Executive Summary

Research Project: A cost-utility and budget impact analysis of darunavir-based regimens for treatment-experienced patients with multidrug-resistant HIV-1 infection in Thailand.

1. Background

HIV drug resistance (HIVDR) has significantly increased in Thailand. In patients who experience treatment failure on the first- and second-line antiretroviral therapies (ART), the following treatment regimen is to use at least two new active antiretroviral agents (ARVs). However, new ARVs have not yet been included in the country's National List of Essential Medicines (NLEM). Since these drugs are high in costs, an economic evaluation and budget impact analysis are needed to support the decision to introduce them into the NLEM.

2. Objective

This study aims to: 1) assess the cost-utility analysis of a regimen comprising Raltegravir (RAL) and Darunavir (DRV) for the treatment of patients resistant to the first- and second-line ARTs; 2) assess the cost-utility analysis of a regimen comprising Etravirine (ETR) and DRV for the treatment of patients resistant to the first- and second-line ARTs; 3) assess the cost-utility analysis of a regimen comprising Maraviroc (MVC) and DRV for the treatment of CCR5-tropic patients resistant to the first- and second-line ARTs; and 4) conduct a five-year budget impact analysis of treatment regimens utilizing RAL, ETR and MVC in combination with DRV for the treatment of patients with HIV drug resistance.

3. Method

A Markov model, which monitored a cohort of patients at least 17 years of age with first- and second-line ART resistance in Thailand, was developed to evaluate the cost-utility of alternative treatment regimens from a Thai societal perspective with a lifetime horizon as follows: 1) the current practice of DRV/r + Tenofovir (TDF) + Lamivudine (3TC); 2) DRV/r + ETR + TDF + 3TC; 3) DRV/r + RAL + TDF + 3TC; 4). DRV/r + RAL + ETR; and 5) DRV/r + RAL + MVC. The model incorporated cost data adjusted for 2015 using the consumer price index, and effectiveness data from a review of published studies. Outcomes were measured in life years, quality-adjusted life-years (QALY), and incremental cost-effectiveness ratios (ICER), and future costs and outcomes were discounted at 3% per annum. Finally, a probabilistic sensitivity analysis (PSA) was conducted to deal with uncertainties around the parameters.

4. Results

All alternative treatment regimens for HIV patients resistant to first- and second-line ARTs in Thailand were found to be not cost-effective at the willingness-to-pay (WTP) of 160,000 baht/QALY. However, the third regimen of DRV/r + RAL + TDF + 3TC had the lowest lifetime cost at 5.7 million baht while increasing QALY by approximately 10 QALYs.

5. Policy recommendations

1. The price of Raltegravir is relatively high and should be negotiated. If the price can be reduced to 69.75 baht/tablet or 50,921 baht/year (a reduction of 59.6%), the third regimen of DRV/r + RAL + TDF + 3TC will become cost-effective at the WTP of 160,000 baht/QALY. With this regimen, patients' life-years will increase by approximately 4 years. Finally, the budget impact for providing this regimen amounted to approximately 451 million baht over a period of 5 years.

2. If the price of Raltegravir can be negotiated to the WTP of 160,000 baht/QALY, it should be included in the NLEM because the ARVs currently available in Thailand are insufficient for patients who are multidrug-resistant.

For more information: http://www.hitap.net/documents/169263