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Cost-Effectiveness Analysis of Entrectinib in First-Line Treatment for NTRK+ Locally Advanced or Metastatic NSCLC in China

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Background

- NTRK gene fusion has been identified as an oncogenic driver of various solid tumors, with a prevalence of less than 1% in NSCLC. Entrectinib, a potent NTRK inhibitor, has demonstrated efficacy in NTRK+ locally advanced or metastatic NSCLC.
- This study aims to evaluate the cost-effectiveness of entrectinib in comparison with larotrectinib from a Chinese payer perspective.

Methods

- This study included 54 patients with locally advanced or metastatic NTRK fusion-positive NSCLC from three clinical trials of entrectinib (ALKA-372-001, STARTRK-1, STARTRK-2), while 32 patients in the larotrectinib group.
- Due to the lack of head-to-head studies, a matching-adjusted indirect comparison (MAIC) was conducted previously , in which the two groups were matched by demographic characteristics reported by larotrectinib to ensure that baseline characteristics were as similar as possible between the two groups.
- A partitioned survival model was used adapted to China's clinical practice. Health state transitions were derived from progression-free survival (PFS) and overall survival (OS) curves, extrapolated using KM curves with Exponential tail distributions from the trial data, with AIC/BIC the lowest among different distributions. Health utilities for PFS were converted from clinical trial results and mapped by Chinese tariffs, while post-progression state utilities were sourced from literature.
- Cost of medications was calculated using Chinese local prices, while costs of drug administration and adverse effects were estimated from clinician survey. Univariate sensitivity and scenario analyses were performed to identify uncertainty.

Results

- Over a timeframe of 30 years with 4.5% discount rates, entrectinib generated an additional 0.49 QALYs with costs saving compared to larotrectinib.
- The ICER was –CNY73,990 (USD10,310) per QALY obtained, which means entrectinib is dominant to larotrectinib.
- Univariate sensitivity analysis showed that cost during PFS stage and progression stage of both groups had the greatest impact on the results.

Table1 The result of Cost-effectiveness analysis

	Entrectinib	Larotrectinib
Mean total cost ¥	319,276	346,275
All medication cost	275,487	306,426
Medication administration	24,717	26,715
Adverse events	240	260
Supportive care	18,831	12,875
Mean QALYs	3.75	3.26
In PFS	2.290	1.573
In progression	1.461	1.689
Increamental cost ¥	-63,763	
Incremental QALYs	0.49	
Cost per QALY gained ¥	-73,990	

Figure1 Tornado of Entrectinib VS. Larotrectinib

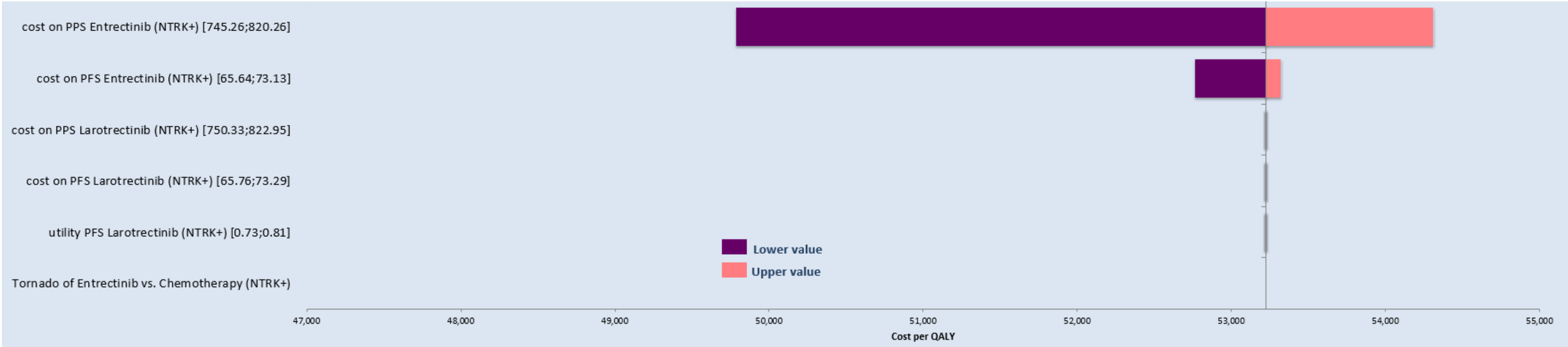


Figure2 Cost-Effectiveness Plane for NTRK

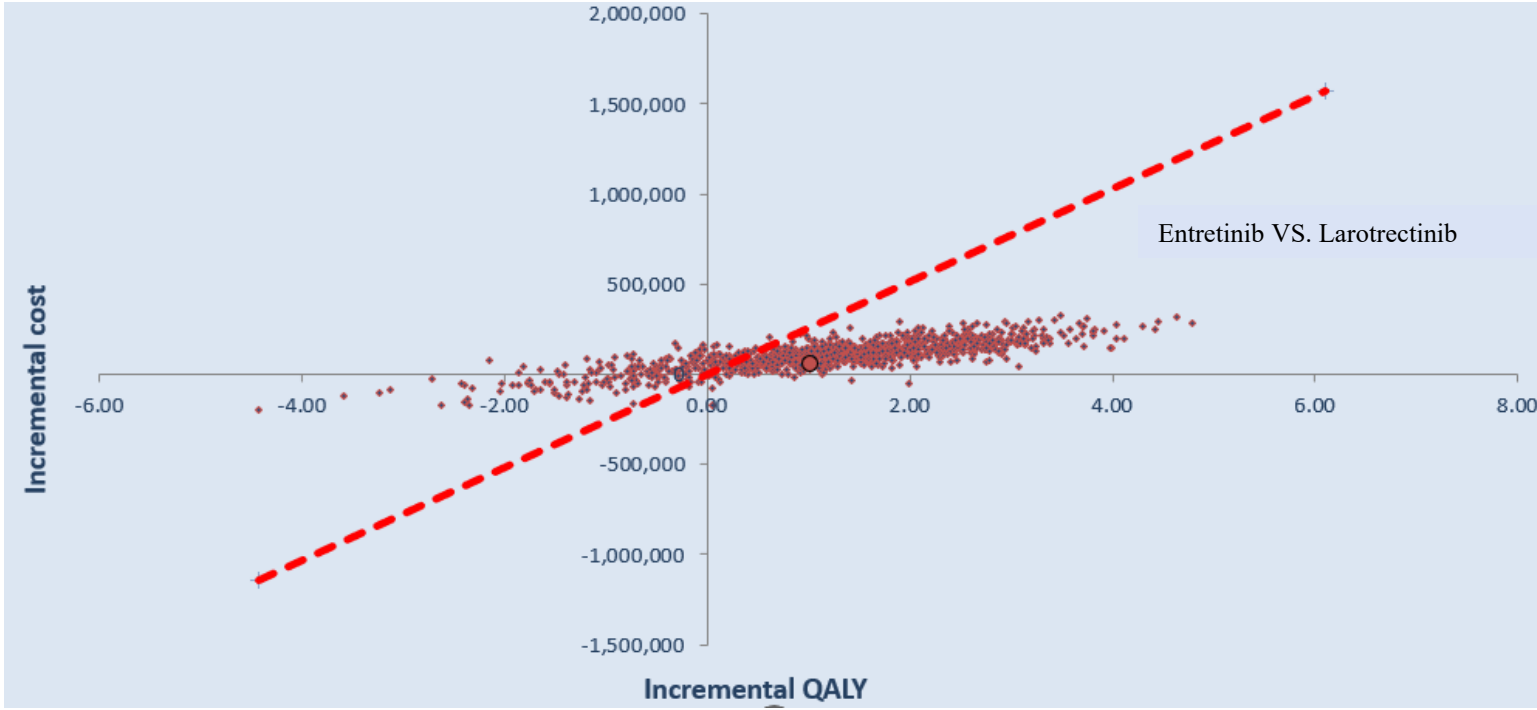
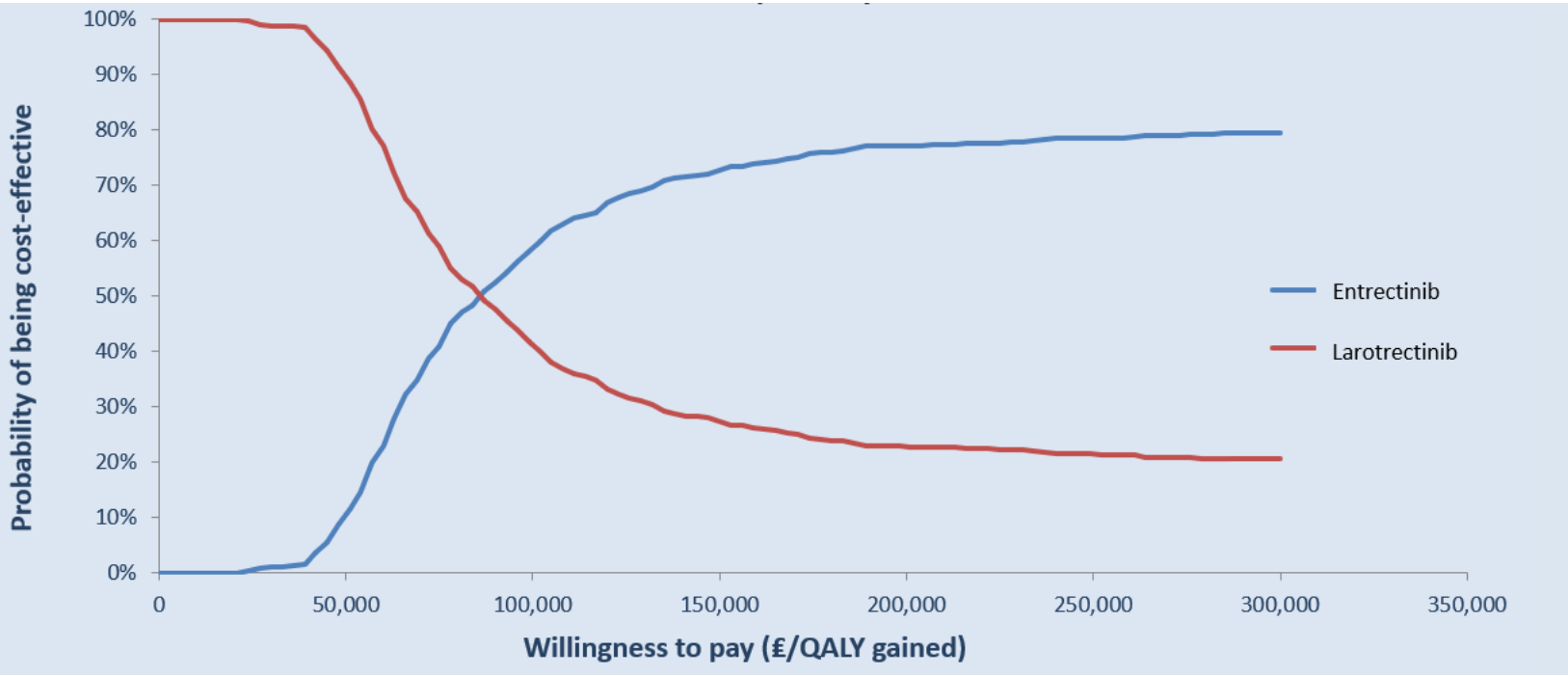


Figure3 Cost-Effectiveness Acceptability Frontier for NTRK



Conclusion

- Entrectinib can improve patient health outcomes and is more cost-effective than Larotrectinib in the NTRK+ NSCLC population under Chinese clinical practice.

References

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