Poster POSC110

Cost-Effectiveness of Durvalumab Following Chemoradiotherapy in Patients with Unresectable Stage III NSCLC in the US: An Update Based on 5-year PACIFIC Data

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Objectives

To compare the cost-effectiveness of durvalumab following chemoradiotherapy (CRT) versus CRT alone (best supportive care; BSC) for patients with unresectable Stage III non-small-cell lung cancer (NSCLC) in the US using 5-year follow-up data from the PACIFIC trial with cost-effectiveness estimates derived from prior 2-year (DCO2), 3-year (DCO3) and 4-year (DCO4) data, and that published in Mehra et al. (2021).[2]

Conclusions

- Our analysis supports the technical modelling approaches used in the base case analyses and provides a valuable case study comparing the cost-effectiveness of novel anti-cancer therapies using survival data of varying maturities
- This work supports the accuracy of previous model versions in predicting 5-year overall survival (OS) and progression-free survival (PFS) for both durvalumab and BSC
- The incremental cost-effectiveness ratio (ICER) estimate of durvalumab following CRT versus CRT alone based on 5-year (DCO5) PACIFIC data was similar to ICER estimates based on less mature OS data and below the standard US willingness-to-pay threshold of $100,000 – reaffirming that durvalumab remains a cost-effective treatment for patients with unresectable Stage III NSCLC following CRT

Plain language summary

Why did we perform this research?
To validate modelling approaches previously used, using longer follow-up data

How did we perform this research?
Adaptation of a previous cost-effectiveness model[2], using 5-year follow-up data and updated costs

What were the findings of this research and what are the implications?
Previously extrapolated OS and PFS values were similar to actual values and previously calculated ICER values were similar to ICER values using updated inputs.

Where can I access more information?
Please see Mehra et al. (2021)[2] and Seal et al. (2021)[3] for more information

Introduction

- In 2017, the US Food and Drug Administration approved durvalumab based on evidence from PACIFIC, a Phase III, randomized clinical trial in which patients with Stage III non-small-cell lung cancer (NSCLC) who did not have disease progression after platinum-based chemoradiotherapy (CRT) were randomized to receive CRT alone (best supportive care; BSC) or durvalumab following CRT every 2 weeks for up to 12 months[1]
- Results from earlier model versions derived from less mature PACIFIC data found that durvalumab following CRT was a cost-effective treatment regimen[2,3]
- Recently, more mature survival data from the 5-year update of PACIFIC (2021 data cut-off; DCO) were made available and incorporated into the existing cost-effectiveness model

Methods

- DCO5 progression-free survival (PFS), time to progression (TTP), post-progression survival (PPS) and overall survival (OS) data[2] were used with updated costs for 2020/2021 and subsequent therapy data to generate results from an existing state-transition model (progression-free, progressed disease, and death) that had previously used PACIFIC data of shorter follow-up
- The best fitting curve was chosen based on visual fit to the observed data and statistical fit according to the smallest Akaike/Bayesian information criteria. To assess the plausibility of the fitted curves, the chosen curves went through an external validation process: clinical expert opinion, PACIFIC survival data, the wider clinical literature and real-world evidence
- Utilities and adverse event inputs remained constant since more recent data were not available for these. For the purpose of this poster, and to allow for a more homogeneous comparison of cost-effectiveness results due to changes in data maturity, updated 2020/2021 costs were used in calculating base case results for DCO2, DCO3 and DCO4. Modelling was conducted from a Medicare payer perspective over a 30-year time horizon

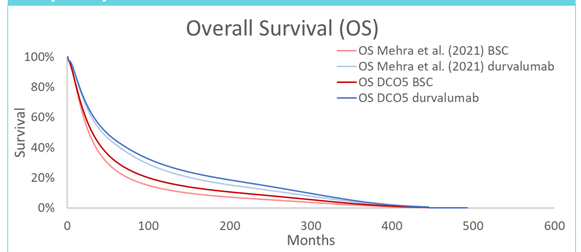
Results and interpretation

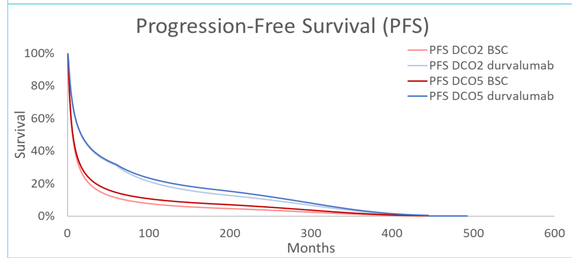
Validation of modelled PFS and OS outcomes

DCO5 time-to-event data for both PACIFIC arms closely matched the model's previous OS and PFS extrapolations (Figure 1; Table 1).

- **In the durvalumab arm:**
  - Extrapolated 5-year OS and PFS values using DCO2 TTP and PFS data, and DCO3 PPS data[2], differed from the actual DCO5 values by 0.2% and -1.8%, respectively
  - Compared to extrapolations derived from the DCO4 data, the DCO5 values for OS and PFS were different by 1.1% and -1.8%, respectively
- **In the BSC arm:**
  - Extrapolated 5-year OS and PFS values using DCO2 TTP and PFS data and DCO3 PPS data[2], were different from the actual DCO5 values by -7.0% and -7.7%, respectively
  - Compared to extrapolations derived from the DCO4 data, the DCO5 values for OS and PFS were different by -3.4% and -5.0%, respectively

Figure 1: Overall survival and progression-free survival in the DCO5 update compared with Mehra et al. (2021)[2]





Key: BSC, best supportive care; DCO, data cut-off; OS, overall survival; PFS, progression-free survival.

Table 1: Overall survival in DCO5 update compared with extrapolated survival estimates based on previous data cut-offs

Time (Months)	Durvalumab KM data: DCO5		Modelled durvalumab survival curve estimates			
	Numbers at risk	Survival	DCO2	DCO3*	DCO4	DCO5
12	386	83%	84%	84%	85%	85%
24	300	66%	67%	68%	68%	69%
36	253	57%	55%	56%	57%	58%
48	219	50%	47%	48%	49%	50%
60	136	43%	42%	43%	44%	45%

Time (Months)	BSC KM data: DCO5		Modelled BSC survival curve estimates			
	Numbers at risk	Survival	DCO2	DCO3*	DCO4	DCO5
12	172	75%	77%	77%	78%	79%
24	124	55%	54%	55%	58%	58%
36	98	44%	40%	41%	45%	45%
48	79	36%	31%	32%	36%	37%
60	57	33%	25%	26%	30%	31%

Key: BSC, best supportive care; DCO2, 2-year data; DCO3, 3-year data; DCO4, 4-year data; DCO5, 5-year data; KM, Kaplan–Meier.

Notes: *Mehra et al. (2021) using 2-year TTP and PFS data and 3-year PPS data.

Updated base case results

- Table 2 displays incremental (durvalumab following CRT versus CRT) model results for DCO2, DCO3, DCO4 and DCO5. The ICER based on DCO5 PACIFIC data was similar to the ICERs from previous data cut-offs, demonstrating accuracy and validity of the cost-effectiveness model previously used and published[2]
- All data cut ICER values fall well below a $100,000 willingness-to-pay threshold

Table 2: Incremental model outputs in the DCO5 update compared with previous data cut-offs

	Incremental QALYs	Incremental costs (US$)	ICER (US$)
DCO2	1.69	$64,936	$38,403
DCO3	1.66	$64,769	$39,000
DCO4	1.50	$64,632	$43,012
DCO5	1.51	$64,897	$42,875

Key: DCO, data cut-off; DCO2, 2-year data; DCO3, 3-year data; DCO4, 4-year data; DCO5, 5-year data; ICER, incremental cost-effectiveness ratio; QALY, quality-adjusted life year.

Notes: Base case results for DCO2, DCO3 and DCO4 were calculated from updated costs for 2020/2021, as done for DCO5 results.

References

1. US FDA. Durvalumab (Imfinzi). www.fda.gov/drugs/resources-information-approved-drugs/durvalumab-Imfinzi Accessed: 3 May 2021.
2. Mehra et al. *JNCCN*. 2021; 19(2):153-162.
3. Seal B, et al. 2021. Cost-effectiveness of durvalumab following chemoradiotherapy in unresectable stage III NSCLC patients in the US: An update based on 4-year survival data, ISPOR USA. Poster PCN 44.

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Disclosures

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Results presented may differ from the original abstract submission due to aligning the subsequent therapy inclusion criteria with the approach used previously.