

Real-world Healthcare Resource Utilization and Costs in Patients with Locally Advanced or Metastatic Urothelial Carcinoma in China

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Objective

- To assess healthcare resource utilization (HCRU) and costs for patients with locally advanced or metastatic (la/m) urothelial carcinoma (UC) in China

Conclusions

- This is the first real-world study to determine HCRU and costs among patients with la/mUC in China
- Most patients had urothelial carcinoma-related inpatient admissions within a year of diagnosis, the cost of which represents a considerable economic burden
- Chemotherapy remained the primary treatment at every line of therapy
- Disitamab vedotin was approved for la/mUC in China in 2022 towards the end of the study period, thus the number of patients treated in this study was small
- Further large-scale real-world analyses are planned to evaluate ongoing changes to the treatment landscape and burden associated with la/mUC

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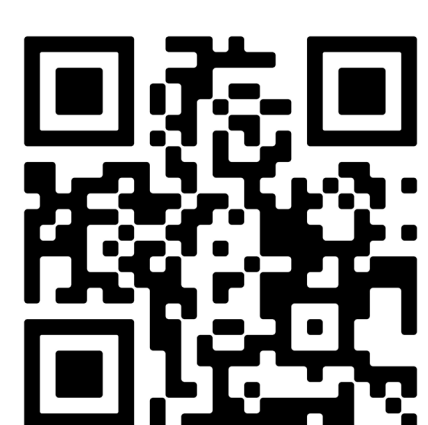
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Conflicts of interest

Yongji Lu is an employee of Astellas Pharma Inc. Lu Ban is an employee of PPD, contracted by Astellas Pharma Inc. to conduct the study. Kaiwei Yang, Yu Fan, Yuke Chen, Peng Zhang and Zhisong He have no conflicts of interest to disclose.

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Background

- Bladder cancer was the ninth most common cancer in 2022, with Europe and Asia accounting for 36.6% and 35.2% of the 614,288 new global cases, respectively¹
 - Approximately 90% of bladder cancer is UC²
- Platinum-based chemotherapy has been the standard of care first-line (1L) therapy for la/mUC, but the prognosis is poor^{3,4}
- Novel therapies have recently been developed to address this unmet therapeutic need, for example:^{3,5–7}
 - Programmed death-1 (PD-1)/programmed death ligand-1 (PD-L1) inhibitors, which can be administered as 1L monotherapy (with restrictions), 1L maintenance or second-line (2L) post-platinum-based therapy
 - Disitamab vedotin (RC-48), an antibody–drug conjugate, is approved in China for platinum-refractory la/mUC with human epidermal growth factor receptor 2 overexpression (immunohistochemistry score of 2+ or 3+)
- Real-world research into the evolving therapeutic landscape and burden of la/mUC is lacking. Here, we examine healthcare resource utilization (HCRU) and costs associated with la/mUC in China

Methods

- This was a descriptive, retrospective study of adult patients (≥18 years) with la/mUC using electronic medical records (EMRs) extracted from the China National Cancer Center Oncology Information Database (study period: Jan 2015–Dec 2022; 'index' period: Jan 2016–Jun 2022)
- The percentages of patients at UC diagnosis with early-stage (I and II) and late-stage (III and IV) disease were estimated; patients whose stage was unknown were included in the early-stage group
 - Patients with at least one clinic visit prior to first record ('index date') of stage III or IV disease (la/mUC) were eligible for inclusion
- HCRU and costs were estimated using rates per patient month (PM) to account for differential follow-up:
 - Costs of inpatient/outpatient visits per PM or treatments were estimated in Chinese yuan (CNY) and converted to Euros (1€ = CNY 7.4229 as of 30 Dec 2022)
 - Cumulative incidence risk was used to estimate the percentage of patients with different HCRU at first 12 months of follow-up

Results

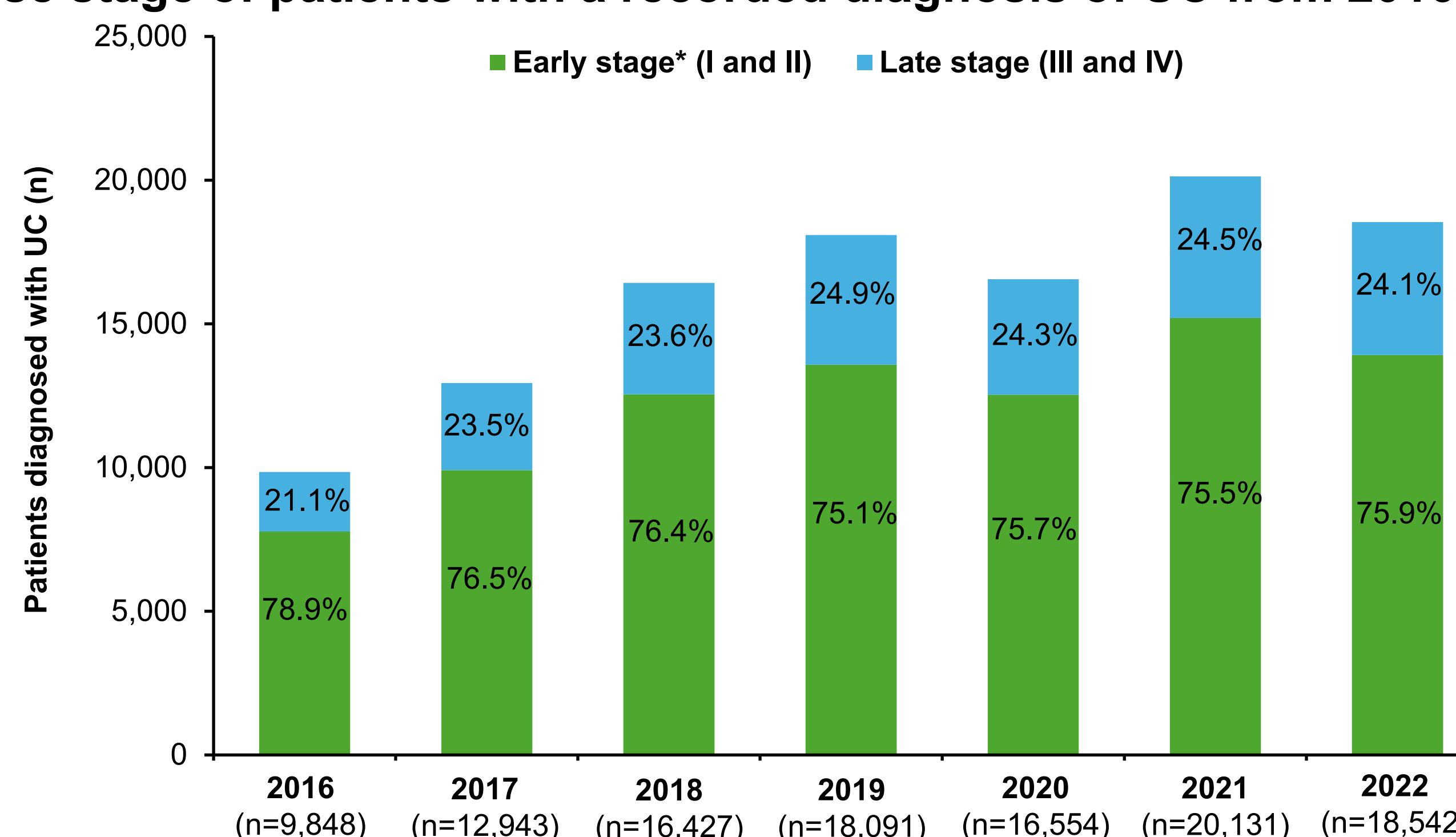
Patient disposition

- A total of 112,536 patients were diagnosed with UC and 7,851 eligible patients with la/mUC were included in the analysis; 71.4% were male and mean (standard deviation) age was 64.9 (11.0) years
- Median (quartile [Q1], Q3) follow-up durations were 111 days (22, 344) overall, 158 days (45, 345) for patients treated with PD-1/PD-L1 inhibitors (n=1,588) and 195.5 days (63.5, 283.5) for those treated with disitamab vedotin (n=152)

Disease stage at UC diagnosis

- The number of patients identified from EMRs as having a UC diagnosis increased from 2016, but the proportion with late-stage (III and IV) disease at diagnosis did not markedly change (21–24%; **Figure 1**)

Figure 1. Disease stage of patients with a recorded diagnosis of UC from 2016 to 2022



UC, urothelial carcinoma. *Includes patients whose disease stage was unknown.

Cost of la/mUC-related HCRU and treatments

- Most oncology drugs require inpatient administration in China. An estimated three-quarters of patients with la/mUC were admitted to hospital during the 12 months following diagnosis, with a mean length of stay of 11.6 days (**Table 1**)
- Approximately half of patients had a UC-related outpatient visit
- The cost of prescription drugs from inpatient and outpatient records is presented in **Table 2**. The number of patients with recorded treatment decreased by 75%–80% at each line of therapy (LOT). Chemotherapy was received by at least half of patients at each LOT (treatments shown below are alone or in any combination):
 - 1L: 73.2% (2,951/4,031) chemotherapy; 24.9% (1,002/4,031) PD-1/PD-L1 inhibitors; 1.9% (78/4,031) others
 - 2L: 51.6% (396/768) chemotherapy; 42.2% (324/768) PD-1/PD-L1 inhibitors; 12.2% (94/768) disitamab vedotin
 - Third-line: 50.5% (93/184) chemotherapy; 37.5% (69/184) PD-1/PD-L1 inhibitors; 27.7% (51/184) disitamab vedotin

Table 1. UC-related HCRU and costs

	Inpatient admission	Outpatient visit
Patients, % (n/N)	72.2 (5,670/7,851)	51.8 (4,068/7,851)
Incidence rate per PM (95% CI)	0.30 (0.29–0.30)	0.44 (0.43–0.44)
Cumulative incidence risk over 12 months, %	76.4	59.1
UC-related length of stay per inpatient admission in those with ≥1 admission, days	Mean ± SD 11.6 (9.33) Median (Q1, Q3) 9.8 (5.0, 15.0)	NA
UC-related costs per PM, €	Mean ± SD 3,149.9 ± 3,534.8 Median (Q1, Q3) 1,171.4 (404.9, 3,119.5)	32.2 ± 153.90 11.2 (4.5, 24.1)
UC-related cost per stay/visit, €	Mean ± SD 3,680.6 ± 14,092.1 Median (Q1, Q3) 1,988.1 (1,060.3, 3,793.9)	245.34 ± 1,141.2 38.9 (7.0, 145.5)

CI, confidence interval; HCRU, healthcare resource utilization; NA, not applicable; PM, patient month; Q1, first quartile; Q3, third quartile; SD, standard deviation; UC, urothelial carcinoma

Table 2. Cost of prescription drug (inpatient and outpatient records)

Treatment	Per PM (€)	Per prescription (€)
Chemotherapy: docetaxel	Mean ± SD 222.1 ± 210.0	185.9 ± 987.4
	Median (Q1, Q3) 196.2 (94.7, 266.5)	38.1 (16.1, 109.8)
Chemotherapy: paclitaxel	Mean ± SD 364.2 ± 460.1	246.5 ± 806.4
	Median (Q1, Q3) 206.8 (105.7, 406.6)	76.7 (27.3, 199.1)
PD-1/PD-L1 inhibitor	Mean ± SD 703.5 ± 1,107.1	369.0 ± 1,087.9
	Median (Q1, Q3) 390.7 (333.4, 590.9)	182.9 (68.9, 355.3)
Disitamab vedotin	Mean ± SD 834.1 ± 348.3	310.2 ± 534.0
	Median (Q1, Q3) 1,023.9 (511.9, 1,023.9)	163.8 (72.5, 336.6)

PD-1, programmed death-1; PD-L1, programmed death ligand-1; PM, patient month; Q1, first quartile; Q3, third quartile; SD, standard deviation