



Cost-Effectiveness Analysis of Netupitant/Palonosetron for Chemotherapy-Induced Nausea and Vomiting from Brazilian Private Healthcare System Perspective

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INTRODUCTION

Chemotherapy-induced nausea and vomiting (CINV) is a common side-effect experienced by cancer patients undergoing chemotherapy. The oral fixed-dose combination of netupitant/palonosetron (NEPA) was registered in Brazil in 2017. This formulation offers a convenient and simplified antiemetic prophylaxis.

OBJECTIVES

The objective was to assess the cost-effectiveness of NEPA compared to the extemporaneous combination of fosaprepitant and palonosetron for the management of highly emetogenic chemotherapy (HEC) from the Brazilian private healthcare system (PHS) perspective.

METHODOLOGY

A Markov model with two health states¹, complete response and incomplete response was used (Figure 1). All patients entered the Markov model on the first day of HEC, including the administration of prophylactic antiemetics. Time horizon was four 5-day HEC cycles (first day in an acute phase and the second to fifth days in a delayed phase). Efficacy parameters were extracted from NEPA phase III clinical trial². Costs included were drugs acquisition costs, hospitalization, and outpatient care^{3,4,5, 6} (Table 1). Alternative scenarios considered intravenous (IV) and oral ondasetron as comparators. Deterministic and probabilistic sensitivity analyses were conducted.

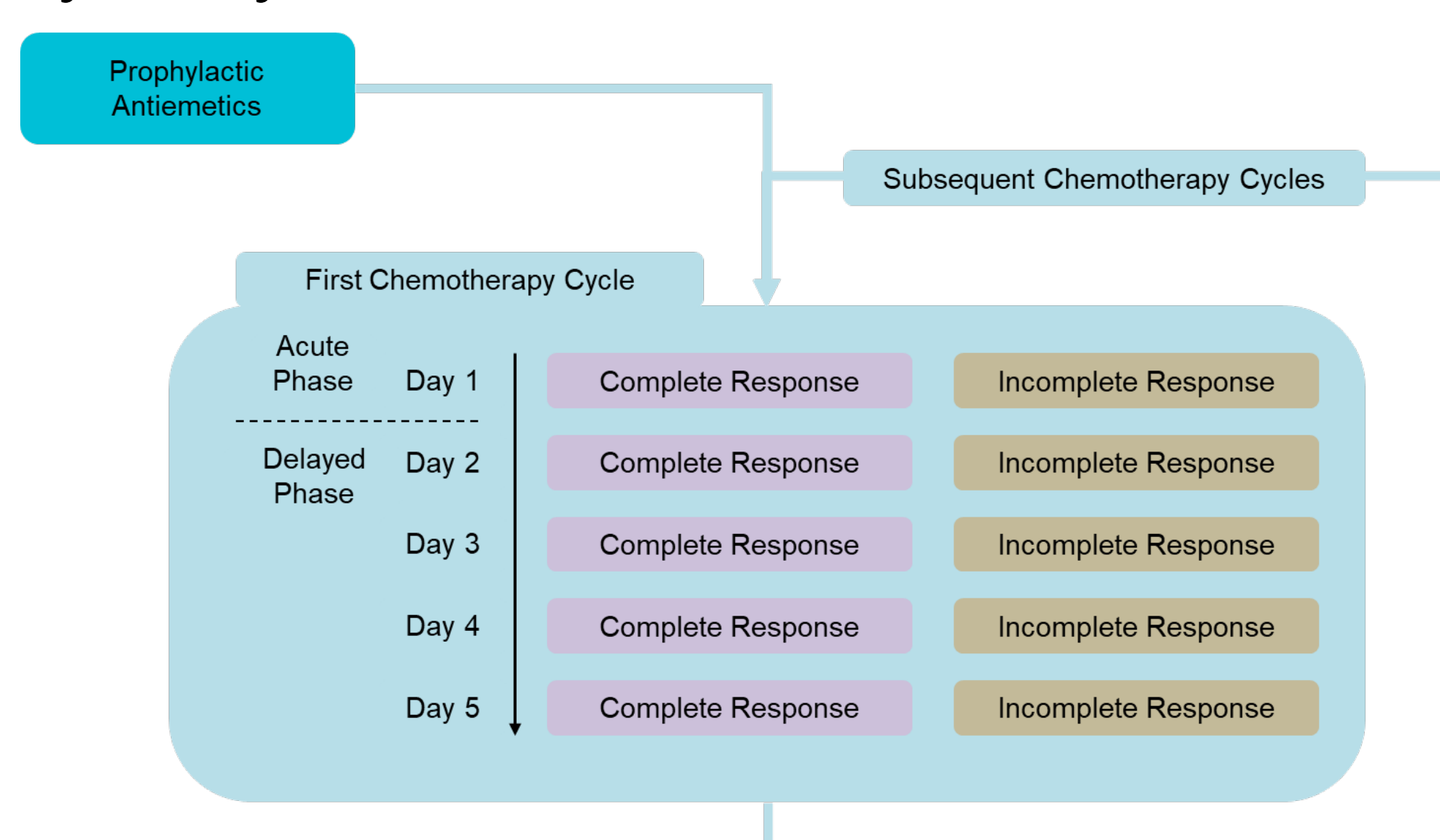


Figure 1: Model Structure

Table 1: Costs

Description	Cost	Reference
NEPA	R\$ 307,13/pack	CMED, 2023
Fosaprepitant IV	R\$ 351,80/pack	CMED, 2023
Palonosetron IV	R\$ 117,60/pack	CMED, 2023
Ondasetron IV	R\$ 357,94/pack	CMED, 2023
Ondasetron Oral	R\$ 181,90/pack	CMED, 2023
Inpatient care	R\$ 24,73	Schwartzberg, 2015; Unidas, 2022: calculated
Outpatient care	R\$ 7,47	Schwartzberg, 2015; CBHPM, 2022: calculated
Physician care	R\$ 153,47	Schwartzberg, 2015; CBHPM, 2022: calculated
IV administration	R\$ 263,37	CHPM, 2022; COFEN, 2021: calculated

NEPA: netupitant/palonosetron, IV: intravenous, R\$: Brazilian currency, Exchange: USD 1 = R\$ 5.06

*Reference values adjusted by inflation - Banco Central do Brasil

RESULTS

NEPA showed an incremental Quality-adjusted life days (QALD) of 1.27 for all scenarios. In the base case analysis and when compared to ondasetron IV, NEPA was dominant (more effective and less costly). Compared to oral ondasetron, NEPA demonstrated an incremental cost of R\$ 623,42. Results were robust in sensitivity analyses.

Table 2: Base case and Scenarios

Base Case	Fosaprepitant + Palonosetron	NEPA	Incremental
Cost of treatment	R\$ 4,533.71	R\$ 1,650.55	- R\$ 2,883.16
Quality-adjusted life days	10.87	12.14	1.27
ICER			Dominant
Scenario	Ondansetron IV	NEPA	
Cost of treatment	R\$ 3,021.75	R\$ 1,650.55	- R\$ 1.623,75
Quality-adjusted life days	10.87	12.14	1.27
ICER			Dominant
Scenario	Ondansetron oral	NEPA	
Cost of treatment	R\$ 1,027.13	R\$ 1,650.55	R\$ 623.42
Quality-adjusted life days	10.87	12.14	1.27
ICER			491.26

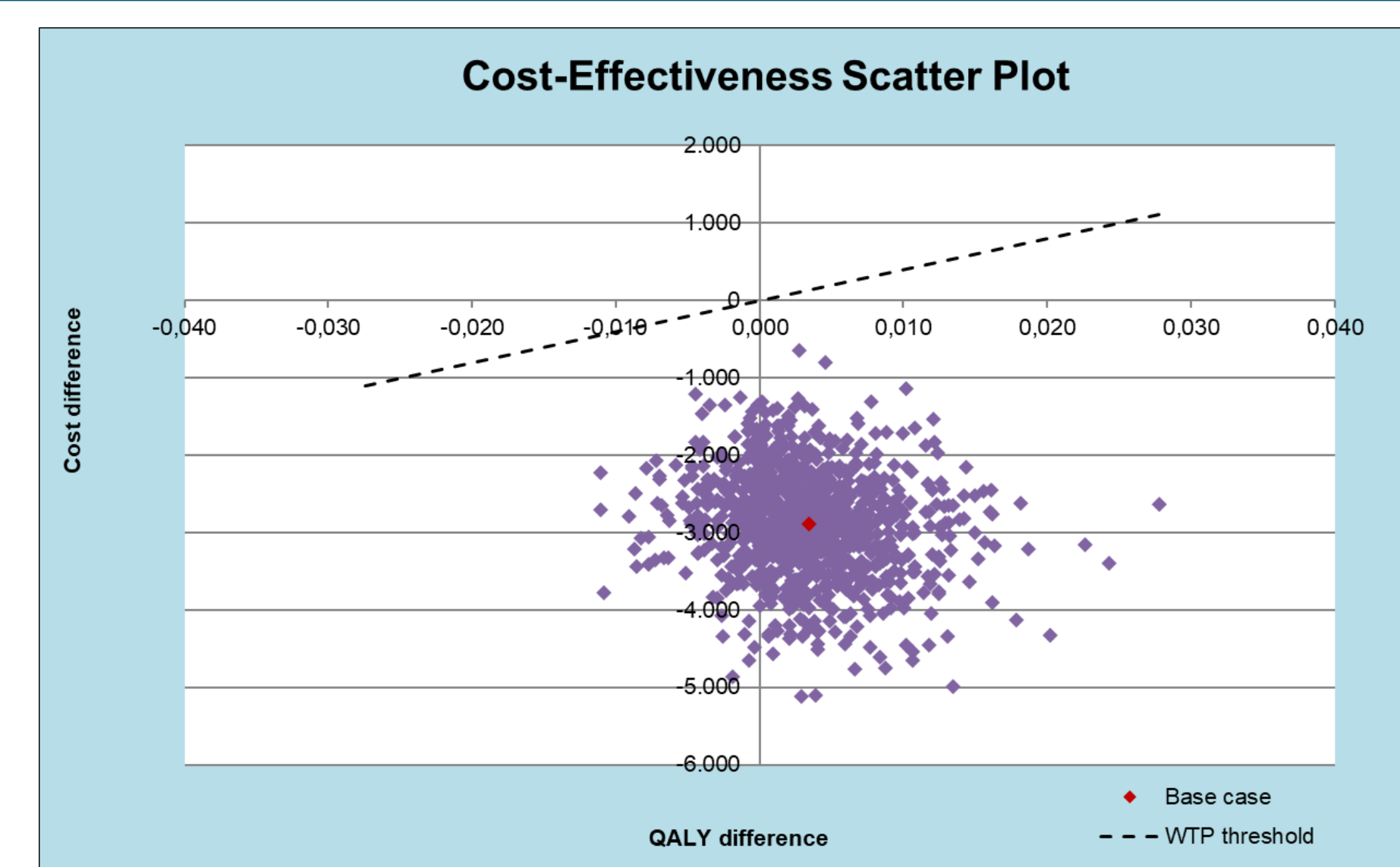


Figure 2: Probabilistic sensitivity analysis of Base Case

CONCLUSION

This study demonstrates that, in comparison to fosaprepitant with palonosetron and ondondasetron IV, NEPA is a dominant strategy for preventing CINV and generates an ICER/QALD of R\$ 491,26 and ICER/QALY* of R\$179.434,19 when compared to ondansetron oral, the PSH does not have an explicit threshold for cost effectiveness. It's important to say that the use of ondansetron monotherapy, although part of Brazilian clinical practices, it is not recommended in the NCCN guideline for HEC.

*QALY: Quality-adjusted life years

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