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Costs per Responder with Venetoclax in Combination with Azacitidine in Unfit Patients with Previously Untreated Acute Myeloid Leukemia in China

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INTRODUCTION

- Acute myeloid leukemia (AML) is an aggressive malignancy of the white blood cells and approximately half of patients are ineligible for intensive chemotherapy (unfit AML) [1].
- For unfit AML patients, the less intensity regimens are generally offered, including hypomethylating agents (azacitidine or decitabine) and low-dose cytarabine. However, the efficacy is unsatisfactory. The complete response rate is <50%, and median survival is only 5-10 months. Meanwhile, half of the patients are still facing high risks of infection and are dependent on blood transfusions and ICU care, leading to heavy disease burden [2-6].
- Venetoclax, the first oral BCL-2 inhibitor, has shown clinically meaningful improvement in combination with azacitidine (Ven+AZA) in unfit AML patients in a confirmatory trial (VIALE-A) and its long-term follow up study (24m OS: 37.5% vs. 16.9%), and significantly increased the transfusion independence (58% vs. 34%), decreased the possibility of infection, greatly improved the quality of life of patients [7-9].

OBJECTIVES

The objective of the study was to evaluate the costs per responder comparing Ven+AZA versus AZA for newly diagnosed patients with unfit AML from the healthcare system perspective to support the treatment decision-making in China.

METHODS

- Costs per responder was defined as the total annual costs per patient divided by the rate of composite complete remission (CR/CRi), focused on clinically observable realities, with results that are more concise and easily understood by clinicians and patients than cost-utility analysis.
- The CR/CRi rate was derived from VIALE-A long-term follow up study (Asian subgroup) to better represent the efficacy of venetoclax in China. VIALE-A is a multicenter and randomized double-blind pivotal phase 3 trial that included 93 Asian patients and observed a numerically better CR/CRi rate compared with the overall population. **(Table 1)**
- The annual treatment costs incorporate treatment-related direct medical costs, including the costs of drug and administration, healthcare resource utilization (lab/radiological test, outpatient visits, hospitalization, red blood and platelet transfusion, anti-infective therapy) and adverse event management. Cost inputs were mainly derived from published literature and publicly available prices. **(Table 1)**
  - **Drug costs**: calculation considered the dose intensity and duration of treatment; the data were obtained from a real-world study in China to better reflect the clinical practice. The price of venetoclax used the negotiated price in 2022 NRDL. For volume-based procurement (VBP) drugs, such as azacitidine, the highest bidding price was used with reference to NRDL adjustment rules, while for non-VBP drugs, the market-weighted average prices were adopted.
  - **Healthcare resource utilization costs**: costs were weighted according to the proportion of achieving CR/CRi and not achieving CR/CRi. Frequency data were derived from real-world study and clinical expert interview. Cost data were from publicly available prices.
  - **Adverse events (AE) costs**: AE included grade 3 or above events that occurred in at least 5% of patients in the VIALE-A trial, which were generally observed clinically and required treatment, and related costs were obtained from published literature.

Table 1 Key model inputs

Item	Ven + AZA	AZA	Source
CR/CRi rate	70.49%	28.13%	VIALE-A Asian data [10]
Drug costs			
Price	Ven: ¥117.5/100mg AZA: ¥346/100mg	AZA: ¥346/100mg	Public bidding price and Zhao X, et al [9]
Dose intensity	Ven: 47.8%; AZA: 100%	AZA: 100%	
Treatment duration	4.4 cycles	4.5 cycles	

HRU	Unit price	Group	EFS (CR/CRi)	EFS (non-CR/CRi)	Source
Hospitalization	¥79/d	Ven + AZA	59%, 7d /month	59%, 13d /month	Expert interviews and published literature [11]
		AZA	81%, 10d /month	81%, 15d /month	
Red blood transfusion	¥662.5	Ven + AZA	10%, 1 times /month	26%, 2 times /month	
		AZA	20%, 2 times /month	30%, 3 times /month	
Platelet transfusion	¥1,584.23	Ven + AZA	10%, 1 times /month	26%, 2 times /month	
		AZA	20%, 2 times /month	30%, 3 times /month	
Anti-infective	¥15,474.66	Ven + AZA	10%, 1 times /cycle	30%, 1 times /cycle	
		AZA	20%, 1 times /cycle	40%, 2 times /cycle	

RESULTS

- Compared to AZA, VEN+AZA had a higher CR/CRi rate (70.49% vs. 28.13%) and lower health utilization costs (significant saving in blood transfusion, lab/radiological test, outpatient visit, hospitalization and anti-infective), with annual treatment costs of 198,975 CNY and 221,747 CNY, respectively. For patients treated with VEN+ AZA, the costs per patient achieving CR/CRi amounted to only 282,267 CNY, resulting in saving of more than 500,000 CNY compared with the costs of AZA, which was 788,433 CNY. **(Table 2)**

Table 2 Study results

Item	Ven + AZA	AZA	Incremental
Drug and administration costs	¥40,278	¥13,173	¥27,105
HRU costs	¥158,697	¥208,574	**-¥49,877**
Red blood and platelet transfusion	¥17,581	¥22,843	**-¥5,262**
Lab/radiological test and outpatient visit	¥30,833	¥38,252	**-¥7,419**
Hospitalization	¥4,882	¥10,418	**-¥5,536**
Anti-infective	¥104,913	¥136,806	**-¥31,893**
AE management	¥487	¥255	¥233
Total costs	**¥198,975**	**¥221,747**	**-¥22,772**
CR/CRi rate	70.49%	28.13%	/
Cost per responder	**¥282,267**	**¥788,433**	**-¥506,167**

CONCLUSIONS

From the China healthcare system perspective, Ven + AZA provides a more economical treatment option with lower costs per responder compared with AZA in newly diagnosed unfit AML patients.

Reference

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Disclosure

He Xu, Xinran Zhao, Xuan Mo, Jin Zhao, and Jun Liu are current employees of IQVIA, which received funds from AbbVie Inc. Yang Yi is a postdoctoral fellow at School of Public Health, Fudan University and was responsible for directing this study. The authors have no other relevant affiliations or financial involvement with any organization or entity with a financial interest in of financial conflict with the subject.