Optimizing efficiency in relapsed or refractory multiple myeloma treatment in Greek NHS hospitals: estimating the impact of using subcutaneous versus intravenous daratumumab

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INTRODUCTION

- When more than one formulation of the same treatment for life-threatening, chronic conditions is available, for instance intravenous (IV) versus subcutaneous (SC), the choice of mode of administration has a critical impact on patient quality of life, defined primarily by patient and carer time, and on health system efficiency and treatment outcomes.
- Daratumumab is an anti-cancer monoclonal antibody indicated for patients with relapsed or refractory multiple myeloma (MM). It is available in a SC and an IV formulation for use in the day hospital setting.
- The phase III COLUMBA trial demonstrated noninferiority of daratumumab SC, when compared to daratumumab IV, in terms of efficacy and pharmacokinetics[1,2,3,4] and an improved safety profile [5] . In addition, daratumumab SC had significantly shorter administration time than its IV formulation (3-5 minutes versus 3-7 hours, respectively), lower rates of infusion-related reactions (12.7% versus 34.5%) and lower volume of infusion (median 15 ml versus 500-1000 ml) [1, 6,7,8].
- We wanted to evaluate the impact of using daratumumab SC versus IV in terms of patient time and hospital efficiencies in the Greek National Health System (NHS).

METHODS

- We developed a resource optimization tool to calculate impact on hospital capacity and time for each patient, when using the SC versus the IV formulation of daratumumab. The tool calculates the time freed for each patient and the number of additional infusions that may potentially be performed in the hospital, assuming all time, thus freed, is allocated to treating more oncology patients.
- We performed sequential calculations followed by sensitivity analysis on a range of hospital capacity for oncology infusions (50 - 250/day) and daratumumab IV patient numbers (10 - 160) to reflect the reality in Greece.
- This poster details results from the highest and the lowest capacity scenarios, namely: hospital with a capacity of 50 oncology-related infusions/week and 10 daratumumab patients (Scenario 1) and hospital with a capacity of 250 oncology-related infusions/week and 160 daratumumab patient (Scenario 2)

INPUTS

Time spent per medical action (hours/year)

	SC		IV	
	Injection Time	Non-Injection Chair Time	Injection Time	Non-Injection Chair Time
NDMM ineligible for ASCT: DRd	1.73	1.46	82.11	7.02
NDMM ineligible for ASCT: DVMP	1.66	1.4	78.7	6.72
NDMM eligible for ASCT: DVTd*	1.21	1.04	58.2	4.91
MM from 2nd line: DRd	1.73	1.46	82.11	7.02
MM from 2nd line: DVd	1.58	1.34	75.28	6.42
MM from 3rd line: daratumumab monotherapy	1.73	1.46	82.11	7.02

*:Includes induction and consolidation only

DRd (daratumumab/lenalidomide/dexamethasone)
DVMP (daratumumab/bortezomib/melphalan/prednisolone)
DVTd (daratumumab/bortezomib/thalidomide/dexamethasone)
DVd (daratumumab/bortezomib/dexamethasone)

MULTIPLE MYELOMA

RESULTS

Gains in patient time

- Using daratumumab SC vs IV formulation would free up to 86 hours per patient per year, thus substantially reducing treatment burden for patients and carers/families. Table 1 depicts gains in patient time per patient sub-population.

Gains in hospital capacity

- The use of daratumumab SC formulation is expected to result in measurable increases in hospital capacity to treat general oncology patients.
  - In Scenario 1, the increase in hospital capacity is estimated at 20-28 oncology-related infusions/week.
  - In Scenario 2, the increase in hospital capacity is estimated at 1,358-1,918 oncology-related infusions/week.

Gains in potential revenue

- The use of daratumumab SC vs IV could contribute to a potential additional revenue of 1,280-1,920€ per week for hospitals in Scenario 1 and 104,160-148,960€ per week for hospitals in Scenario 2. These savings were calculated on the basis on a stipulated €80.00 reimbursement rate per day care infusion[9], keeping all other model parameters, such as availability of infusion chairs, healthcare resources, consumables etc. constant.

TABLE 1: Gains in hours per patient per year

Time savings per patient per year	
	SC vs IV
NDMM ineligible for ASCT: DRd	85.94
NDMM ineligible for ASCT: DVMP	82.36
NDMM eligible for ASCT: DVTd*	60.86
MM from 2nd line: DRd	85.94
MM from 2nd line: DVd	78.78
MM from 3rd line: daratumumab monotherapy	85.94

FIGURE 1: additional oncology-related infusions/week – scenario 1

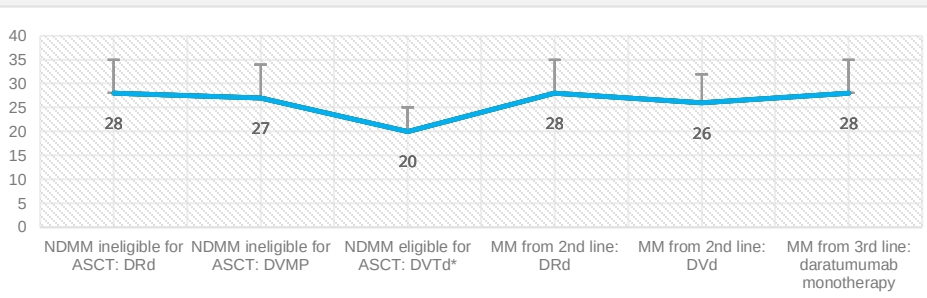


FIGURE 2: additional revenue – scenario 1

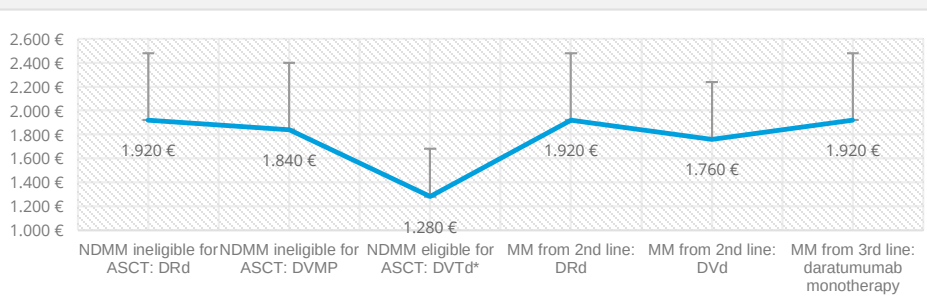


FIGURE 3: additional oncology-related infusions/week – scenario 2

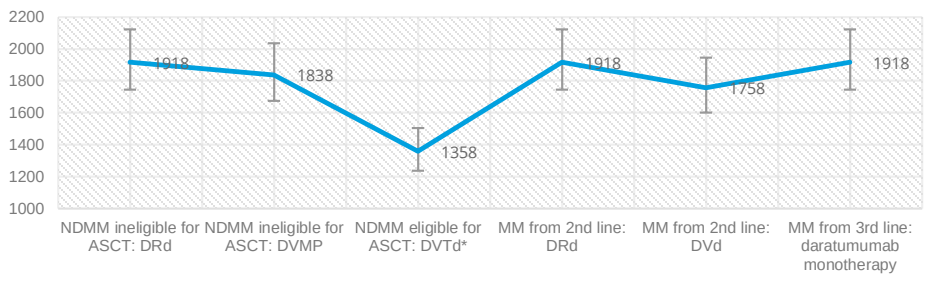
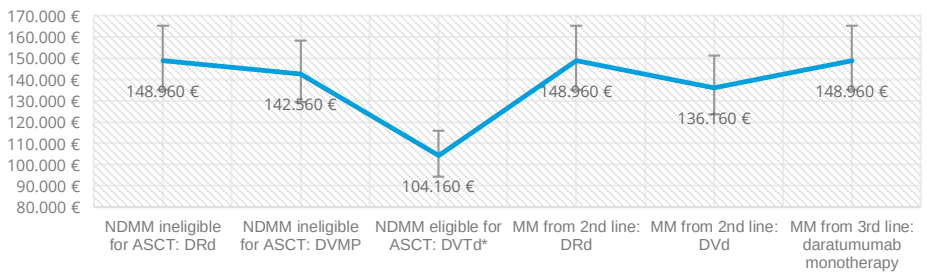


FIGURE 4: additional revenue - scenario 2



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KEY TAKEAWAY

The use of daratumumab SC vs IV in eligible patients with relapsed or refractory MM in the Greek NHS can free up scarce resources, increase capacity to treat and, reduce patient and carer time, thus improving overall efficiency and patient experience with the health system.

CONCLUSIONS

In the scenarios presented, use of daratumumab SC resulted in 60.86 – 85.94 hours per year per IV patient saved

In the same scenarios, the use of daratumumab SC resulted in an 13%-178% increase in the hospital's capacity to treat additional general oncology patients

If an €80.00 reimbursement rate per day care infusion is applied, chair time savings in our scenarios may translate into an additional revenue of up to €148,960 per week for the hospital, assuming all other model parameters are constant.

DISCLOSURES

This study was implemented by the Health Policy institute and was funded by Janssen Hellas. TC, IK, TK are employees of Janssen

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