COST-EFFECTIVENESS MODEL TO EVALUATE 200-DAY VS 100-DAY TREATMENT WITH VALGANCICLOVIR PROPHYLAXIS TO REDUCE CYTOMEGALOVIRUS DISEASE IN HIGH-RISK (D+/R-) KIDNEY TRANSPLANT RECIPIENT IN SPAIN

Fernández-Rivera C[1], Torre-Cisneros J[2], Guirado-Perich L[3], Oyagüez I[4], Ruiz-Beato E[5],

1 Servicio de Nefrología, Complexo Hospitalario Universitario, A Coruña; 2 Unidad de Enfermedades Infecciosas, Hospital Universitario Reina Sofía, Córdoba; 3 Unidad de Trasplante Renal. Fundación Puigvert. Barcelona; 4 Pharmacoeconomics & Outcomes Research Iberia S.L.,Madrid; 5 Roche Farma, S.A. Madrid

BACKGROUND & OBJECTIVE

IMPACT trial[1] showed that prolonged prophylaxis of 200 days with valganciclovir (VGC 200) compared with 100 days (VGC 100) significantly decreased the incidence of cytomegalovirus (CMV) disease.

The aim of this study is to develop a cost-utility analysis to evaluate prolonged prophylaxis with 200 days valganciclovir versus 100 days valganciclovir in high-risk kidney transplant recipients D+/R- .

METHODS

A Markov model was designed to simulate the cytomegalovirus disease progression in a cohort of 10,000 patients over 10 years[2]. **Figure 1**

The model was performed from the National Healthcare System (NHS) perspective.

The transitions among states were made in discrete time periods which had a duration of one month for the first year and a year from the second year until the end of the simulation.

Data of the disease evolution were obtained from the IMPACT trial for year 1 and scientific evidence for years 2-10.[3,4,5]

Utility values were obtained from literature[6,7]

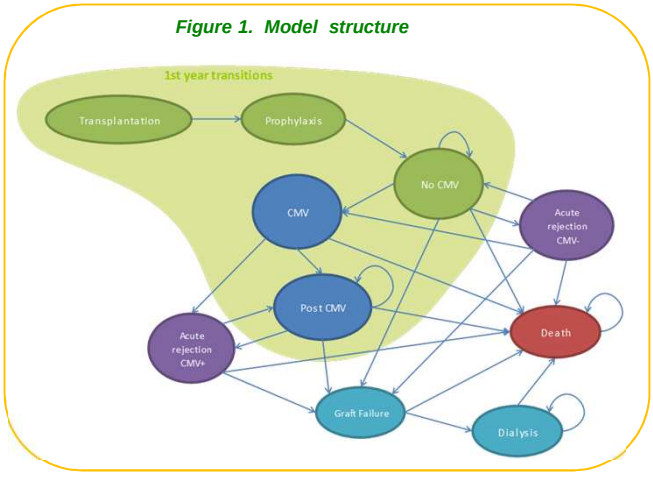
Direct costs:

- Use of resources: expert panel consensus meetings
  - Resources related visits (emergency and outpatient)
  - Diagnostic and analytical procedures
  - Hospital stay
  - Surgical Interventions
  - Pharmacotherapy

Unitary costs (€2010): were obtained from the Spanish Drug Catalogue[8] and e-Salud database[9].

The annual discount rate was 3% for costs and outcomes.

Figure 1. Model structure



Results were shown as incremental cost of VGC 200 days versus VGC 100 days per quality-adjusted life year (QALY) gained.

A one and multi-way sensitivity analysis was performed.

RESULTS

At year 10, treatment with VGC 200 days reduced the number of patients in dialysis vs. VGC 100 days (6.5% versus 7.6%).

At year 10, the number of patients who died is lower in the group of those treated with VGC 200 days (43.3% VGC 100 and 37.4% VGC 200).

Treatment with VGC 200 provided better results than VGC 100 (50,020.30 versus 47,639.90 QALY; 0.24 QALY gained per patient). The average overall cost in the studied cohort of 10,000 patients was €1,121,327,350 with VGC 200 and €1,131,187,041 with VGC 100. Savings per patient treated with VGC 200 were €985.97 **Table 1**

Table 1. Base Case analysis (€2010)

	Valganciclovir 200 days	Valganciclovir 100 days	Diference Valganciclovir 200 -100 days	ICER Valganciclovir 200 days vs 100 days
Cost 10,000 patients (€)	1,121,327,350	1,131,187,041	-9,859,692	-4,142
QALY 10,000 patients	50,020.33	47,639.86	2,380.47	

The results of sensitivity analysis find that in all cases tested, VGC 200 days is a dominant strategy with lower cost and higher number of QALYs vs. VCG 100 days . **Table 2**

Table 2. Sensitivity analysis (€2010)

Results Sensitivity Analysis	ICER VGC 200 days *versus* 100 days
Increase 10% costs health states	-4,556
Decrease del 10% health states	-3,728
Increase del 10% utilities value	-3,765
Decrease del 10% utilities value	-4,602
Increase del 10% transition probabilities	-3,123
Decrease del 10% transition probabilities	-5,173
Change discounting rate to del 0%	-3,629

CONCLUSION

Treatment with VGC 200 days compared to VGC 100 days in high risk kidney transplant recipients is an efficient strategy from the perspective of the Spanish NHS.

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