BUDGET IMPACT ANALYSIS OF IMMUNOTHERAPY

AS SECOND-LINE TREATMENT OF ADVANCED NON-SMALL-CELL LUNG CANCER

AT MEXICO'S NATIONAL INSTITUTE OF CANCER

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BACKGROUND

The highest mortality due to cancer worldwide corresponds to lung cancer (LC). Nowadays, novel therapeutic strategies such as Immune Checkpoint Inhibitors (ICI), have dramatically improved overall survival (OS), progression-free survival (PFS), and quality of life as the first or second line of treatment in patients with advanced non-small-cell lung cancer (ANSCLC).

OBJECTIVES

The objective of this study is to estimate (2018-2022) the budget impact of immunotherapy as a second-line treatment for advanced ANSCLC.

METHODS

A retrospective, descriptive analysis on resource use and a direct medical cost analysis was performed to assess the budget impact of 60 patients treated with immunotherapy as second-line treatment of ANSCLC conducted at the National Institute of Cancerology (INCAN) in Mexico during 2016-2018. Resource utilization data were collected by means of medical records.

The costs associated with the total costs of treatment were estimated as a mean value with confidence intervals of 95% confidence by costing the elements of the treatment of the disease and adverse events, as well the frequency of consultations, hospital stays, and monitoring obtained in the records. Costs are presented in US dollars.

RESULTS

The expected costs per patient per year of treatment will be $49,476 [CI] = $44,528–$57,392), of which $41,766 are immunotherapy costs, application and monitoring represent $2,400 and the rest for adverse events, of which 93.8% represented immunotherapy costs, 5.4% drug application and monitoring, 0.8% adverse events treatment.

We identified 30 potential patients per year candidates to receive immunotherapy as the second line. The total cost expected per year is $1,484,100.00. The budget for heathcare (National centers) in 2018 for the National Institute of Cancer was $36,073,793.10.

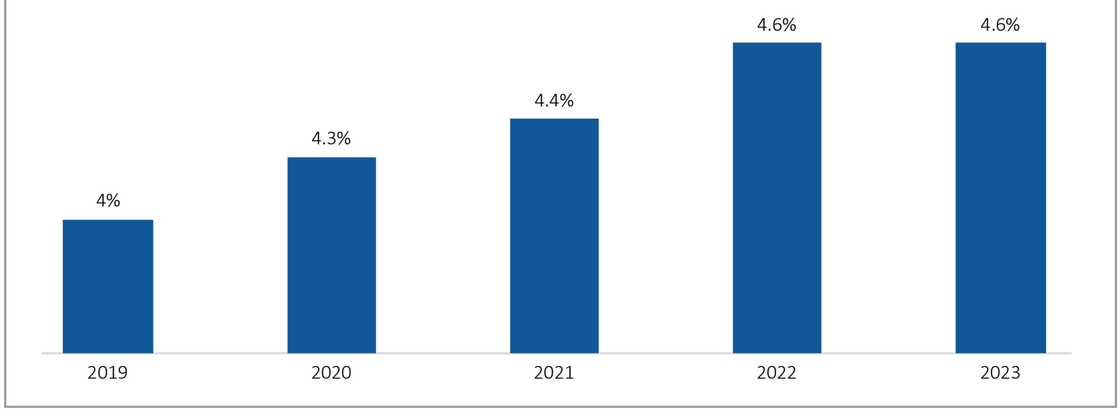
The budget impact for advanced non small lung cell cancer (2nd Line) using of immunotherapy is 4.1%. For 2018-2022, the average budget impact is 4.5%, under the asumption of a 5% incread per year of advanced non small lung cell cancer (2nd Line) patients.

ANSCLC 2nd line Immunotherapy, cost per patient per year	
Immunotherapy cost per patient per year	$49,470.00
Patients per year	30 patients
Immunotherapy	$1,392,085.80
Drug aplication	$80,141.40
Adverse events	$11,872.80
Average cost of treatment (per year)	$1,484,100.00

ANSCLC 2nd line Immunotherapy. Budget Impact year 1 (2019)	
Budget for heathcare 2018 (National centers) National Institute of Cancer	$36,073,793.10
Cost of immunotherapy (per year) Non small lung cell cancer (2nd Line)	$1,484,100.00
Budget Impact	4.10%

ANSCLC 2nd line Immunotherapy. Budget Impact year (2019-2023)

Budget Impact inputs	2019	2020	2021	2022	2023
Budget (National centers) National Institute of Cancer	$36,073,793	$37,877,483	$39,771,357	$41,759,925	$43,847,921
Cost of immunotherapy (per year) Non small lung cell cancer (2nd Line)	$1,457,974	$1,484,112	$1,525,180	$1,474,653	$1,480,761
Budget Impact	4%	4.3%	4.4%	4.6%	4.6%



CONCLUSIONS

- The therapeutic approach for the second-line treatment of patients with advanced NSCLC without actionable mutations has been revolutionized by the approval of new more efficacious drugs like pembrolizumab.
- Healthcare costs during immunotherapy treatment with pembrolizumab were largely attributed to anti-cancer therapy and less for adverse events.
- Pembrolizumab as second-line treatment of patients with advanced non-small-cell lung cancer, prolong overall survival, leading to fewer adverse events than chemotherapy.

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