Cost effectiveness of intravenous VS oral cytomegalovirus treatment in recipients of allogeneic hematopoietic cell transplant from Tunisian hospital perspective

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INTRODUCTION

Cytomegalovirus (CMV) reactivation is a significant complication in allograft stem cell transplant (ASCT) patients and is potentially associated with end-organ disease, leading to increased morbidity and mortality.

OBJECTIVE

Our objective was to compare the cost and efficacy of intravenous versus oral CMV treatment in recipients of ASCT.

METHOD

We analyzed all consecutive CMV reactivations after ASCT, which were treated at the Bone Marrow Transplant Center in Tunisia from January 2018 to June 2022. Data collection and medicine prices are presented in table 1and figure 1.

- Costs of oral and intravenous treatment: • Collected from pharmacy purchase prices in 2024
- Clinical outcomes: medicine, dosage, duration: • Collected from patient clinical report

Figure 1: data collection

Table 1: medicine prices (USD) in 2024

Medicine	Unit	Price ($)
Foscarnet	vial	320
Ganciclovir	vial	50
Valganciclovir	tablet	4
Valganciclovir	vial	466
Leflunomide	tablet	3

Incremental cost-effectiveness ratios (ICERs) in terms of cost per quality-adjusted life year (QALY) gained was used.
One-way and probabilistic sensitivity analyses were conducted to explore uncertainty.

RESULTS

Fifty-five patients developing 71 CMV reactivations were evaluated.

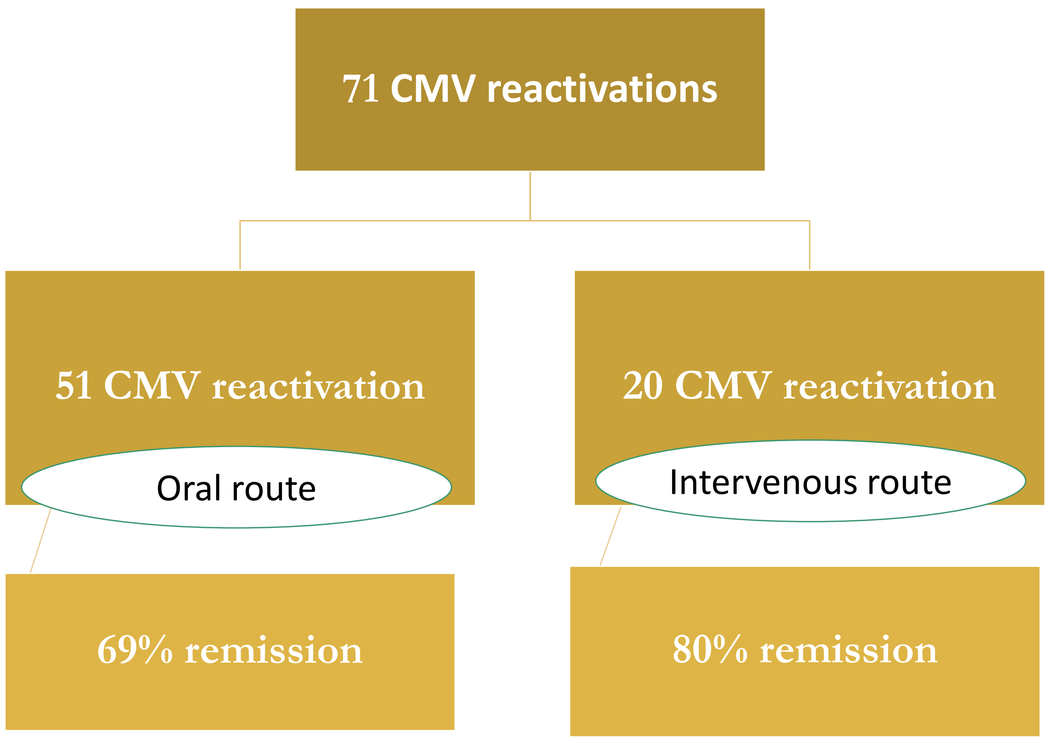

Figure 2: Number of CMV reactivation and remission by treatment route

Nearly 18% of patients received intravenous treatment after failure of oral therapy. (table 2)
20% of patients received intravenous treatment on second line after failure of intravenous first line therapy

Table 2: Mean cost oral VS intravenus treatment in USD ($)

	Episodes N (%)	Mean Cost ($)
Oral treatment	51 (100%)	
Oral-Remission	35 (69%)	338
Oral-Oral-Remission	9 (16%)	259
Oral-IV-Remission	7 (15%)	7 665
IV treatment	20 (100%)	
IV-Remission	16 (80%)	6 355
IV-IV- Remission	4 (20%)	12 000

The use of intravenous treatment would lead to an increase of QALYs (0.8) and direct medical cost ($6 355) compared with oral treatment (0.69 QALYs; $338) in CMV-seropositive recipients of an allo-HCT.

$$\text{ICER} = \frac{6\,355 - 338}{0{,}8 - 0{,}69} = \$54\,700/\text{QALY}$$

CONCLUSIONS

In the current context of budget constraint and limited resources, intravenous route use for CMV treatment was no cost-effective option versus oral route with ICER $54 700/QALY gained from the hospital perspective.

REFERENCES

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CONTACT INFORMATION

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