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Cost-Effectiveness Analysis of Daratumumab Triplet Therapy vs Carfilzomib Duplet Therapy in Patients with Relapsed or Refractory Multiple Myeloma in Egypt from Payer Perspective

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Background

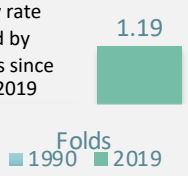
Our model was conducted from payer perspective to assess the cost-effectiveness of daratumumab triplet therapy (DVd) to carfilzomib doublet regimen (Kd) for patients with Relapsed or Refractory Multiple Myeloma (RRMM) who received at least one prior therapy over time horizon of 20 years.

Epidemiology

2020
GLOBOCAN estimated the worldwide MM new cases and deaths at 176,404 and 117,077, respectively [1].

2020
WHO announced 736 new cases and 649 deaths of MM in Egypt with 5 years prevalence reaching 1658 cases[2].

Mortality rate
Mortality rate increased by 1.19 folds since 1990 till 2019

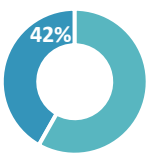


5-year survival rate [4]

Economic burden [5]

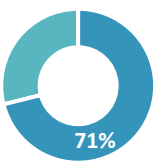
≥1 disease-related hsopitalization

Over 6-months



≥1 specialist visit

Over 3-months



Methodology:

A partitioned survival model including three health states: pre-progression, post-progression, and death was constructed to capture the outcomes, consequences, and costs of the use of daratumumab triplet therapy among RRMM patients who received at least one prior therapy. The cycle length was one week to capture any differences in costs. The clinical evidence for DVd regimen and Kd regimen was extracted from updated CASTOR and ENDEAVOR clinical trials, respectively. All adverse events of both arms that impact patient life was captured from its published clinical trials. The direct medical costs were captured from the health insurance hospitals. The utilities were extracted from published studies. Deterministic and probabilistic sensitivity analyses were conducted.

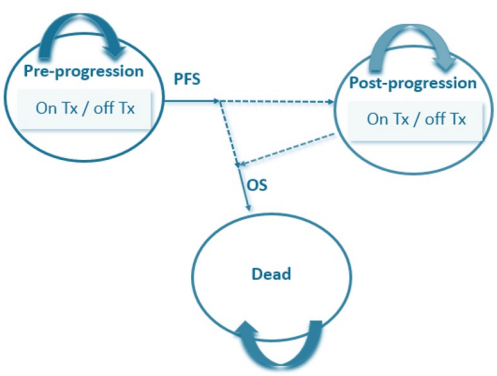


Figure 1: The model structure

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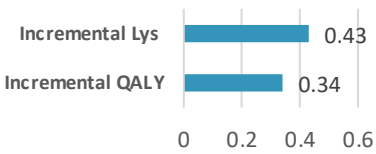
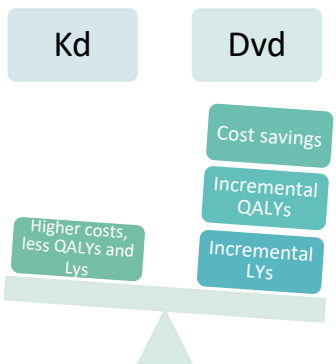
Results

Dvd compared to Kd



Cost savings
EGP 1,504,728
The difference in cost between DVd compared to Kd was EGP -1,504,728



Thus, DVd is a dominant treatment option over Kd.

Discussion

Compared to other regimens, daratumumab triplet therapies generated the highest LY and QALY in a cost-effectiveness study of different regimens for RRMM [6].

DVd regimen has been recommended for usage by NICE among RRMM patients, who failed on one previous treatment, as it elongates survival [7].

Compared to non monoclonal antibody (mAb)-based regimens, mAb-based triplet regimens led to improvement of PFS, overall response rate (ORR) and at least very good partial response (VGPR), which made them more effective and favorable [8].

Conclusion

Over time horizon of 20 years from payer perspective in Egypt, reimbursement of DVd regimen is considered to be a cost-saving option compared to Kd regimen as it generates cost savings with improvement of QALYs and LYs.

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