Cost-Effectiveness Analysis of Linperlisib for Relapsed or Refractory Follicular Lymphoma Based on Matching Adjusted Indirect Comparison in Chin

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BACKGROUND

- Follicular lymphoma (FL) is a kind of normal indolent Non-Hodg▪kin's lymphoma (NHL), which accounts for 2.5%~6.0% of NHL in China. The existing standard regimens have limited efficacy on patients with multiple relapses.
- Linperlisib, a highly selective PI3K-δ inhibitor, was firstly approved for patients with relapsed or refractory follicular lymphoma after at least two prior systemic therapies (3L+ FL) with compelling clinical efficacy in China in 2023. And it was recommended by *Chinese Society of Clinical Oncology (CSCO) Guidelines 2023*.

OBJECTIVE

- The first aim is to assess the relative efficacy and safety between linperlisib and duvelisib.
- The second aim is to evaluate the cost-effectiveness of linperlisib compared to duvelisib.

METHODS

A cost-effectiveness analysis method was used to simulate the medical costs and health outcomes of patients with 3L+ FL treated with linperlisib and duvelisib.

Model structure

- A three health state partitioned survival model was performed((Figure 1):

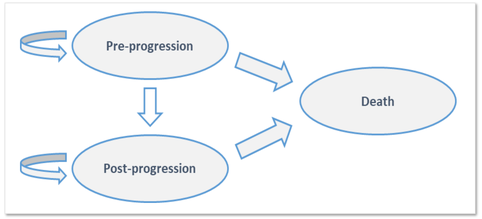

Figure 1. Partitioned Survival Model Structure

Model setting

- Research perspective: China's healthcare system
- Cycle length and time horizon
  - Four-week cycles over, and a lifetime horizon, half-cycle correction
- Discount rate: 5%
- Willingness to pay (WTP) threshold: 1.5 times China's per capita GDP (¥134,037/QALY, 2023).

Model Parameters

- Matching adjusted indirect comparison
- In the absence of head-to-head clinical trials, matching adjusted indirect comparison (MAIC) was used for survival analyses..
- The individual patient data (IPD) for linperlisib was available from NCT04370405 and the aggregate data (AgD) for duvelisib was from DYNAMO (NCT01882803).
- The baseline characteristics before and after matching are shown in table 1

Table 1. Baseline characteristics for linperlisib versus duvelisib comparison

	Duvelisib (N=129)	Linperlisib	
		Before (N=84)	After (ESS=21)
Age>=65 years	50.4%	13.1%	50.4%
Males	68.2%	64.3%	68.2%
Time since diagnosis >=54.15 months	50.0%	34.5%	50.0%
Stage at entry Ⅰ-Ⅱ	14.7%	6.0%	14.7%
ECOG performance status=0/1	94.6%	97.6%	94.6%
No. of prior anticancer regimens >=3	62.8%	77.4%	62.8%

- Parametric models were used to fit and extrapolate the survival curves, according to AIC/BIC and the visual judgment.(Figure 2)
- Only AEs with an incidence of ≥ 3% and a grade of ≥ 3 were considered

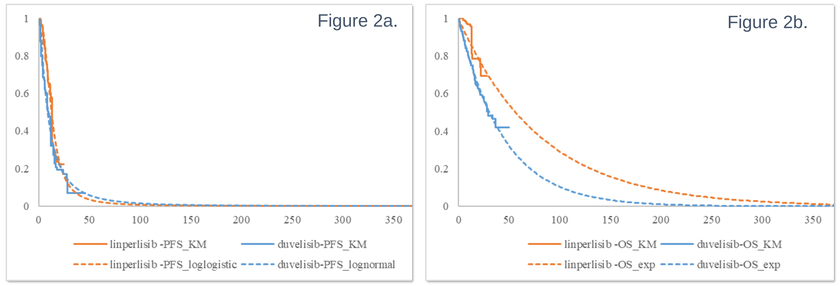

Figure 2. The exploration and fitting of PFS (2a) and OS (2b)

- Costs (Table 2)
  - The prices of linperlisib and duveliser were both determined based on the national drug price negotiation in 2023.
  - Other medical resource utilizations and costs were estimated by experienced clinicians via in-depth interviews.
  - The cost of end-of-life care was from published literature.
- Utility values (Table 2)
  - The utility values of states and disutilities of AEs were from published literature

Table 1. Cost and utility parameters in the model

Parameter	Deterministic	Low	High	Distribution
Utility values				
PFS	0.82	0.80	0.84	beta
PD	0.76	0.71	0.81	beta
Costs (¥)				
Administration costs per cycle in PFS	910	7 28	1 092	gamma
AE management costs of linperlisib	1 439	1 151	1 726	gamma
AE management costs of duvelisib	2 597	2 078	3 117	gamma
One-off treatment costs in PD	6 3624	50 899	76 349	gamma
Supportive cost in PD	2 691	2 153	3 230	gamma
Administration costs per cycle in PD	9 21	737	1 106	gamma
End-of-life care cost	1 5098	12 078	18 118	gamma

RESULTS

Base-case analysis (Table 2)

- The ICER is lower than WTP threshold.

Table 2. Results of base case analysis

	linperlisib	duvelisib	Incremental
Costs (¥)			
Total	292 878	184 029	108 849
Drug costs in PFS	153 190	65 683	87 506
Administration costs in PFS	16 459	15 320	1 139
AE management costs	1 439	2 597	-1 159
Treatment costs in PD	61 020	61 129	-109
Supportive cost in PD	2 581	2 586	-5
Administration costs in PD	46 602	23 633	22 969
End-of-life care cost	11 587	13 080	-1 493
QALYs	4.13	2.55	1.58
ICER （¥/QALY）		68 887	

Sensitivity analyses

- One-way sensitivity analyses (Figure 3)
  - Top 3 parameters that have the greatest impact on the results: one-off treatment costs in PD of duvelisib, one-off treatment costs in PD of linperlisib, and the utility value in PD state.

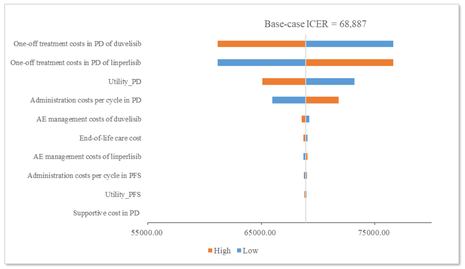

Figure 3. One-way sensitivity analysis

- Probabilistic sensitivity analyses (Figure 4).
  - The probability of the linperlisib being cost-effective is 90.30%

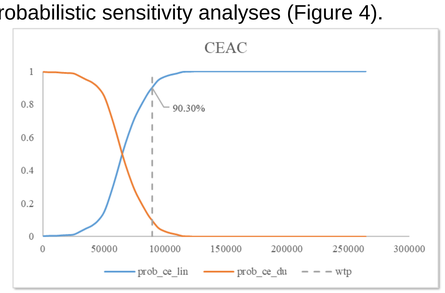

Figure 4. Cost-Effectiveness Acceptability Curve

CONCLUSIONS

- The efficacy of linperlisib is better than duvelisib after matching and adjusted.
- Linperlisib is cost-effective versus duvelisib for the treatment of 3L+ FL in China.

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