

Cost-effectiveness analysis of first-line nivolumab plus ipilimumab combination therapy for unresectable malignant pleural mesothelioma: based on a multicenter, phase 3 trial

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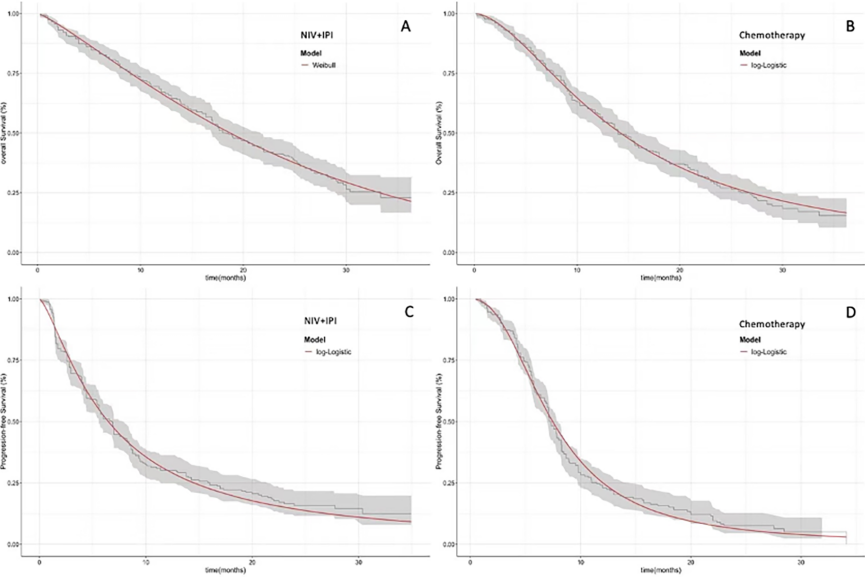
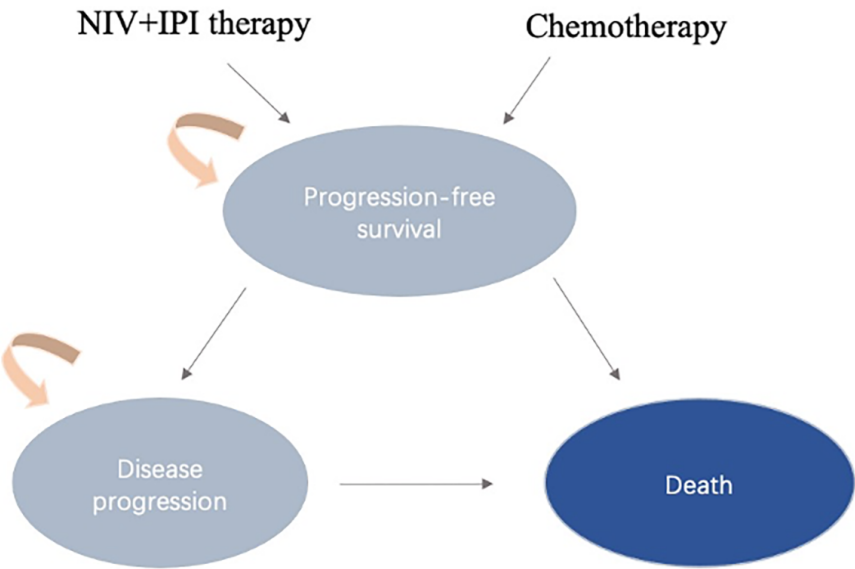
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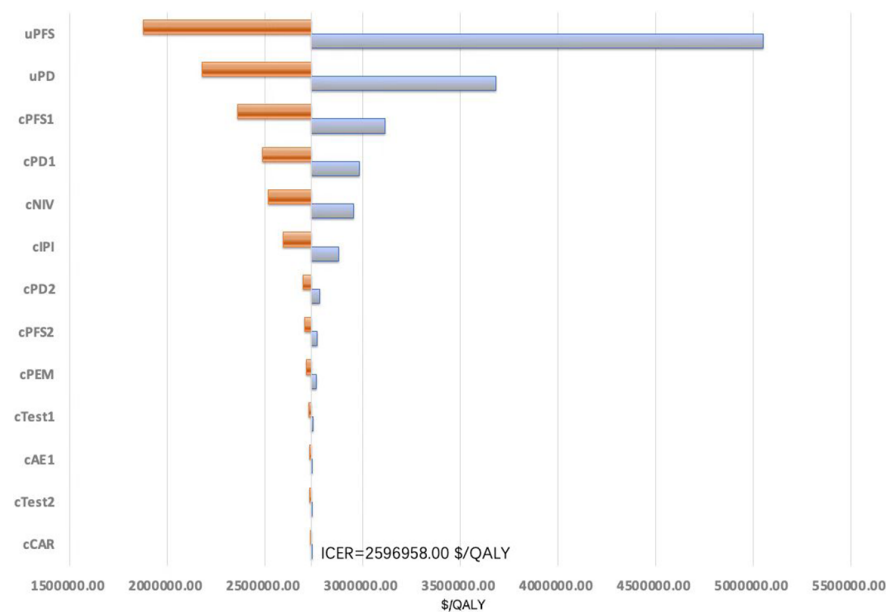
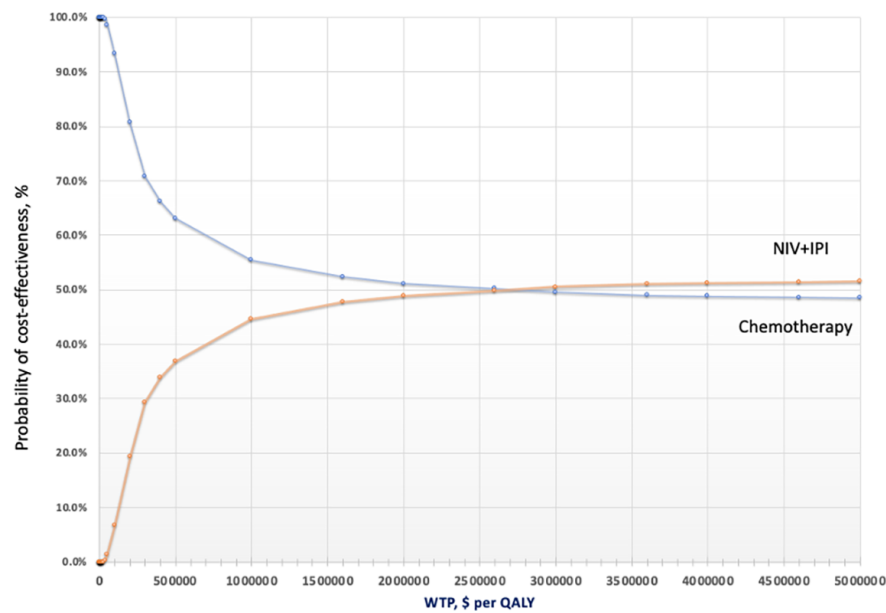
Abstract

Background: Malignant pleural mesothelioma (MPM) is a rare tumor. The approved systemic treatment of MPM is limited to chemotherapy. The purpose of this study was to evaluate the economic efficacy of an NIV plus IPI regimen for the treatment of MPM in China. Methods: The data estimated were from a multicenter randomized phase III trial that showed an improved survival benefit in patients with MPM treated with a NIV+IPI combination regimen. A partitioned survival model was constructed to estimate the incremental cost-benefit ratio (ICER) from the perspective of Chinese society. The uncertainty in the model is solved by one-way certainty and probabilistic sensitivity analysis. Results: Our base case analysis showed that the total costs of treatment increased from \$28,833.84 to \$236,590.48 with the NIV+IPI combination regimen versus platinum plus pemetrexed chemotherapy. Treatment with NIV+IPI combination therapy was associated with an increase in effectiveness of 0.08 QALYs from 1.08 QALYs to 1.16 QALYs. The incremental cost-effectiveness ratio was \$2,596,958.00/QALY, with a 0% probability of being cost-effective at a WTP threshold of \$36,203.87/QALY. Cost changes associated with grade 3-4 AE management, tests used, or hospitalization costs had little effect on the ICER values predicted by sensitivity analysis. Conclusions: Taken together, the results of this study suggest that the combination of NIV plus IPI is not a cost-effective option from the perspective of Chinese payers as a first-line treatment option for MPM patients in China. Appropriate drug donation programs and social assistance are necessary.

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