

Title: Characteristics, Treatment Patterns, and Outcomes of Patients with Muscle-Invasive Bladder Cancer Undergoing Radical Cystectomy: A Retrospective Analysis of Health Insurance Claims Data in Germany

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Supplementary Material

Supplementary Table 1: Metastatic-related therapies and respective codes for identification in claims data

Group	Medication	Outpatient Code(s)	Inpatient Code(s)
Immunotherapy	Pembrolizumab	ATC: L01XC18, L01FF02	OPS: 6-009.p, 6-009.3, NUB: 76198204/76198233/76198364/7619844 9/76198544
	Avelumab	ATC: L01XC31, L01FF04	OPS: 6-00a.2, NUB: 76198786/76198818/76198820/7619884 1
	Atezolizumab	ATC: L01XC32, L01FF05	OPS: 6-00a.1; NUB: 76198784/76198790/76199184/7619932 7/76199344
	Enfortumab vedotin	ATC: L01FX13	OPS: 6-00e.d; NUB: 7619900F/7619901H/7619908A/761990A S/76199652/76199653

ATC code: Anatomical Therapeutic Chemical code; OPS: Operation and procedure codes; NUB: Temporary identifiers/codes for innovative medical devices or procedure

Supplementary Table 2: Variables extracted in AOK PLUS (Allgemeine Ortskrankenkasse PLUS) and GWQ (Gesellschaft für Wirtschaftlichkeit und Qualität bei Krankenkassen ServicePLUS AG) databases

Variable	Codes/Identification	
Age	Based on birth year as documented in the dataset	
Sex	Sex as documented in the claims dataset	
Time from BC diagnosis to radical cystectomy (RC)	Observation time in months from the first observable BC diagnosis to the index date (at RC date)	
Length of index hospitalization (RC related hospitalization)	Observation of time in days from admission and discharge of RC hospitalization (OPS: 5-576.2 to 5-576.7)	
Charlson comorbidity index (CCI)	Based on algorithm using ICD-10-GM codes (1 inpatient and/or 1 confirmed outpatient diagnosis) in the six months before index as outlined in Supplementary Table 2	
Level of care	Based on "Pflegegrad/Pflegestufe" of each patient before or on the index date (no care level documented, low/medium (1-3), high (4-5))	
Comorbidity profile	Presence of at least one inpatient or outpatient diagnosis per ICD-10-GM codes in the six months before index:	
	Any Cardiovascular Disease (CVD)	ICD-10-GM: I10.- to I79.-, G45.8, G45.9
	Heart Failure	ICD-10-GM: I50.-, I11.0, I13.0,

Variable	Codes/Identification	
		I13.2
	Acute myocardial Infarction	ICD-10-GM: I21.- to I23.-
	Stroke or hemorrhage	ICD-10-GM: I60.- to I64.-
	Atrial fibrillation	ICD-10-GM: I48.0 to I48.2
	Hypertension	ICD-10-GM: I10.-, I11.-, I12.-, I13.-, I15.-
	Renal disease (moderate/severe)	ICD-10: N17.-, N18.-, N19.-
	Chronic pulmonary disease	ICD-10-GM: J4%, J6% w/o J67.-, J68.-, J69.-
	Diabetes mellitus	ICD-10-GM: E10.-, E11.-, E12.-, E13.-, E14.-
	Other malignancies	ICD-10-GM: C00.- to C97.- excluding C67.- and C68.-
	Depression/Anxiety	ICD-10-GM: F32.-, F33.-, F41.-
Surgical approach	Based on OPS codes for laparoscopic (OPS-codes 5-576.x1), robot-assisted (OPS-code 5-987 within 30 days of index), or open (5-576.x0) or other (5-576.xx, 5-576.x2) for remaining cases or cases without additional codes.	
Prior procedures	Presence of at least one of the following codes in the six months before index.	
	Transurethral resection of the bladder tumor (TURBT)	OPS: 5-573.4
	Transurethral biopsy of the bladder/urethra	OPS: 1-460.2, 1-460.3
	Cystoscopy	OPS: 1-693.2, 1-668.1, 8-137, EBM: 26310, 26311
	Perform gene expression analysis in solid malignant neoplasms / in vitro diagnostic of tumor genetic changes	OPS: 1-992, EBM: 194--
Censoring reasons	Based on earliest observation of death date, insurance end, or end of the study period (31/12/2023)	

OPS: Operation and procedure codes; ICD-10-GM: International Statistical Classification of Diseases and Related Health Problems, 10th Revision, German Modification

Supplementary Table 3: Charlson Comorbidity Index (CCI) Score and its components as calculated using claims data

No	Comorbidity	Charlson score	Definition (ICD-10-GM code)
1	Coronary artery disease	1	I20.-, I21.-, I22.-, I23.-, I24.-, I25.-
2	Congestive heart failure	1	I11.-, I50.-
3	Peripheral vascular disease	1	I73.-, I74.-, I77.-
4	Cerebrovascular disease	1	G45.-, G46.-, I6.-
5	Dementia	1	F00.-, F01.-, F02.-, F03.-, G30.-
6	Chronic pulmonary disease	1	J4x.-, J6.- w/o J67.-, J68.-, J69.-
7	Connective tissue disorder	1	M05.-, M06.-, M07.-, M08.-, M3x.-
8	Peptic ulcer disease	1	K25.-, K26.-, K27.-, K28.-
9	Mild liver disease	1	B18.-, K70.-, K73.-, K75.-
10	Diabetes mellitus without complications	1	E10.9-, E11.9-, E12.9-, E13.9-, E14.9-
11	Hemiplegia	2	G81.-, G82.-
12	Moderate or severe renal disease	2	N17.-, N18.-, N19.-
13	Diabetes mellitus with end-organ damage	2	E10.-, E11.-, E12.-, E13.-, E14.- w/o [No .9]
14	Tumor without metastases, leukemia, lymphoma, multiple myeloma	2	Cx w/o [No 16]
15	Moderate or severe liver disease	3	K72.-, K74.-, I85.-
16	Metastatic solid tumor	6	C77.-, C78.-, C79.-, C80.-
17	Acquired immunodeficiency syndrome (AIDS)	6	B20.-, B21.-, B22.-, B23.-, B24.-
18	Age factor	For each decade ≥ 50 years of age, 1 point is added to the score	

Reference: Chae, J.W., et al., *Prediction of mortality in patients undergoing maintenance hemodialysis by Charlson Comorbidity Index using ICD-10 database*. Nephron Clin Pract, 2011. **117**(4): p. c379-8

ICD-10-GM: International Statistical Classification of Diseases and Related Health Problems, 10th Revision, German Modification

Supplementary Table 4: Treatments used for muscle-invasive bladder cancer (MIBC) in the neoadjuvant and adjuvant settings and respective codes for identification in claims data

Group	Medication	Outpatient Code(s)	Inpatient Code(s)	Period(s)
Chemotherapy	Cisplatin	ATC: L01XA01		Neoadjuvant; adjuvant period
	Carboplatin	ATC: L01XA02		
	Doxorubicin	ATC: L01DB01	OPS: 6-001.b (liposomal); 6-002.8 (pegylated)	
	Gemcitabine	ATC: L01BC05	OPS: 6-001.1	
	Methotrexate	ATC: L04AX03, L01BA01		
	Oxaliplatin	ATC: L01XA03		
	Paclitaxel	ATC: L01CD01	OPS: 6-005-d	
	Vinblastine	ATC: L01CA01		
	Vinflunine	ATC: L01CA05	OPS: 6-005.b	
	Non-complex chemotherapy (unspecific)		OPS: 8-542	
	Moderately complex and intensive block chemotherapy (unspecific)		OPS: 8-543	
	Highly complex and intensive block chemotherapy (unspecific)		OPS: 8-544	
Immunotherapy	Nivolumab	ATC: L01XC17, L01FF01	OPS: 6-008.m (NUB: 76198235/76198238/76198279/76198282/76198331/76198333/76198363/76198446/76199021/7619904Y)	Adjuvant period
Radiotherapy	N/A	EBM: 253--., including ICD-10-GM: Z51.0	OPS: 8-52	Adjuvant period

ATC code: Anatomical Therapeutic Chemical code; OPS: Operation and procedure codes; NUB: Temporary identifiers/codes for innovative medical devices or procedure

Supplementary Table 5: Claims-data definition for local and distant recurrence

Recurrence Type	Medication
Local	Evidence of any of the following diagnoses after index, in the absence of these codes during the index stay: • ICD-10-GM: C77.5 (secondary and unspecified malignant neoplasm of intrapelvic lymph nodes), • ICD-10-GM: C65.- (malignant neoplasm of the renal pelvis), • ICD-10-GM: C66.- (malignant neoplasm of the ureter), • ICD-10-GM: C76.3 (malignant neoplasm of the pelvis).
Distant	Evidence of any of the following diagnoses after index: • ICD-10-GM: C77.- (excluding C77.5) to C79.- (secondary malignant neoplasms of the lymph nodes, respiratory and digestive organs and at other or unspecified locations) • Administration of metastatic-related immunotherapies (pembrolizumab, avelumab, atezolizumab, enfortumab vedotin; excluding nivolumab) (see Supplementary Table 1 for treatment codes) • New initiation of radiotherapy or nivolumab six months after index (see Supplementary Table 4 for treatment codes)

The above definitions were adapted from: Roupret M, Brouquet A, Colrat F, Diez-Andreu P, Prudent A, Chartier M, et al. Population characteristics, management, and survival outcomes in muscle-invasive urothelial carcinoma undergoing radical resection: the MINOTAUR study. *World J Urol.* 2023;41(4):1069-75.

ICD-10-GM: International Statistical Classification of Diseases and Related Health Problems, 10th Revision, German Modification

Supplementary Table 6: Patient characteristics assessed at baseline among selected neoadjuvant (NAT) and adjuvant (AT) treatment groups in 2 databases [AOK PLUS (Allgemeine Ortskrankenkasse PLUS) and GWQ (Gesellschaft für Wirtschaftlichkeit und Qualität bei Krankenkassen ServicePLUS AG)]

	Neither NAT/AT		Any NAT		NAT only		Any AT - overall		Any AT - chemotherapy		Any AT - immunotherapy		AT only		No NAT		No AT	
Database	AOK PLUS	GWQ	AOK PLUS	GWQ	AOK PLUS	GWQ	AOK PLUS	GWQ	AOK PLUS	GWQ	AOK PLUS	GWQ	AOK PLUS	GWQ	AOK PLUS	GWQ	AOK PLUS	GWQ
Total Number of Patients	242	202	40	47	37	38	40	33	27	19	12	13	37	24	279	226	279	240
Demographic characteristics																		
Age at index (years), mean (standard deviation, SD) median	72.64 (9.68) 73.00	70.23 (9.95) 70.00	65.83 (8.44) 67.00	63.09 (8.30) 65.00	65.97 (8.67) 68.00	62.84 (8.27) 65.00	68.67 (8.72) 68.00	64.94 (9.41) 66.00	69.78 (7.33) 68.00	62.95 (10.66) 65.00	66.58 (11.38) 67.00	67.54 (6.51) 70.00	69.05 (8.88) 68.00	65.25 (9.78) 66.00	72.17 (9.64) 72.00	69.70 (10.03) 70.00	71.76 (9.80) 72.00	69.06 (10.06) 70.00
Sex, n (%)																		
Male patients	184 (76.03)	170 (84.16)	32 (80.00)	37 (78.72)	29 (78.38)	29 (76.32)	30 (75.00)	28 (84.85)	20 (74.07)	censored	9 (75.00)	censored	27 (72.97)	censored	211 (75.63)	190 (84.07)	213 (76.34)	199 (82.92)
Female patients	58 (23.97)	32 (15.84)	8 (20.00)	10 (21.28)	8 (21.62)	9 (23.68)	10 (25.00)	5 (15.15)	7 (25.93)	censored	3 (25.00)	censored	10 (27.03)	censored	68 (24.37)	36 (15.93)	66 (23.66)	41 (17.08)
Year of index (RC), n (%)																		
2021	33 (13.64)	21 (10.40)	3 (7.50)	7 (14.89)	3 (8.11)	5 (13.16)	5 (12.50)	censored	5 (18.52)	censored	0 (0.00)	censored	5 (13.51)	censored	38 (13.62)	23 (10.18)	36 (12.90)	26 (10.83)
2022	147 (60.74)	103 (50.99)	23 (57.50)	23 (48.94)	22 (59.46)	20 (52.63)	28 (70.00)	censored	19 (70.37)	censored	9 (75.00)	censored	27 (72.97)	censored	174 (62.37)	112 (49.56)	169 (60.57)	123 (51.25)
2023	62 (25.62)	78 (38.61)	14 (35.00)	17 (36.17)	12 (32.43)	13 (34.21)	7 (17.50)	censored	3 (11.11)	censored	3 (25.00)	censored	5 (13.51)	censored	67 (24.01)	91 (40.27)	74 (26.52)	91 (37.92)
Comorbidity profile																		
Charlson Comorbidity Index (CCI) score, mean (SD) median	7.16 (3.02) 7.00	6.17 (2.98) 6.00	5.75 (2.72) 5.00	5.47 (2.47) 5.00	5.89 (2.75) 5.00	5.21 (2.13) 5.00	6.88 (3.01) 7.00	6.42 (3.16) 6.00	6.67 (2.76) 7.00	6.05 (3.19) 5.00	7.17 (3.66) 7.50	7.31 (3.15) 7.00	7.11 (2.97) 7.00	6.38 (3.10) 6.00	7.15 (3.01) 7.00	6.19 (2.98) 6.00	6.99 (3.01) 7.00	6.02 (2.88) 6.00
Level of care, n (%)																		
No care level	184 (76.03)	177 (87.62)	33 (82.50)	45 (95.74)	31 (83.78)	37 (97.37)	36 (90.00)	28 (84.85)	26 (96.30)	16 (84.21)	9 (75.00)	12 (92.31)	34 (91.89)	20 (83.33)	218 (78.14)	197 (87.17)	215 (77.06)	214 (89.17)

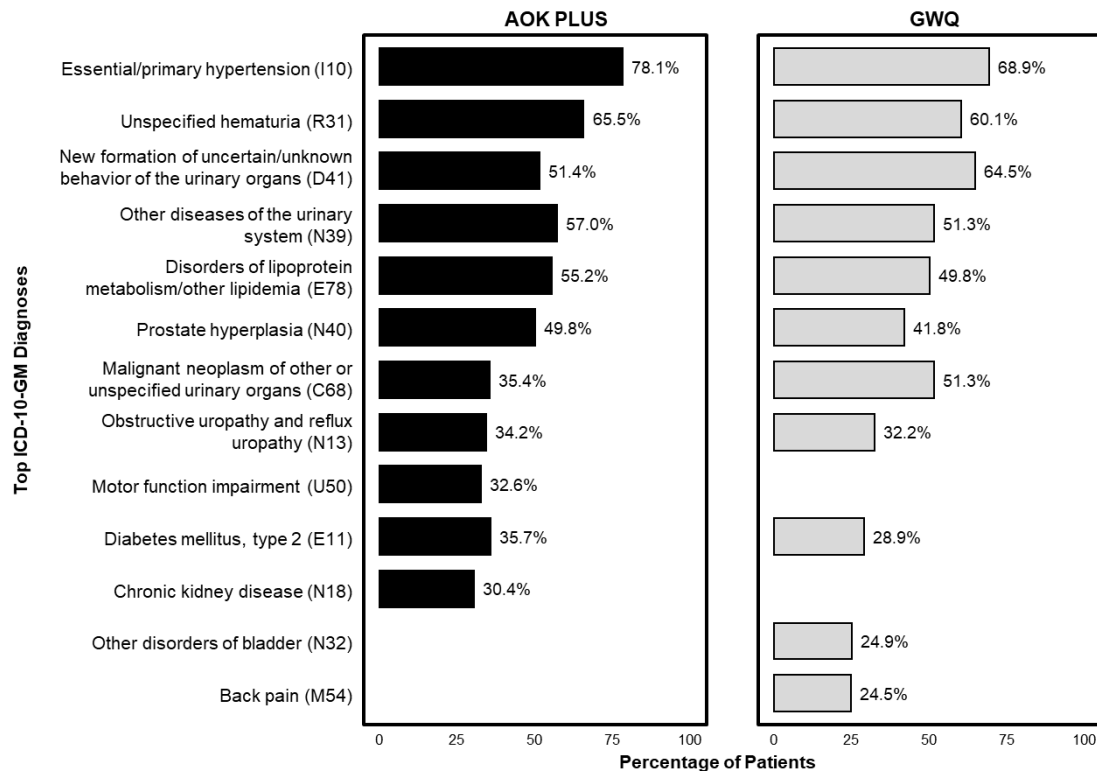
	Neither NAT/AT		Any NAT		NAT only		Any AT - overall		Any AT - chemotherapy		Any AT - immunotherapy		AT only		No NAT		No AT	
Database	AOK PLUS	GWQ	AOK PLUS	GWQ	AOK PLUS	GWQ	AOK PLUS	GWQ	AOK PLUS	GWQ	AOK PLUS	GWQ	AOK PLUS	GWQ	AOK PLUS	GWQ	AOK PLUS	GWQ
Total Number of Patients	242	202	40	47	37	38	40	33	27	19	12	13	37	24	279	226	279	240
Level 1-3 (low/med)	54 (22.31)	20 (9.90)	7 (17.50)	<5	6 (16.22)	<5	4 (10.00)	5 (15.15)	1 (3.70)	<5	3 (25.00)	<5	3 (8.11)	<5	57 (20.43)	24 (10.62)	60 (21.51)	21 (8.75)
Level 4-5 (high)	4 (1.65)	5 (2.48)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	4 (1.43)	5 (2.21)	4 (1.43)	5 (2.02)
Comorbidities, n (%)																		
Any cardiovascular disease (CVD)	205 (84.71)	161 (79.70)	31 (77.50)	32 (68.09)	29 (78.38)	25 (65.79)	32 (80.00)	23 (69.70)	22 (81.48)	11 (57.89)	9 (75.00)	11 (84.62)	30 (81.08)	16 (66.67)	235 (84.23)	177 (78.32)	234 (83.87)	186 (77.50)
Heart failure	54 (22.31)	25 (12.38)	3 (7.50)	<5	3 (8.11)	<5	8 (20.00)	<5	5 (18.52)	<5	2 (16.67)	0 (0.00)	8 (21.62)	<5	62 (22.22)	27 (11.95)	57 (20.43)	27 (11.25)
Acute myocardial infarction (MI)	4 (1.65)	5 (2.48)	2 (5.00)	<5	2 (5.41)	<5	0 (0.00)	<5	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	4 (1.43)	5 (2.21)	6 (2.15)	6 (2.50)
Stroke or hemorrhage	7 (2.89)	8 (3.96)	3 (7.50)	<5	3 (8.11)	<5	1 (2.50)	0 (0.00)	1 (3.70)	0 (0.00)	0 (0.00)	0 (0.00)	1 (2.70)	0 (0.00)	8 (2.87)	8 (3.54)	10 (3.58)	9 (3.75)
Atrial fibrillation	26 (10.74)	22 (10.89)	1 (2.50)	<5	1 (2.70)	<5	3 (7.50)	<5	3 (11.11)	0 (0.00)	0 (0.00)	<5	3 (8.11)	<5	29 (10.39)	23 (10.18)	27 (9.68)	25 (10.42)
Hypertension	195 (80.58)	151 (74.75)	26 (65.00)	26 (55.32)	24 (64.86)	20 (52.63)	32 (80.00)	20 (60.61)	22 (81.48)	9 (47.37)	9 (75.00)	10 (76.92)	30 (81.08)	14 (58.33)	225 (80.65)	165 (73.01)	219 (78.49)	171 (71.25)
Renal disease (moderate/severe)	86 (35.54)	57 (28.22)	8 (20.00)	9 (19.15)	8 (21.62)	7 (18.42)	16 (40.00)	6 (18.18)	9 (33.33)	<5	6 (50.00)	<5	16 (43.24)	<5	102 (36.56)	61 (26.99)	94 (33.69)	64 (26.67)
Chronic pulmonary disease	58 (23.97)	47 (23.27)	10 (25.00)	7 (14.89)	9 (24.32)	6 (15.79)	12 (30.00)	7 (21.21)	8 (29.63)	5 (26.32)	4 (33.33)	<5	11 (29.73)	6 (25.00)	69 (24.73)	53 (23.45)	67 (24.01)	53 (22.08)
Diabetes mellitus	90 (37.19)	66 (32.67)	9 (22.50)	11 (23.40)	8 (21.62)	9 (23.68)	15 (37.50)	7 (21.21)	9 (33.33)	<5	6 (50.00)	<5	14 (37.84)	5 (20.83)	104 (37.28)	71 (31.42)	98 (35.13)	75 (31.25)
Other malignancies	93 (38.43)	78 (38.61)	12 (30.00)	12 (25.53)	11 (29.73)	10 (26.32)	14 (35.00)	15 (45.45)	10 (37.04)	9 (47.37)	3 (25.00)	6 (46.15)	13 (35.14)	13 (54.17)	106 (37.99)	91 (40.27)	104 (37.28)	88 (36.67)

	Neither NAT/AT		Any NAT		NAT only		Any AT - overall		Any AT - chemotherapy		Any AT - immunotherapy		AT only		No NAT		No AT	
Database	AOK PLUS	GWQ	AOK PLUS	GWQ	AOK PLUS	GWQ	AOK PLUS	GWQ	AOK PLUS	GWQ	AOK PLUS	GWQ	AOK PLUS	GWQ	AOK PLUS	GWQ	AOK PLUS	GWQ
Total Number of Patients	242	202	40	47	37	38	40	33	27	19	12	13	37	24	279	226	279	240
Depression/Anxiety	59 (24.38)	56 (27.72)	10 (25.00)	11 (23.40)	10 (27.03)	8 (21.05)	12 (30.00)	8 (24.24)	7 (25.93)	<5	4 (33.33)	5 (38.46)	12 (32.43)	5 (20.83)	71 (25.45)	61 (26.99)	69 (24.73)	64 (26.67)
Clinical/Disease characteristics																		
Time from first observed bladder cancer (BC) diagnosis to radical cystectomy (RC) (months), mean (standard deviation, SD) median	12.41 (28.82) 2.40	16.71 (33.69) 2.75	11.88 (24.93) 5.23	10.21 (19.41) 5.49	12.48 (25.85) 5.26	10.91 (21.35) 5.97	7.93 (14.15) 2.33	11.81 (26.01) 3.48	8.78 (15.86) 2.20	13.30 (31.78) 2.27	5.84 (10.39) 2.91	8.46 (16.20) 4.64	8.21 (14.69) 2.20	13.53 (30.23) 2.27	11.85 (27.39) 2.37	16.37 (33.30) 2.71	12.42 (28.40) 2.86	15.79 (32.09) 3.70
Length of index hospitalization (RC; days), mean (standard deviation, SD) median	21.30 (11.44) 17.50	21.59 (14.06) 17.00	19.23 (7.81) 17.00	19.02 (10.87) 16.00	19.22 (7.95) 17.00	19.45 (11.89) 16.00	19.70 (11.08) 17.00	18.45 (7.82) 16.00	20.26 (12.66) 17.00	17.11 (8.00) 15.00	18.75 (7.33) 18.50	18.38 (7.52) 16.00	19.73 (11.41) 17.00	18.92 (8.76) 16.50	21.09 (11.43) 17.00	21.31 (13.61) 17.00	21.03 (11.05) 17.00	21.25 (13.74) 17.00
Surgical approach, n (%)																		
Laparoscopic	45 (18.60)	31 (15.35)	11 (27.50)	7 (14.89)	10 (27.03)	7 (18.42)	10 (25.00)	<5	6 (22.22)	0 (0.00)	2 (16.67)	<5	9 (24.32)	<5	54 (19.35)	32 (14.16)	55 (19.71)	38 (15.83)
Robot-assisted	29 (11.98)	30 (14.85)	9 (22.50)	5 (10.64)	9 (24.32)	5 (13.16)	7 (17.50)	<5	5 (18.52)	0 (0.00)	0 (0.00)	<5	7 (18.92)	<5	36 (12.90)	31 (13.72)	38 (13.62)	35 (14.58)
Open	193 (79.75)	169 (83.66)	29 (72.50)	40 (85.11)	27 (72.97)	31 (81.58)	30 (75.00)	31 (93.94)	21 (77.78)	18 (94.74)	10 (83.33)	12 (92.31)	28 (75.68)	22 (91.67)	221 (79.21)	191 (84.51)	220 (78.85)	200 (83.33)
Other	4 (1.65)	<5	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	<5	0 (0.00)	<5	0 (0.00)	0 (0.00)	0 (0.00)	<5	4 (1.43)	<5	4 (1.43)	<5
Prior procedures, n (%)																		
TURBT (Transurethral Resection of Bladder Tumor)	213 (88.02)	171 (84.65)	34 (85.00)	41 (87.23)	31 (83.78)	33 (86.84)	37 (92.50)	28 (84.85)	26 (96.30)	15 (78.95)	11 (91.67)	12 (92.31)	34 (91.89)	20 (83.33)	247 (88.53)	191 (84.51)	244 (87.46)	204 (85.00)

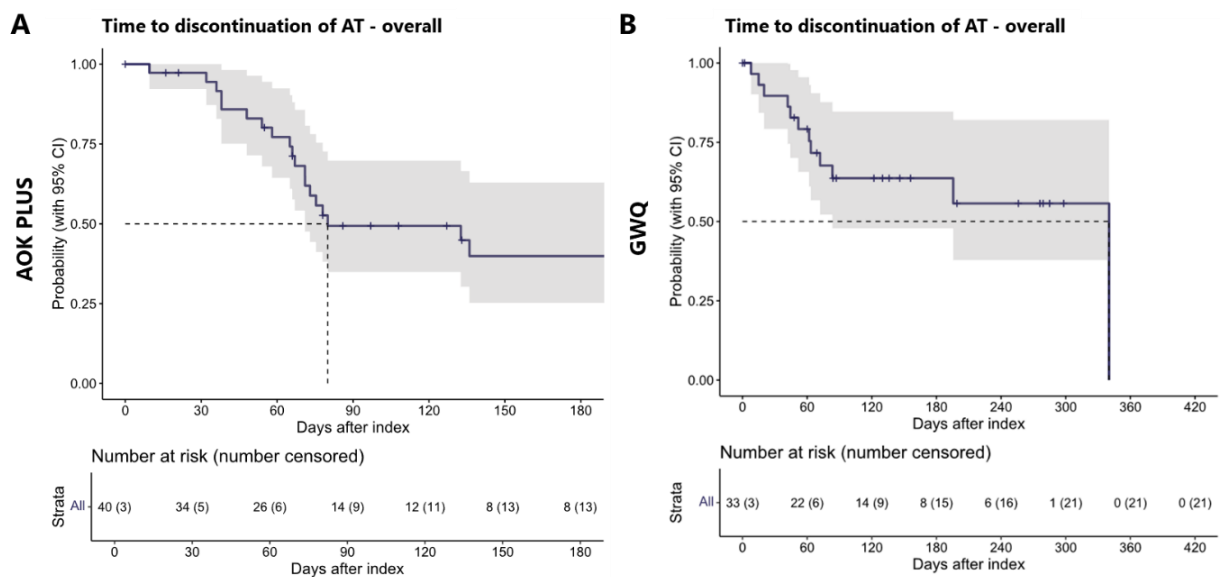
	Neither NAT/AT		Any NAT		NAT only		Any AT - overall		Any AT - chemotherapy		Any AT - immunotherapy		AT only		No NAT		No AT	
Database	AOK PLUS	GWQ	AOK PLUS	GWQ	AOK PLUS	GWQ	AOK PLUS	GWQ	AOK PLUS	GWQ	AOK PLUS	GWQ	AOK PLUS	GWQ	AOK PLUS	GWQ	AOK PLUS	GWQ
Total Number of Patients	242	202	40	47	37	38	40	33	27	19	12	13	37	24	279	226	279	240
Transurethral resection of the bladder/urethra	2 (0.83)	<5	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	<5	0 (0.00)	<5	0 (0.00)	0 (0.00)	0 (0.00)	<5	2 (0.72)	5 (2.21)	2 (0.72)	<5
Cystoscopy	117 (48.35)	117 (57.92)	12 (30.00)	20 (42.55)	11 (29.73)	14 (36.84)	21 (52.50)	25 (75.76)	16 (59.26)	15 (78.95)	7 (58.33)	9 (69.23)	20 (54.05)	19 (79.17)	137 (49.10)	136 (60.18)	128 (45.88)	131 (54.58)
Gene expression analysis in solid malignant neoplasms / in vitro diagnostic of tumor genetic changes	1 (0.41)	<5	1 (2.50)	<5	1 (2.70)	<5	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	1 (0.36)	<5	2 (0.72)	<5
Follow-up & censoring																		
Length of follow-up (months), mean (standard deviation, SD) median	13.43 (0.10 - 26.86)	11.39 (0.03 - 26.89)	12.15 (0.46 - 26.60)	12.79 (0.33 - 26.30)	12.82 (0.46 - 26.60)	14.20 (0.33 - 26.30)	15.07 (2.79 - 26.89)	10.82 (2.24 - 24.85)	16.21 (2.79 - 26.89)	11.47 (2.24 - 24.85)	13.30 (4.47 - 18.05)	10.55 (6.38 - 16.80)	15.85 (2.79 - 26.89)	11.01 (2.24 - 24.85)	13.78 (0.10 - 26.89)	11.36 (0.03 - 26.89)	13.08 (0.10 - 26.86)	11.85 (0.03 - 26.89)
Censoring Reasons, n (%)																		
Death	62 (25.62)	45 (22.28)	11 (27.50)	7 (14.89)	11 (29.73)	<5	8 (20.00)	7 (21.21)	5 (18.52)	<5	3 (25.00)	<5	8 (21.62)	<5	70 (25.09)	49 (21.68)	73 (26.16)	49 (20.42)
End of insurance	0 (0.00)	<5	0 (0.00)	<5	0 (0.00)	<5	0 (0.00)	<5	0 (0.00)	<5	0 (0.00)	<5	0 (0.00)	<5	0 (0.00)	<5	0 (0.00)	<5
End of study period	180 (74.38)	censored	29 (72.50)	censored	26 (70.27)	33 (86.84)	32 (80.00)	censored	22 (81.48)	14 (73.68)	9 (75.00)	11 (84.62)	29 (78.38)	19 (79.17)	209 (74.91)	censored	206 (73.84)	censored

Subgroups “Any AT – radiotherapy” (N=7 AOK; N<5 GWQ) and Both NAT/AT (N=3 AOK; N=9 GWQ) were not evaluated further due to low patient numbers.

Abbreviations:

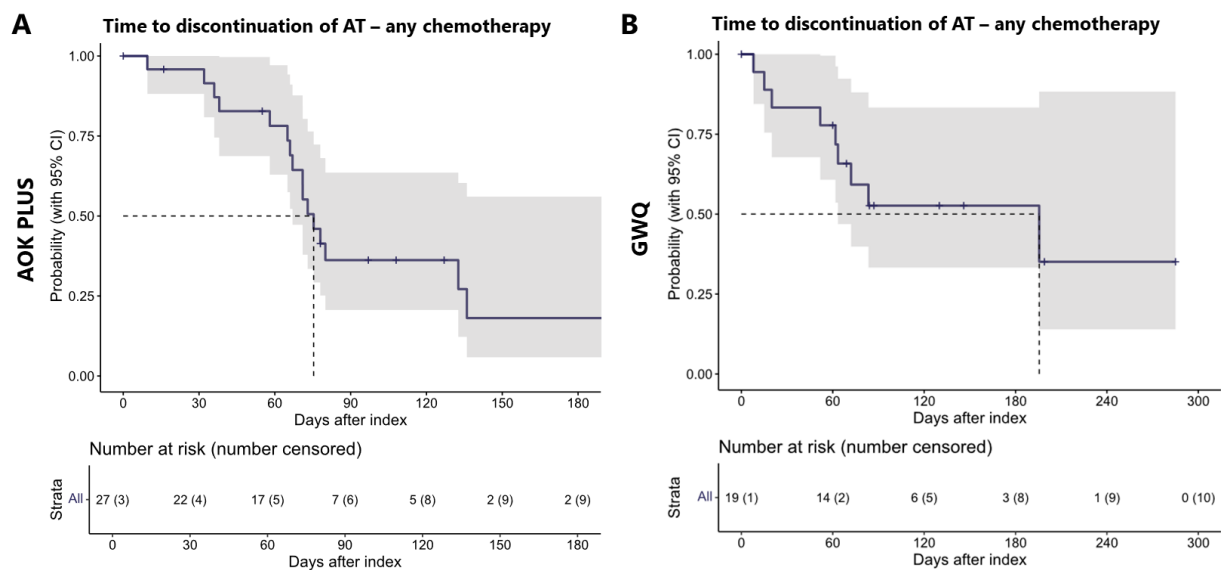


Supplementary Figure 1: Top ICD-10-GM diagnoses observed at baseline in AOK PLUS (Allgemeine Ortskrankenkasse PLUS) and GWQ (Gesellschaft für Wirtschaftlichkeit und Qualität bei Krankenkassen ServicePLUS AG)

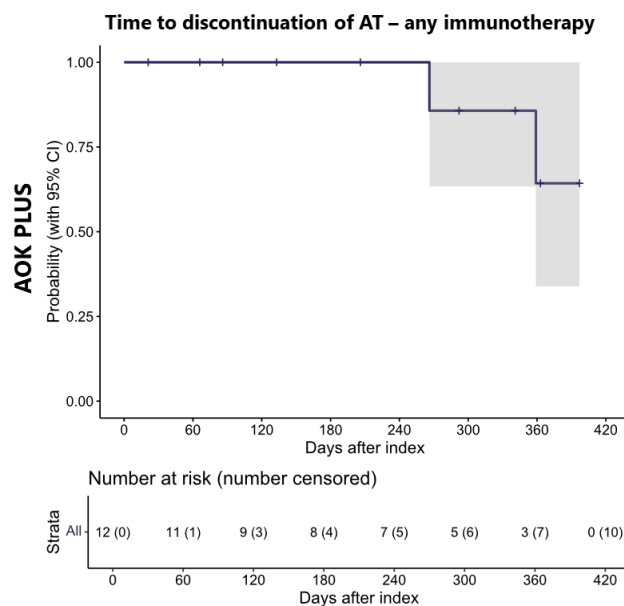


Supplementary Figure 2: Time to discontinuation of any adjuvant therapy (AT) in AOK PLUS (Allgemeine Ortskrankenkasse PLUS) (A) and GWQ (Gesellschaft für Wirtschaftlichkeit und

Qualität bei Krankenkassen ServicePLUS AG) (B)



Supplementary Figure 3: Time to discontinuation of chemotherapy-based adjuvant therapy (AT) in AOK PLUS (Allgemeine Ortskrankenkasse PLUS) (A) and GWQ (Gesellschaft für Wirtschaftlichkeit und Qualität bei Krankenkassen ServicePLUS AG) (B)



Supplementary Figure 4: Time to discontinuation of immunotherapy-based adjuvant therapy (AT) in AOK PLUS (Allgemeine Ortskrankenkasse PLUS).

Note: GWQ (Gesellschaft für Wirtschaftlichkeit und Qualität bei Krankenkassen ServicePLUS AG) data is not available due to low sample sizes.