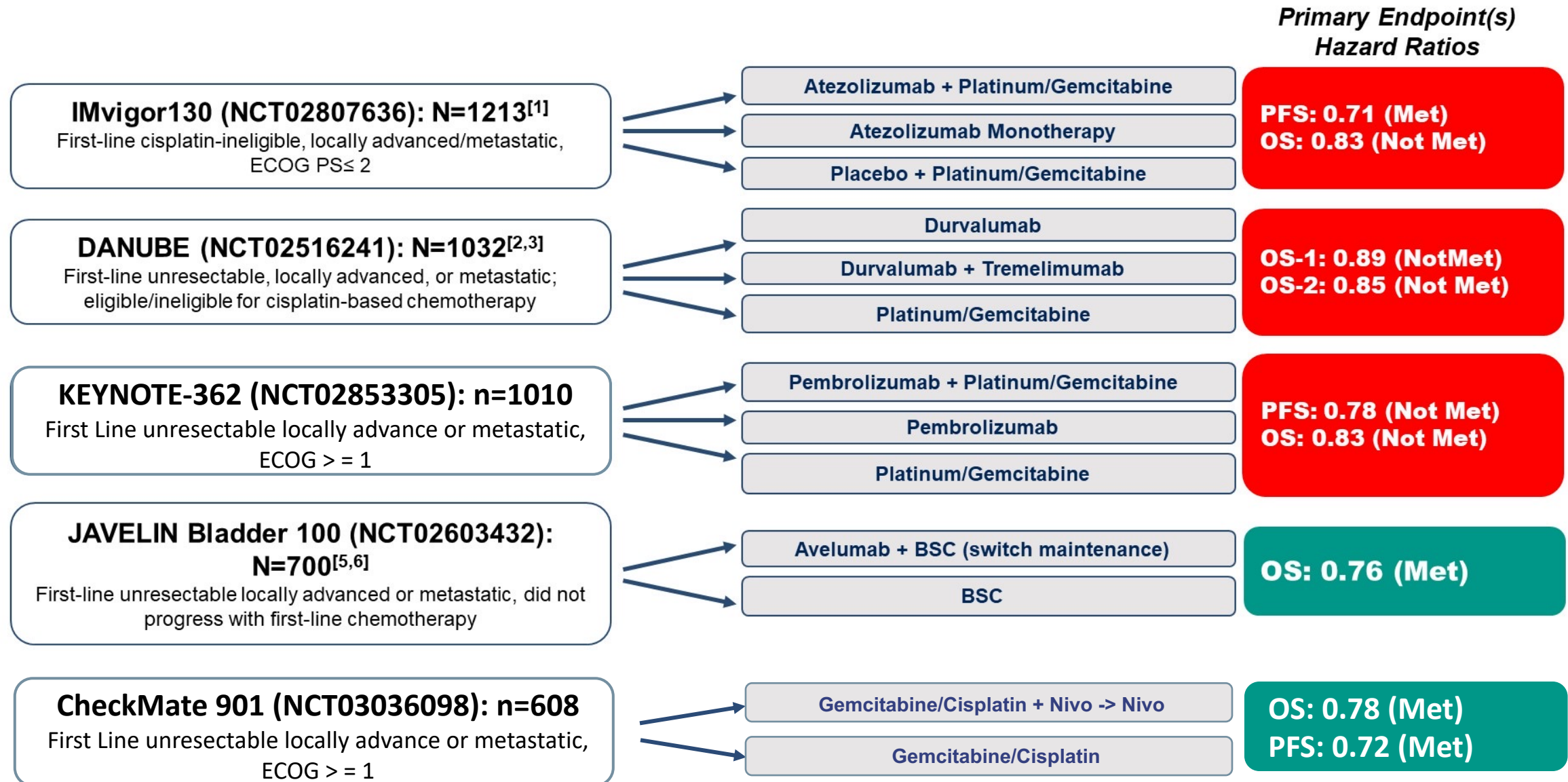
Forest Plots and AEs



CheckMate- 901: Nivolumab + Cisplatin Based Chemo AEs

Adverse Event	Nivolumab plus Gemcitabine–Cisplatin (N=304)		Gemcitabine–Cisplatin Alone (N=288)	
	Any Grade	Grade ≥3† <i>number of patients (percent)</i>	Any Grade	Grade ≥3†
Any adverse event	296 (97.4)	188 (61.8)	267 (92.7)	149 (51.7)
Anemia	174 (57.2)	67 (22.0)	137 (47.6)	51 (17.7)
Nausea	142 (46.7)	1 (0.3)	138 (47.9)	3 (1.0)
Neutropenia	93 (30.6)	57 (18.8)	86 (29.9)	44 (15.3)
Decreased neutrophil count	75 (24.7)	44 (14.5)	60 (20.8)	32 (11.1)
Fatigue	74 (24.3)	6 (2.0)	69 (24.0)	4 (1.4)
Decreased appetite	68 (22.4)	4 (1.3)	45 (15.6)	1 (0.3)
Decreased platelet count	66 (21.7)	23 (7.6)	43 (14.9)	14 (4.9)
Decreased white-cell count	64 (21.1)	30 (9.9)	40 (13.9)	11 (3.8)
Vomiting	55 (18.1)	4 (1.3)	48 (16.7)	6 (2.1)
Asthenia	47 (15.5)	3 (1.0)	46 (16.0)	5 (1.7)
Thrombocytopenia	45 (14.8)	20 (6.6)	35 (12.2)	13 (4.5)
Pruritus	44 (14.5)	2 (0.7)	8 (2.8)	0
Constipation	44 (14.5)	0	40 (13.9)	1 (0.3)
Rash	41 (13.5)	2 (0.7)	10 (3.5)	1 (0.3)
Diarrhea	40 (13.2)	4 (1.3)	25 (8.7)	0
Hypothyroidism	40 (13.2)	0	0	0
Increased blood creatinine	39 (12.8)	1 (0.3)	35 (12.2)	0
Leukopenia	38 (12.5)	7 (2.3)	33 (11.5)	5 (1.7)

Combination IO & Chemotherapy in 1L Settings by Trial



1. Galsky. Lancet. 2020;395:1547. 2. Powles. ESMO 2020. Abstr 6790. 3. Powles. Lancet Oncol. 2020;21:1574. 4. Powles. Lancet Oncol. 2021;22:931. 5. Powles. NEJM. 2020;383:1218. 6. Powles. ASCO 2020. Abstr LBA1

1st Line Systemic Therapy Trials in UC

Regimen	CR Rate	RR	Median OS	Hazard Ratio
EV + Pembo (EV-302) N Engl J Med. 2024 Mar 7;390(10)	29.1%	67.7%	31.5 mos (25.4-NE)	0.47 P <0.001
Gem/Cis/Nivo ->Nivo (CheckMate 901) N Engl J Med. 2023 Nov 9;389(19):1778-1789	21.7%	57.6%	21.7 mos (18.6-26.4)	0.78 P=0.02
Cis/Carbo + Gem -> Avelumab (Javelin Bladder 100) N Engl J Med. 2020 Sep 24;383(13):1218-1230; J Clin Oncol 2023 Jul 1;41(19):3486-3492	25.7%*	72%*	23.8mos (18.9-26.1)	0.76 P<0.0036

1st Line Systemic Therapy



National
Comprehensive
Cancer
Network®

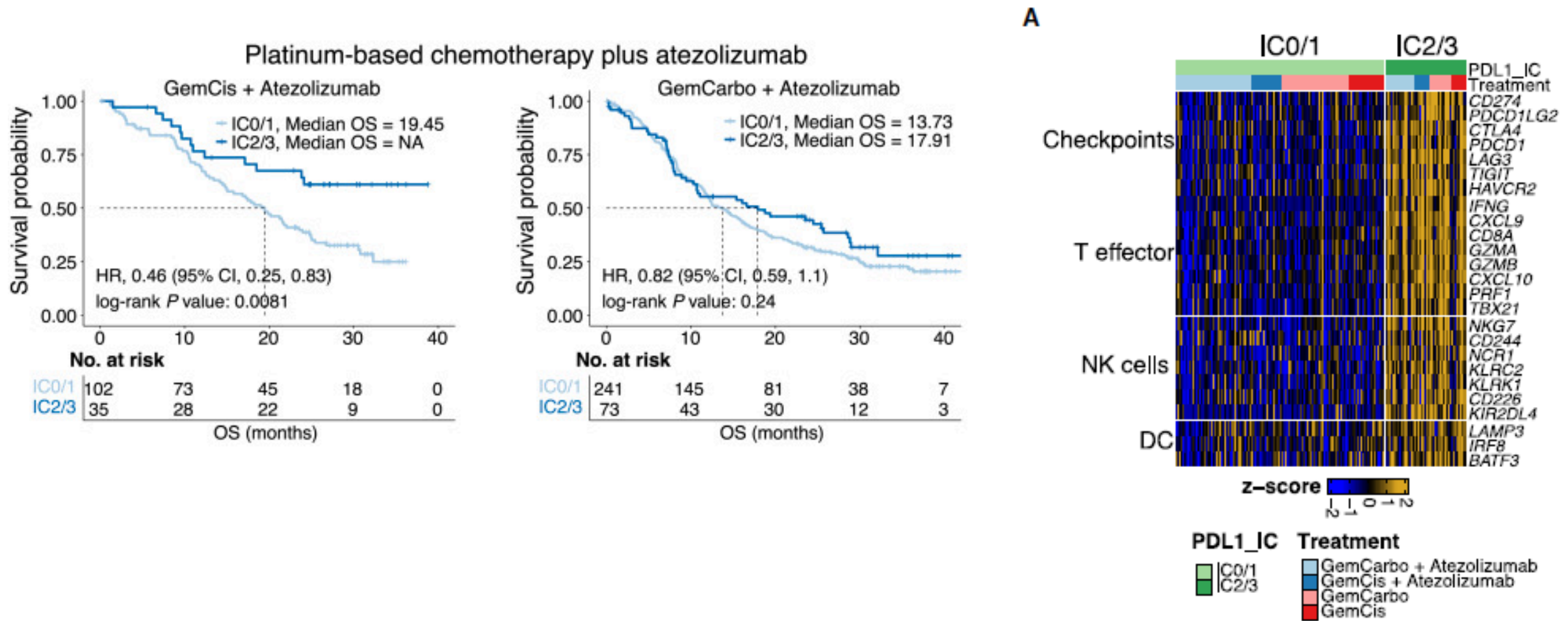
NCCN Guidelines Version 4.2024 Bladder Cancer

[NCCN Guidelines Index](#)
[Table of Contents](#)
[Discussion](#)

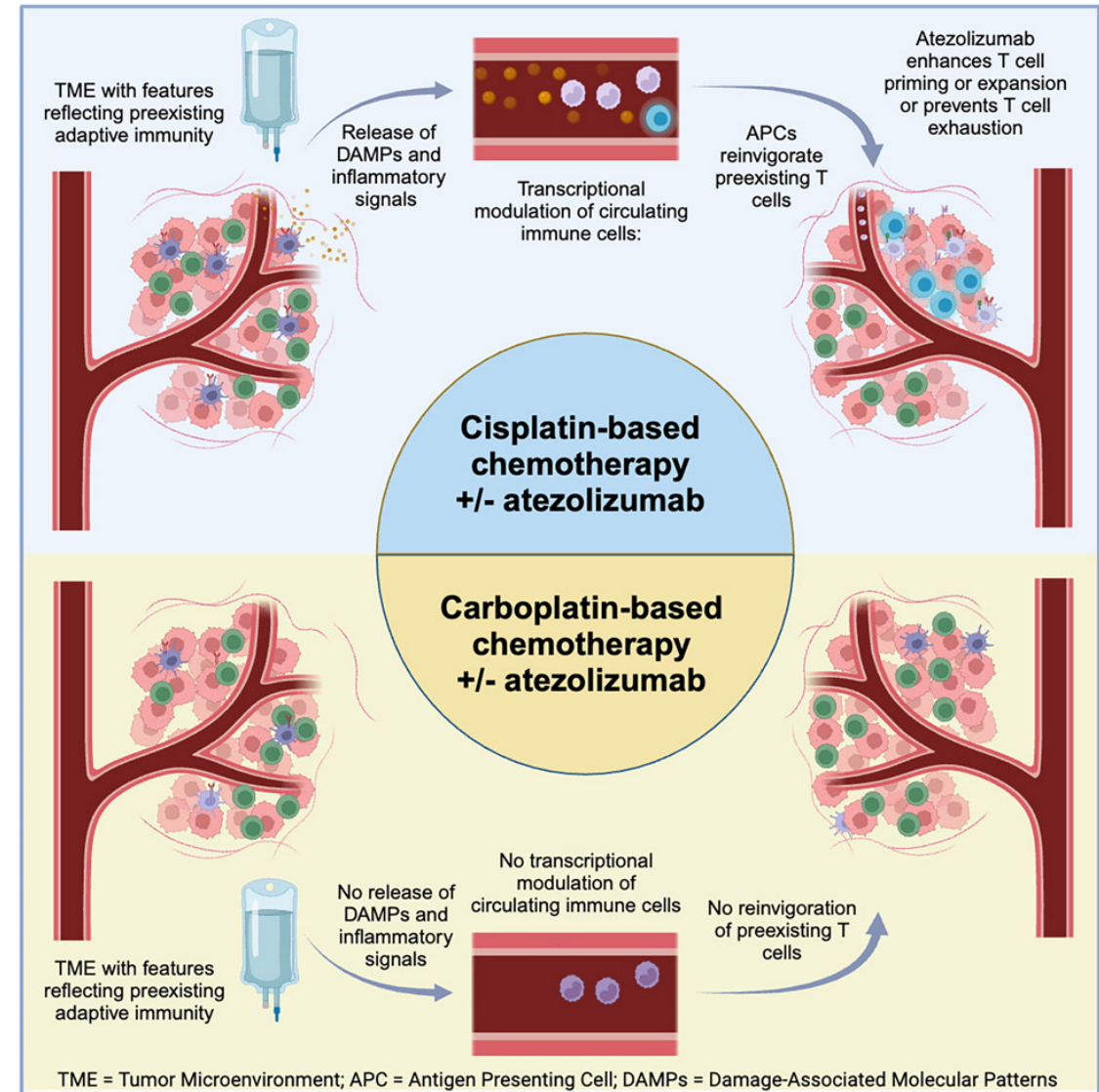
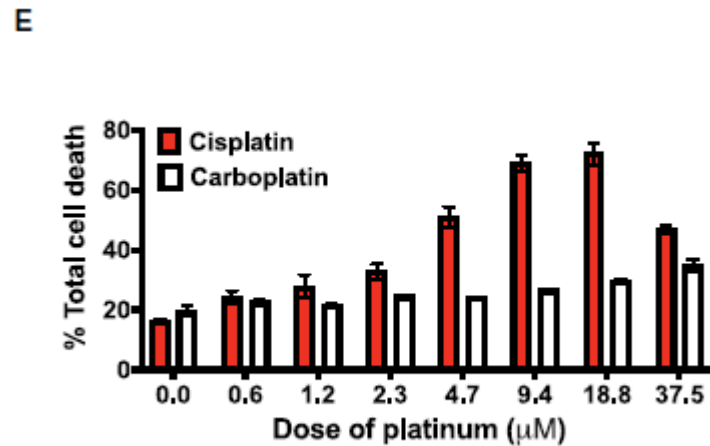
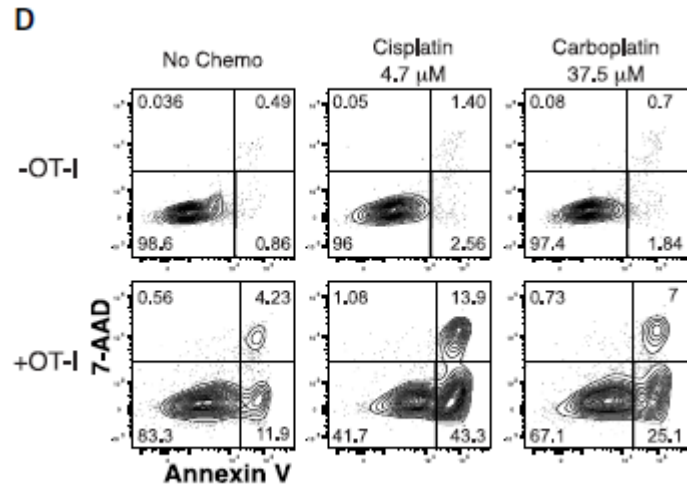
PRINCIPLES OF SYSTEMIC THERAPY

First-Line Systemic Therapy for Locally Advanced or Metastatic Disease (Stage IV)	
Cisplatin eligible	<p>Preferred regimens</p> <ul style="list-style-type: none">• Pembrolizumab and enfortumab vedotin-ejfv¹⁵ (category 1) <p>Other recommended regimens</p> <ul style="list-style-type: none">• Gemcitabine and cisplatin⁴ (category 1) followed by avelumab maintenance therapy (category 1)^{a,13}• Nivolumab, gemcitabine, and cisplatin (category 1) followed by nivolumab maintenance therapy¹⁴ (category 1) <p>Useful under certain circumstances</p> <ul style="list-style-type: none">• DDMVAC with growth factor support (category 1)^{2,8} followed by avelumab maintenance therapy (category 1)^{a,13}
Cisplatin ineligible	<p>Preferred regimens</p> <ul style="list-style-type: none">• Pembrolizumab and enfortumab vedotin-ejfv^{15,17} (category 1) <p>Other recommended regimens</p> <ul style="list-style-type: none">• Gemcitabine and carboplatin¹⁶ followed by avelumab maintenance therapy (category 1)^{a,13}
	<p>Useful under certain circumstances</p> <ul style="list-style-type: none">• Gemcitabine¹⁸• Gemcitabine and paclitaxel¹⁹• Ifosfamide, doxorubicin, and gemcitabine²¹ (for patients with good kidney function and good performance status)• Pembrolizumab²² (for the treatment of patients with locally advanced or metastatic urothelial carcinoma who are not eligible for any platinum-containing chemotherapy)• Atezolizumab²⁰ (only for patients whose tumors express PD-L1^b or who are not eligible for any platinum-containing chemotherapy regardless of PD-L1 expression) (category 2B)

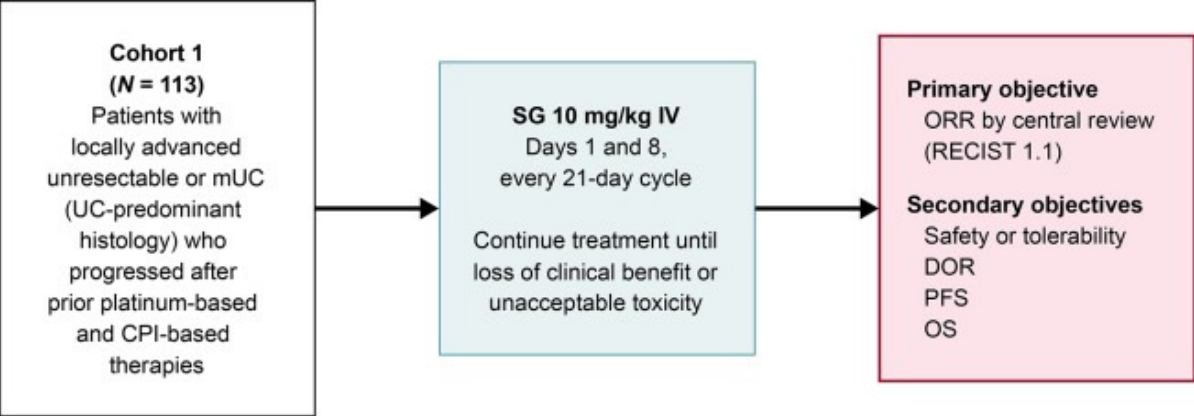
Improved outcomes with cisplatin- versus carboplatin-based chemotherapy in urothelial cancer: Invigor I30



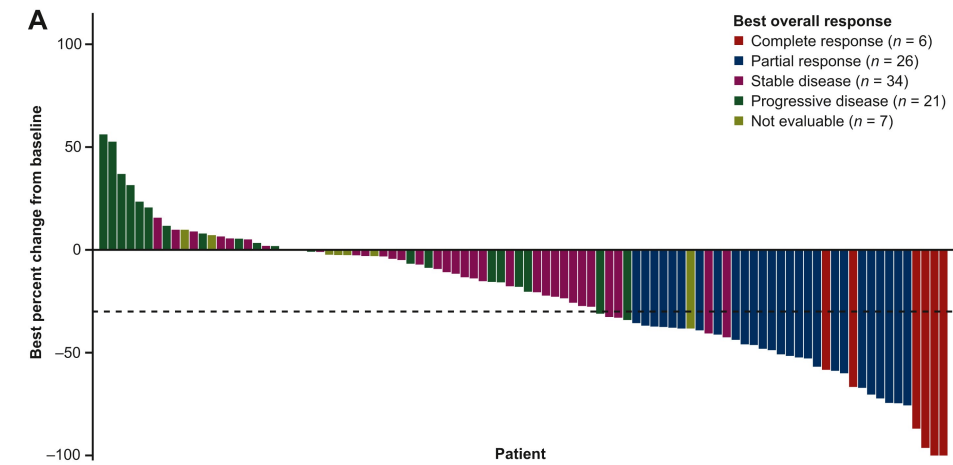
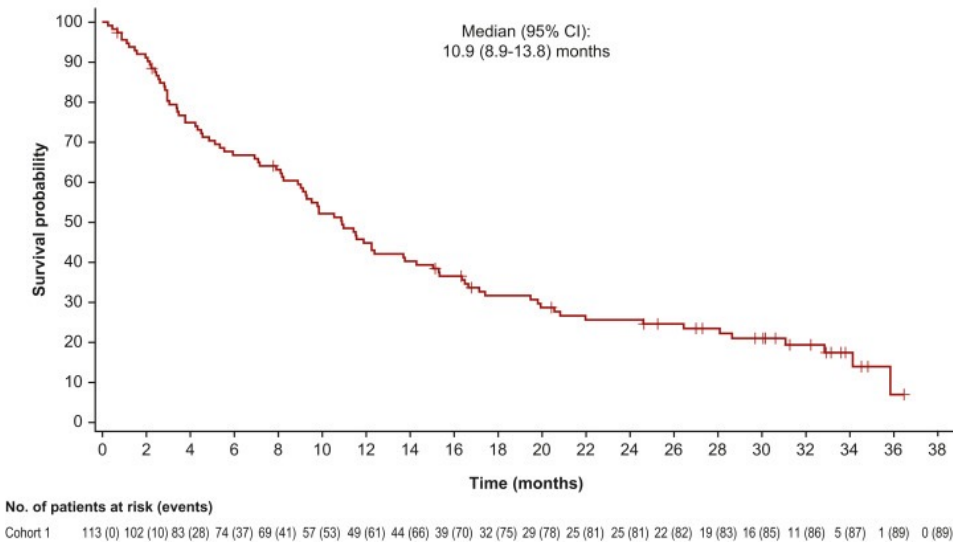
Cisplatin Enhances Adaptive Immunity, Inflammatory Responses and Cytotoxicity in Urothelial Cancer cells



Trophy U-01 Cohort 1 – Sacituzumab Govitecan Status Post Platinum and CPI Based Therapies

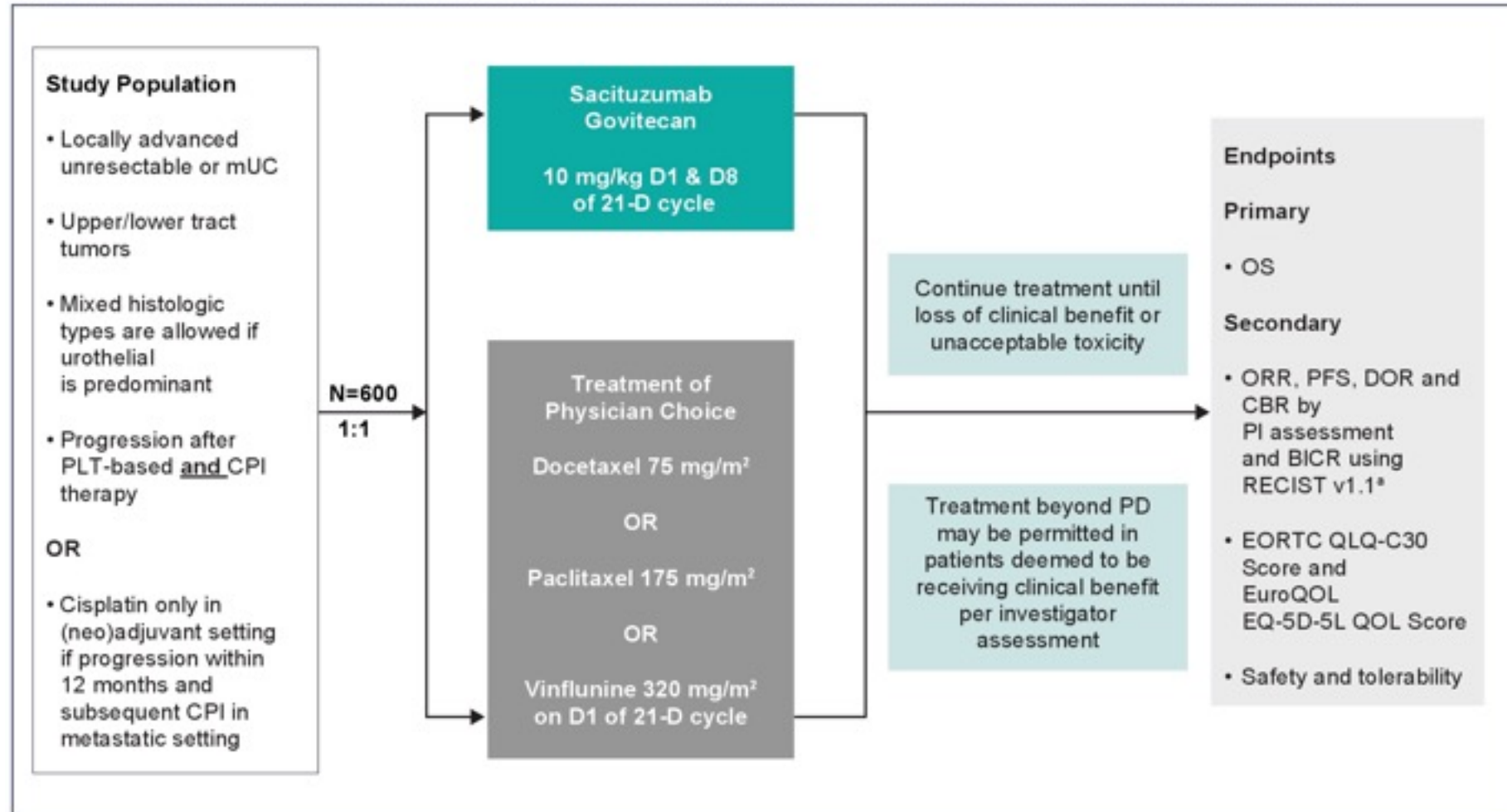


ORR = 28%



Study of Sacituzumab Govitecan (IMMU-132) in Metastatic or Locally Advanced Unresectable Urothelial Cancer (TROPiCS-04)

Figure 3. TROPiCS-04: A Phase 3 Confirmatory Study of SG in mUC Progressing After Prior PLT-Based and CPI Therapies (NCT:04527991)



*Assessed every 6 weeks for the first 12 months and every 9 weeks thereafter until there is evidence of progressive disease (PD), including patients who discontinue prematurely due to toxicity.
BICR, blinded independent central review; CBR, clinical benefit rate; CPI, checkpoint inhibitor; D, day; DOR, duration of response; EORTC QLQ-C30, European Organization for the Research and Treatment of Cancer Quality of Life Questionnaire Core 30; EuroQOL EQ-5D-5L QOL, European Quality of Life 5-dimensions 5-levels; mUC, metastatic urothelial carcinoma; ORR, objective response rate; OS, overall survival; PD-1, programmed death-1; PD-L1, programmed death-ligand 1; PFS, progression-free survival; PI, Principal Investigator; PLT, platinum; QOL, quality of life; RECIST, Response Evaluation Criteria in Solid Tumors.

Study of Sacituzumab Govitecan (IMMU-132) in Metastatic or Locally Advanced Unresectable Urothelial Cancer (TROPiCS-04)

Press Releases

Company Provides Update on Phase 3 TROPiCS-04 Study

FOSTER CITY, Calif.--(BUSINESS WIRE)-- Company today announced topline results from the confirmatory Phase 3 TROPiCS-04 study in locally advanced or metastatic urothelial cancer (mUC). The TROPiCS-04 study evaluated sacituzumab govitecan-hziy vs. single-agent chemotherapy (treatment of physicians' choice, TPC) in patients with mUC who have previously received platinum-containing chemotherapy and anti-PD-(L)1 therapy.

The study did not meet the primary endpoint of overall survival (OS) in the intention-to-treat (ITT) population. A numerical improvement in OS favoring sacituzumab govitecan-hziy was observed, and trends in improvement for select pre-specified subgroups and secondary endpoints of progression-free survival (PFS) and overall response rate (ORR) were also shown. The pre-specified subgroup analyses were not alpha-controlled for formal statistical testing. These data will be presented at an upcoming medical meeting.

In the overall study population, there was a higher number of deaths due to adverse events with sacituzumab govitecan-hziy compared to TPC, which were primarily observed early in treatment and related to neutropenic complications, including infection. Company will further investigate these data, and is working to reiterate to treating physicians the importance of granulocyte-colony stimulating factor (G-CSF) use for the prevention of neutropenic complications. Sacituzumab govitecan-hziy has a Boxed Warning for severe or life-threatening neutropenia; please see below for Important Safety Information.

- Did not reach primary endpoint of OS
- Higher number of grade 5 AEs, notably neutropenia

Subsequent Therapies In Metastatic Urothelial CA



National
Comprehensive
Cancer
Network®

NCCN Guidelines Version 4.2024 Bladder Cancer

[NCCN Guidelines Index](#)
[Table of Contents](#)
[Discussion](#)

PRINCIPLES OF SYSTEMIC THERAPY

Second-Line Systemic Therapy for Locally Advanced or Metastatic Disease (Stage IV) (post-platinum or other chemotherapy) ^c		
Participation in clinical trials of new agents is recommended.		
Preferred regimen • Pembrolizumab (category 1 post-platinum) ²⁴	Other recommended regimens • Paclitaxel ³⁰ or docetaxel ³¹ • Gemcitabine ¹⁸ • Pembrolizumab and enfortumab vedotin-ejfv (category 2B) ¹⁷	
Alternative preferred regimens • Immune checkpoint inhibitor ▶ Nivolumab ²⁵ ▶ Avelumab ^{26,27} • Erdafitinib ^{d,28} • Enfortumab vedotin-ejfv ^{e,29}	Useful in certain circumstances based on prior medical therapy • Ifosfamide, doxorubicin, and gemcitabine ²² • Gemcitabine and paclitaxel ¹⁹ • Gemcitabine and cisplatin ⁴ • DDMVAC with growth factor support ²	

Second-Line Systemic Therapy for Locally Advanced or Metastatic Disease (Stage IV) (post-checkpoint inhibitor)		
Participation in clinical trials of new agents is recommended.		
Preferred regimens for cisplatin ineligible, chemotherapy naïve • Enfortumab vedotin-ejfv ²⁹ • Gemcitabine and carboplatin • Erdafitinib ^{d,28}	Other recommended regimens • Paclitaxel or docetaxel ³¹ • Gemcitabine ¹⁸	
Preferred regimens for cisplatin eligible, chemotherapy naïve • Gemcitabine and cisplatin ⁴ • DDMVAC with growth factor support ² • Erdafitinib ^{d,28}	Useful in certain circumstances based on prior medical therapy • Ifosfamide, doxorubicin, and gemcitabine ²² • Gemcitabine and paclitaxel ¹⁹	

Subsequent-Line Systemic Therapy for Locally Advanced or Metastatic Disease (Stage IV) ^{f,g}		
Participation in clinical trials of new agents is recommended.		
Preferred regimens • Enfortumab vedotin-ejfv (category 1) ^{32,33} • Erdafitinib ^{d,28} (category 1)	Other recommended regimens • Sacituzumab govitecan-hziy ³⁴ • Gemcitabine ¹⁸ • Paclitaxel ³⁰ or docetaxel ³¹ • Ifosfamide, doxorubicin, and gemcitabine ²² • Gemcitabine and paclitaxel ¹⁹ • Gemcitabine and cisplatin ⁴ • DDMVAC with growth factor support ²	Useful in Certain Circumstances regimens • Fam-trastuzumab deruxtecan-nxki (HER2-positive, IHC 3+) ⁴³

THOR Phase 3 Study: Erdafitinib vs. Chemo in FGFR Mutated UC

Cohort 1

Key eligibility criteria

- Age ≥18 years
- Metastatic or unresectable UC
- Confirmed disease progression
- Prior tx with anti-PD-(L)1
- 1-2 lines of systemic tx
- Select *FGFR3/2alt* (mutation/fusion)^a
- ECOG PS 0-2

1:1
N=266^b

R

Erdafitinib

(n=136)

Once-daily erdafitinib 8 mg with pharmacodynamically guided uptitration to 9 mg

Chemotherapy of Choice

(n=130)

docetaxel or vinflunine once every 3 weeks

Primary end point:

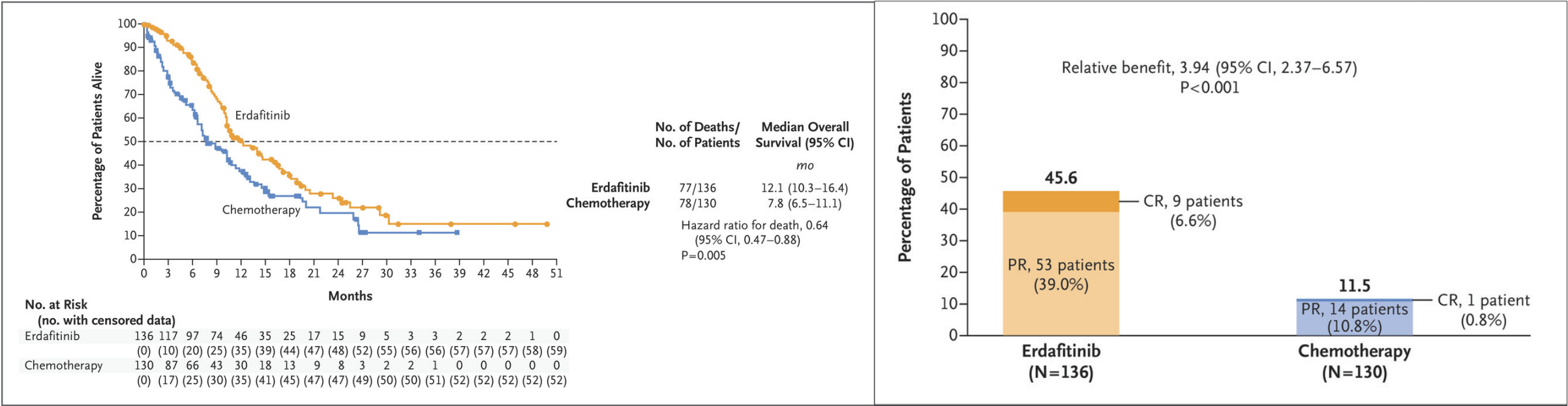
- OS

Key secondary end points:

- PFS
- ORR
- Safety

Stratification factors: region (North America vs European Union vs rest of world), ECOG PS (0 or 1 vs 2), and disease distribution (presence vs absence of visceral [lung, liver, or bone] metastases)

NCT03390504



Destiny – PanTumor02: A Phase 2 Study of T-DXd for HER2-Expressing Solid Tumors

- Advanced solid tumors not eligible for curative therapy
- 2L+ patient population
- HER2 expression (IHC 3+ or 2+)
 - Local test or central test by HercepTest if local test not feasible (ASCO/CAP gastric cancer guidelines¹)^a
- Prior HER2-targeting therapy allowed
- ECOG/WHO PS 0–1

T-DXd
5.4 mg/kg
q3w

n=40 per cohort planned

(Cohorts with no objective responses in the first 15 patients were to be closed)



Primary endpoint

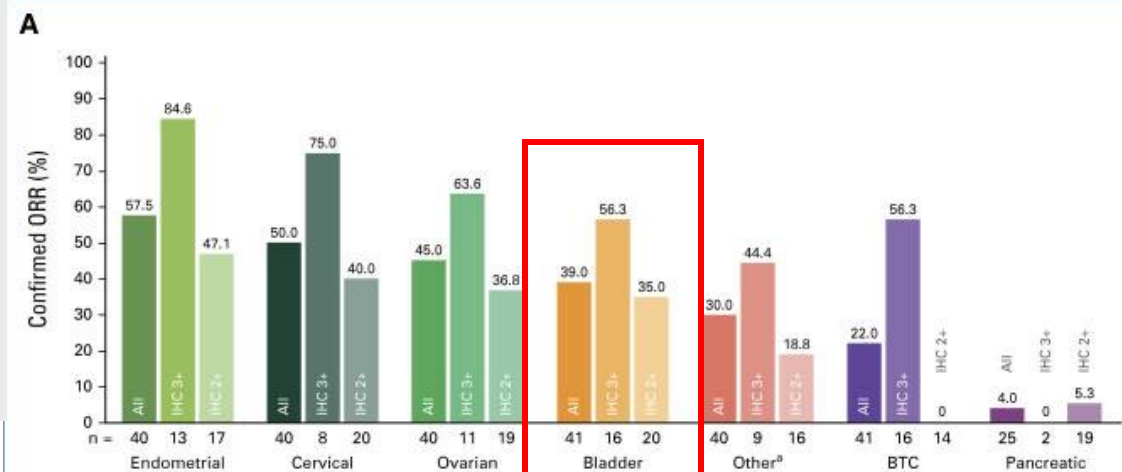
- Confirmed ORR (investigator)^c

Secondary endpoints

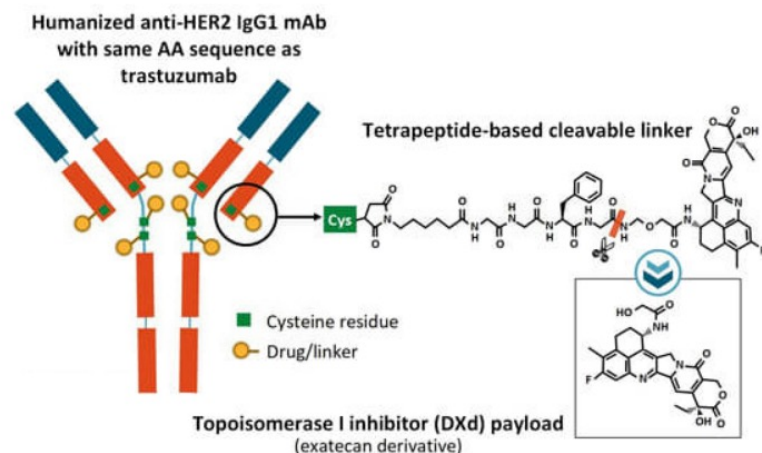
- DOR^c
- DCR^c
- PFS^c
- OS
- Safety

Data cut-off for analysis:

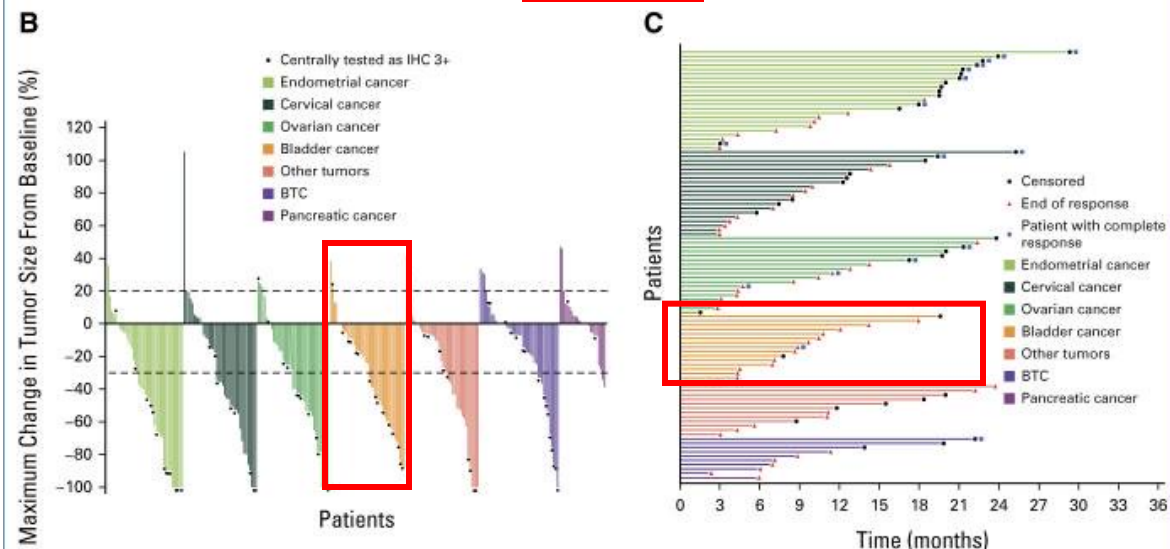
- Nov 16, 2022



HER2-Targeted ADC: Trastuzumab Deruxtecan

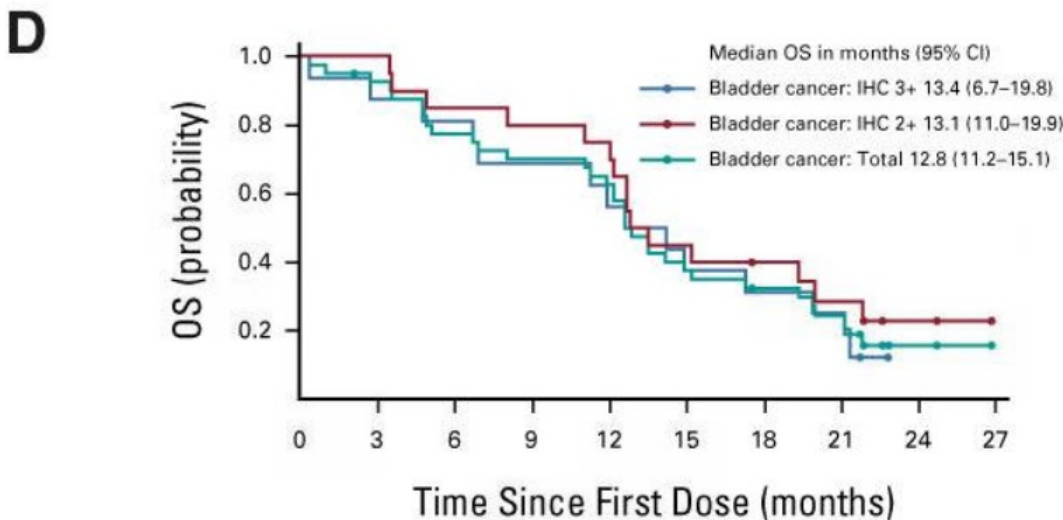


- High drug:antibody ratio: ~8
- Stable linker-payload
- Tumor-selectable cleavable linker
- High potency, membrane-permeable payload with short systemic half-life
- Bystander killing effect



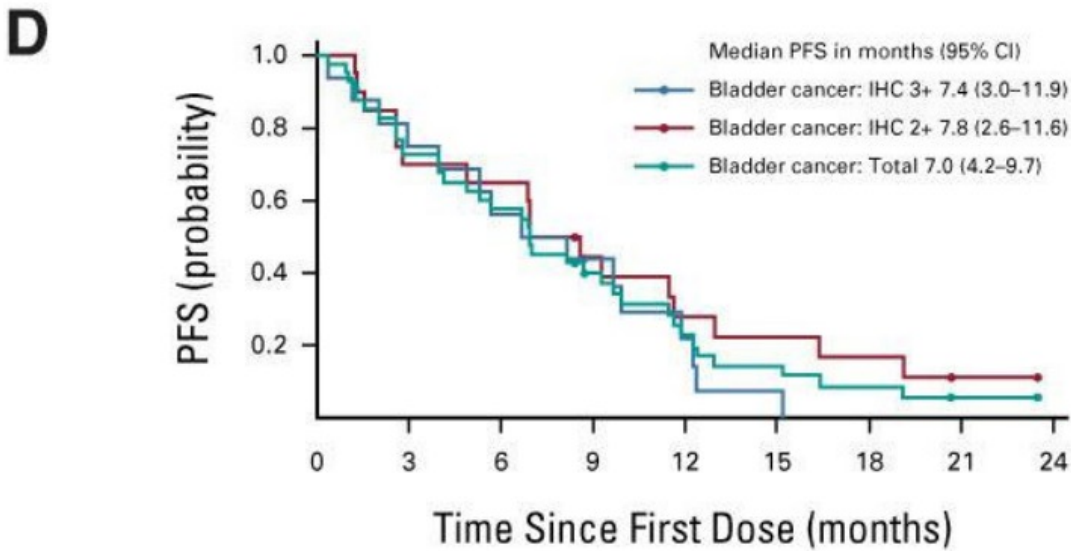
Nakada. Chem Pharm Bull (Tokyo). 2019;67:173. Trail. Pharmacol Ther. 2018;181:126. Ogitali. Cancer Sci. 2016;107:1039.

Destiny – PanTumor02: A Phase 2 Study of T-DXd for HER2-Expressing Solid Tumors



No. at risk:

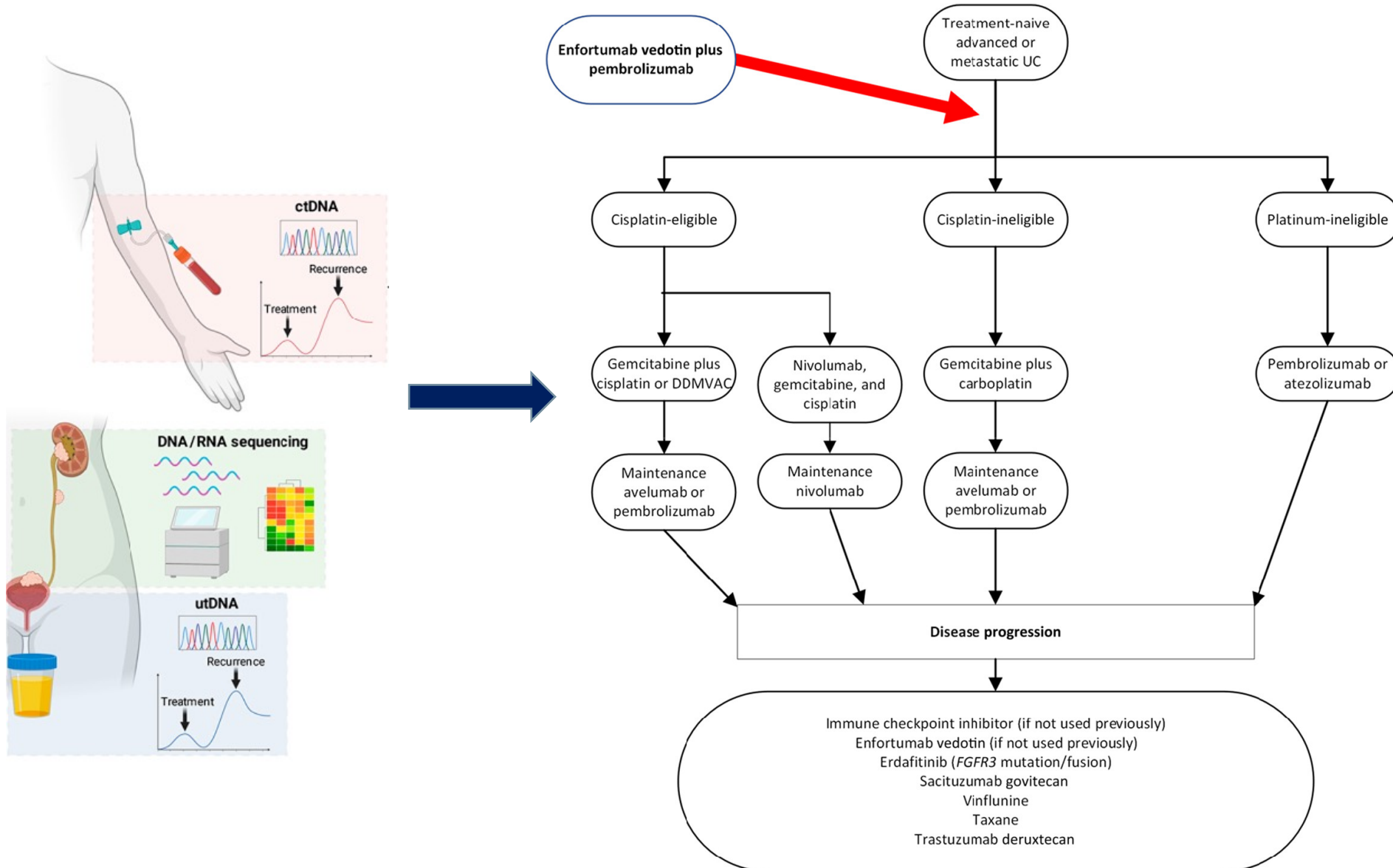
Bladder cancer: IHC 3+	16	14	13	11	9	6	5	4	0
Bladder cancer: IHC 2+	20	20	17	16	15	9	7	5	2
Bladder cancer: Total	41	37	31	28	25	15	12	9	2



No. at risk:

Bladder cancer: IHC 3+	16	12	9	6	3	1	0		
Bladder cancer: IHC 2+	20	14	13	8	5	4	3	1	0
Bladder cancer: Total	41	29	23	14	8	5	3	1	0

1st Line Metastatic Urothelial Cancer 2024



Her 2 ADC + Check Point Inhibitor Combinations

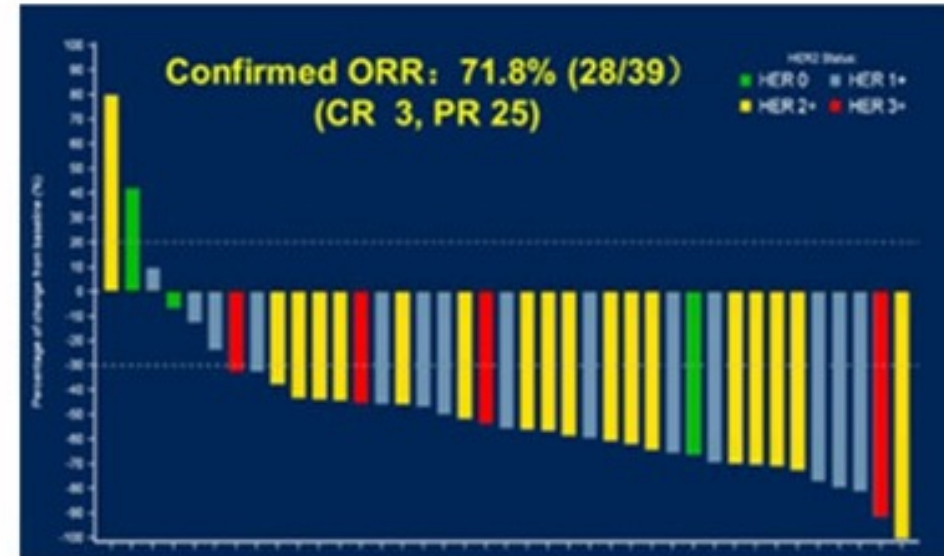
Disitamab Vedotin*

RC48 + toripalimab

Phase II

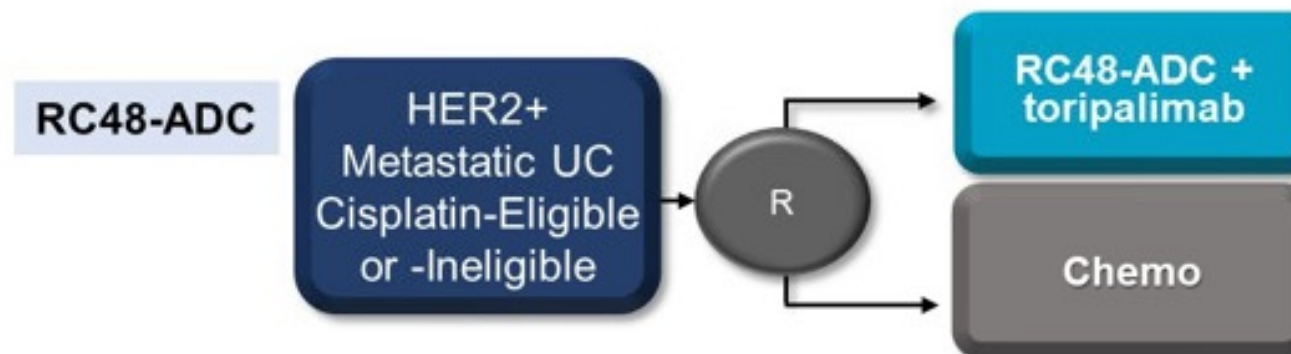
ORR 71.8%

N=41



Phase III

N=452



Winship Advanced Urothelial Cancer Trials

First Line
Non-Metastatic

Phase II / III
EA8192; ChemoXRT + Durvalumab
High Grade Upper Tract Urothelial Cancer Prior
to Nephroureterectomy

First Line
Metastatic

Phase 1/ 2
MK3475-04B: Pembrolizumab + EV in Combination With
Investigational Agents Versus Pembrolizumab + EV

Phase 2
Winship5742-22; EV + Pembro in mUBC of Variant Histology
*Pts. may be untreated or having received any number of lines
of prior therapy

≥ 2nd Line
Metastatic/Advanced

Phase II
Winship 5200-20; Propranolol HCl + Pembrolizumab

Phase I/Ib
Winship 5259; Cabozantinib + Enfortumab Vedotin

SELECT COHORTS OPEN. PLEASE CONTACT CRC, KELSEA LOZADA

Phase II
Alliance
A031702 (ICONIC);
Ipilimumab, Cabo + Nivo

ACR-368-201: Phase 1b/2 Basket Study Of Acr-368 As
Monotherapy And In Combination With Gemcitabine In Adult
Subjects With Platinum -Resistant Urothelial Carcinoma Based
On Acrivon Oncosignature® Status

Take Home Points:

- 1st line landscape has drastically changed
- Chemotherapy remains an active part of therapeutic toolbox
- Maintenance IO after chemotherapy likely enhances adaptive TME
- 2nd and subsequent line therapies will be highly patient specific
- Clinical trials remain viable options for patients

Acknowledgements

- Organizers: Debates and Didactics Course Organizers
 - Sagar Lonial, MD
 - Suresh Ramalingam, MD
- Emory GU Oncology Working Group
 - M. Asim Bilen, MD
 - Omer Kucuk, MD
 - Bassel Nazha, MD
 - Jackie Brown, MD
 - GU Clinical Trials & Office Staff
 - Urology and Radiation Oncology Colleagues
- Participating Patients and Clinician Researchers