Cost-effectiveness of rilpivirine- or efavirenz-based regimens for treatment-naive, HIV-1-infected patients: NHS England perspective

Introduction

- Rilpivirine (RPV, DORVIRYN), a non-NRTI, is approved for use in combination with other antiretrovirals (ARVs) in a 25 mg qd RLV-based treatment-naive, treatment-naive adult.
- In the UK, the cost of RPV is approved for patients with a baseline viral load of ≤100,000 copies/mL.
- To date, there is no randomized, controlled trial comparing the efficacy of RPV versus efavirenz (EFV).
- The aim of the present analyses was to assess the cost-effectiveness of RPV 25 mg qd + BR in England, where RPV is used as first-line regimen for highly active antiretroviral therapy (HAART) in treated patients – 0.5 mg + BR is used as the active comparator in these analyses, as clinical guidelines recommend this regimen for HAART-treated naive adults.

Methods

Model overview

- These analyses were based on a Markov model, with a 4-month cycle length typical of other published models.†

- In this Markov model, RPV- and EFV-based patients transition between six possible CD4 cell count health states and result in the absorbing health state of death (Figure 1). The CD4 cell count transitions are based on clinical relevance (risk of disease progression) and reflect differences in treatment of patients at different CD4 cell count ranges.

- The model assumes that adverse events either resolved without intervention or were treated successfully within the first 3-month cycle. Only disutilities due to adverse events occurring in the first line of treatment were considered.

-Declining CD4 cell counts were only considered for fourth-line regimens.

- The model assumed that the rate of adverse events occurring in a published data of high-treatment-experienced patients with virologic failure,24 it occurs until death, and that the transition probabilities were independent of the treatment pathway, therapy, and prior virologic response.

- Other input parameters

- HIV-related mortality rates and utility values for the model were obtained from published data.7,7 7

Model efficacy inputs

- The model also defined three levels of virologic response for every treatment based on HIV viral load; suppressed with <1 log10 copies/mL, and who start treatment with RPV (25 mg qd + BR) or EFV (600 mg qd + BR) total cost of RPV was £18,161, compared with £15,774 in the EFV group. With such an analysis, the model projects the efficacy findings of randomised trials over a longer time period.

- The cost-effectiveness analysis includes all cost categories associated with the use of RPV or EFV, and includes clinical efficacy data from published trials.6,10

- Probabilistic sensitivity analyses were also conducted on the base case with 1,000 individual simulations.

- Conclusions

- This economic evaluation shows that RPV 25 mg qd + BR costs £2,009 less than EFV 600 mg qd + BR costs £2,009 with RPV proposed as a preferred first-line treatment regimen.

- One-way and probabilistic sensitivity analyses demonstrated that RPV 25 mg qd + BR is cost-effective compared with EFV 600 mg qd + BR and proposed as a preferred first-line treatment regimen.

- Differences between these treatments are very small compared to the clinical and cost-effectiveness analyses should be interpreted with caution.

- One of the strengths of this model is that it is strongly supported by independent academic experts, and the total costs of RPV and EFV in patients with virologic failure were not taken into account.

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References