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Evaluating Value-Based Frameworks Used for Relapsed and Refractory Multiple Myeloma Regimens: ASCO value framework, ICER Report and NCCN Evidence Blocks

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Background

• Approximately 11.5% of the US total drug costs are derived from oncology treatments, amounting nearly $38 billion in 2015. Experts suggest annual costs for oncology care will continue to rise between 7.5 to 10.5% each year through 2020, accounting for over $140 billion in the U.S. alone.1
• With the continuing rise in costs for oncology drugs, the Institute for Clinical and Economic Review (ICER), the American Society of Clinical Oncology (ASCO) and the National Comprehensive Cancer Network (NCCN) have developed value-based frameworks (VBFS) to assist stakeholders in formulary and treatment decision-making.2
• Despite the proliferation of recent literature assessing, validity, reliability, and practicality of VBFS, few studies have critically evaluated all models for oncology regimens and their potential impact on real world decision-making.3

Objective

• To compare ASCO, ICER and NCCN VBFS across three therapeutic options for relapsed or refractory multiple myeloma (RRMM)

Methods

Overview of the study

• A literature reviewed was performed and three VBFS were utilized to assess the value of oncology drugs in the US: the American Society of Clinical Oncology (ASCO) VBF, the National Comprehensive Cancer Network (NCCN) Evidence Blocks and the Institute for Clinical and Economic Review (ICER)
• The four authors used each VBF to determine the RRMM treatment of greatest value by performing a test case analysis for each VBF

The test case: multiple myeloma drugs

Four inclusion criteria for the selection of oncology drugs
1. Recently approved by the FDA
2. Available results of a phase III clinical trial
3. Same standard of care as the comparator in clinical trials
4. Availability of reports for NCCN and ICER, and the availability of data to plug in the ASCO framework

• Based on those inclusion criteria, Carfilzomib (CFZ), Elotuzumab (ELO), Ixazomib (IX) in combination with Lenalidomide + dexamethasone (LEN +DEX) were chosen

Oncology value frameworks and usability in the test case

The authors used the updated 2016 ASCO VBF to generate the value of CFZ, ELO and IX
• Net health benefit (NHB): clinical benefit, toxicity and bonus points were calculated using phase III clinical trial of each regimen
• Cost: wholesale acquisition cost (WAC) obtained from Medi-Span Price Rx and Redbook pricing references. Cost of each regimen was calculated using a standard weight-based dosing of 70kg, height of 170 cm

Published 2016 Multiple Myeloma NCCN evidence blocks report
• 5 blocks: efficacy, safety, quality, consistency, and affordability
• Score ranging from 1 to 5: 1 as the least favorable and 5 as the most favorable

Published ICER 2016 report of treatment options for RRMM
• Comparative clinical effectiveness results
• Cost-effectiveness analysis results (cost/QALYS) for second and third line regimens
• Budget Impact analysis results (cost) for second and third line regimens

Results

ASCO VBF

Figure 2a. Net health benefit of each RRMM regimen

Figure 2b. Cost associated with each RRMM regimen

ICER Report

Comparative clinical effectiveness: all regimens received an equal rating of B+

Table 1. Cost effectiveness analysis results (costs per QALYS)

Drug | Second line | Discount from list price
--- | --- | ---
CFZ + LEN + DEX | $199,982 | 32% 64%
ELO + LEN + DEX | $427,607 | 75% 89%
IX + LEN + DEX | $433,794 | 80% 94%

Drug | Third line | Discount from list price
--- | --- | ---
CFZ + LEN + DEX | $238,560 | 48% 77%
ELO + LEN + DEX | $481,244 | 80% 93%
IX + LEN + DEX | $484,582 | 85% 97%

Figure 3. Budget Impact Analysis Results (Average costs/year, millions)

Overall results

• ASCO, ICER and NCCN VBFS suggest CFZ, in combination with LEN + DEX may be the most valued treatment out of the three regimens

Discussion

• Previous research demonstrated that while these VBF capture important value to diverse audience, they lack consistency and are presented with analytic challenges related to their use. Furthermore, the use of ASCO VBF in clinical decision making requires further specification.3

Limitations

• While there is a number of therapies available to treat RRMM, this study was able to capture and analyze only three FDA approved treatment
• There were some discrepancies between authors about the results of the ASCO VBFS

Conclusion

• Challenges and limitations associated with these VBFS should be further evaluated before implementation in practice

Even though all VBFS suggested CFZ as the best option, the usability of VBF in formulary decision-making process remains unclear

References