

Cost-Effectiveness Analysis of Xigduo (EXTENDED-RELEASE DAPAGLIFLOZIN-METFORMIN TABLETS) for Managing Type 2 Diabetes Mellitus (T2DM) Patients

Bao H¹, Liu Q², Peng X¹, Xuan J¹ ¹ Health Economics Institute, School of Pharmaceutical Sciences, Sun Yat-Sen University, Guangzhou, China ² AstraZeneca Pharmaceutical (Beijing) Co., Ltd., Beijing, Beijing, China

OBJECTIVES

This research evaluates the cost-effectiveness of the fixed-dose combination of Dapagliflozin and Metformin (Xigduo) versus Dapagliflozin monotherapy and free-dose combination with Dapagliflozin and Metformin for managing T2DM in Chinese patients, specifically those for whom traditional lifestyle interventions such as dietary changes and increased physical activity have failed to adequately control blood glucose levels.

METHODS

The study was based on a localized adaptation of the Cardiff Diabetes Model for the Chinese context. It involved a simulation of the lifetime progression of T2DM in patients, integrating probabilistic sensitivity analyses to explore uncertainties in model parameters. The efficacy and safety parameters for Dapagliflozin monotherapy and its free-dose combination with Metformin were derived from global phase III trials and specific phase III trials in Asian populations, respectively. Since Xigduo had not been directly tested in specific trials for efficacy and safety, its parameters were inferred by modifying the outcomes observed from the free-dose combination therapy. The study included cost data gathered from literature and public databases, with utility value data derived from already published studies.







Та

RESULTS

Lifetime treatment with Xigduo in adult patients with T2DM resulted in an increment of 0.061 QALYs compared to those treated with Dapagliflozin monotherapy, and an increment of 0.013 QALYs compared to patients treated with free-dose combination. Additionally, there was a cost saving over a patient's lifetime.

	Xigduo	Dapa mono		Xigduo	FDC
Costs	¥73,341	¥73,784	Costs	¥67,627	¥68,183
QALYs	11.170	11.109	QALYs	10.508	10.495
ole 1: Dete	erministic results (Xig	gduo vs. Dapa mono	and FDC, respe	ctively)	
100 -					
7.0					
8.0 Ω					
<u> </u>					
\Box					
± 6.0 •					
5.0 1	234567891	0 11 12 13 14 15 16 17 18	19 20 21 22 23 24 2	5 76 77 78 79 30 31 37 33	2 34 35 36 37 38 39 40
E 6.0 ↓ 5.0 ↓ 1	2 3 4 5 6 7 8 9 1	0 11 12 13 14 15 16 17 18 Simulated	19 20 21 22 23 24 2 Year	5 26 27 28 29 30 31 32 33	3 34 35 36 37 38 39 40
$ \frac{\Theta}{2} $ 6.0 5.0 0 1 1	$2 \ 3 \ 4 \ 5 \ 6 \ 7 \ 8 \ 9 \ 1$	0 11 12 13 14 15 16 17 18 Simulated Control —Tro	19 20 21 22 23 24 2 Year eatment	5 26 27 28 29 30 31 32 33	3 34 35 36 37 38 39 40
	2 3 4 5 6 7 8 9 1 A1c simulation result	0 11 12 13 14 15 16 17 18 Simulated Control —Tre ts (e.g. Xigduo vs. FD	19 20 21 22 23 24 2 Year eatment C)	5 26 27 28 29 30 31 32 33	3 34 35 36 37 38 39 40
$ \frac{\Theta}{1} $ 6.0 5.0 0 1 ure 2: Hb/ $ \frac{1}{1,000} $ $ \frac{1}{1,000} $	2 3 4 5 6 7 8 9 1 A1c simulation result	0 11 12 13 14 15 16 17 18 Simulated Control —Tra ts (e.g. Xigduo vs. FD	19 20 21 22 23 24 2 Year eatment C)	5 26 27 28 29 30 31 32 33	3 34 35 36 37 38 39 40
E 6.0 5.0 0 1 Ure 2: Hb/ ¥1,000 ¥800 ¥600	2 3 4 5 6 7 8 9 1 A1c simulation result	0 11 12 13 14 15 16 17 18 Simulated Control — Tro ts (e.g. Xigduo vs. FD	19 20 21 22 23 24 2 Year eatment C)	5 26 27 28 29 30 31 32 33	3 34 35 36 37 38 39 40
E 6.0 5.0 0 1 0 1 Ure 2: Hb⁄ ¥1,000 ¥800 ¥600 ¥400	2 3 4 5 6 7 8 9 1 A1c simulation result	0 11 12 13 14 15 16 17 18 Simulated Control — Tro ts (e.g. Xigduo vs. FD	19 20 21 22 23 24 2 Year eatment C)	5 26 27 28 29 30 31 32 33	3 34 35 36 37 38 39 40
	2 3 4 5 6 7 8 9 1 A1c simulation result	0 11 12 13 14 15 16 17 18 Simulated Control — Tra ts (e.g. Xigduo vs. FD	19 20 21 22 23 24 2 Year eatment C) 100% 99% 98% 97% 97% 96%	5 26 27 28 29 30 31 32 33	3 34 35 36 37 38 39 40
6.0 5.0 0 1 Ure 2: Hb/ ¥1,000 ¥800 ¥600 ¥400 ¥400 ¥200	2 3 4 5 6 7 8 9 1 A1c simulation result	0 11 12 13 14 15 16 17 18 Simulated Control — Tro ts (e.g. Xigduo vs. FD	19 20 21 22 23 24 2 Year eatment C)	5 26 27 28 29 30 31 32 33	3 34 35 36 37 38 39 40
6.0 5.0 0 1 Ure 2: Hb/ 1 Ure 2: Hb/ 1 1 1 1 1 1 1 1 1 1 1 1 1	2 3 4 5 6 7 8 9 1	0 11 12 13 14 15 16 17 18 Simulated Control —Tro ts (e.g. Xigduo vs. FD	19 20 21 22 23 24 2 Year eatment C) 100% 99% 98% 98% 98% 98% 95% 95% 95% 94% 93%	5 26 27 28 29 30 31 32 33	3 34 35 36 37 38 39 40
6.0 5.0 0 1 Ure 2: Hb/ 1 1 1 1 1 1 1 1 1 1 1 1 1	2 3 4 5 6 7 8 9 1 A1c simulation result	0 11 12 13 14 15 16 17 18 Simulated Control —Tro ts (e.g. Xigduo vs. FD	19 20 21 22 23 24 2 Year eatment C) 100% 99% - 98% - 98% - 98% - 98% - 96% - 95% - 94% - 93% - 92% -	5 26 27 28 29 30 31 32 33	
6.0 5.0 0 1 5.0 0 1 400 ¥800 ¥600 ¥400 ¥400 ¥400 ¥400 ¥400 ¥400 ¥400 ¥400 ¥600 ¥400 ¥400 ¥400 ¥400 ¥400 ¥400 ¥400	2 3 4 5 6 7 8 9 1	0 11 12 13 14 15 16 17 18 Simulated Control —Trats (e.g. Xigduo vs. FD	19 20 21 22 23 24 2 Year eatment C) 100% 99% 98% 98% 98% 98% 97% 98% 97% 98% 97% 98% 97% 98% 97% 98% 97% 97% 97% 97% 97% 97% 97% 97% 97% 97	5 26 27 28 29 30 31 32 33	3 34 35 36 37 38 39 40
6.0 5.0 0 1 5.0 0 1 400 ¥800 ¥600 ¥400 ¥400 ¥400 ¥400 ¥400 ¥400 ¥400 ¥400 ¥400 1 4 400 ¥1,000 ¥1,000 ¥800 ¥1,000		0 11 12 13 14 15 16 17 18 Simulated Control — Trats (e.g. Xigduo vs. FD	19 20 21 22 23 24 2 Year eatment C) 100% 99% 98% 98% 98% 98% 97% 98% 97% 96% 97% 96% 93% 92% 91% 90%	5 26 27 28 29 30 31 32 33	



Under the scenario where the National Reimbursement Drug List threshold is set at half of the per capita GDP for the year 2022, Xigduo not only demonstrates cost-effectiveness but also stands out for its absolute economic advantage compared to Dapagliflozin monotherapy or free-dose combination. This finding suggests that Xigduo could be a more viable and economically advantageous treatment option for T2DM in the Chinese healthcare setting, especially considering the economic constraints and healthcare priorities of the country.

