Rilpivirine versus efavirenz for initial therapy in treatment-naive, HIV-1 infected patients – a Cochrane systematic review

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Background: The introduction of highly active antiretroviral therapy (HAART) in 1996 has converted HIV infection from an almost universally fatal illness to a chronic manageable disease. However, the mortality and morbidity due to HIV infection in developing countries still remains high. This can be attributed to the high cost of antiretrovirals (ARVs) and low compliance due to the side effects of the medications. Hence the need to use a treatment combination that is cost effective and has few side effects.

Objectives: Our objective is to evaluate the effectiveness of rilpivirine compared to efavirenz when given in combination with two other nucleoside reverse transcriptase inhibitors as part of first-line treatment for HIV infection in adults and children.

Search methods: We formulated a comprehensive and exhaustive strategy in an attempt to identify all relevant studies, regardless of language or publication status, in electronic databases and conference proceedings from 1985 to date February 2014.

Selection criteria: Randomised controlled trials comparing effects of rilpivirine to efavirenz in HIV-infected individuals without prior exposure to antiretroviral medications, irrespective of the dosage or NRTI backbone. The primary outcome of interest was all cause mortality. Secondary outcomes were treatment failure, immunologic response (CD4 count), adverse events, development of drug resistance, opportunistic infection and adherence.

Data collection and analysis: Data concerning outcomes, details of the interventions, and other study characteristics were extracted by two independent authors using a standardized data extraction form. Relative risk with a 95% confidence interval (CI) was used as the measure of effect.

Main results: Four randomised controlled trials were included in this review and provided data for meta-analysis. The four trials enrolled a total of 2,522 participants. There was no statistically significant difference in mortality and mean change in CD4 count between the rilpivirine and efavirenz group (RR 0.33; 95% CI 0.07 to 1.64; 2167 participants) and (Mean difference 11.18; 95% CI -0.80 to 23.16; 2271 participants) respectively, virological suppression was similar between the rilpivirine and efavirenz arm (RR 1.03; 95% CI 0.99 to 1.07; 2336 participants). The participants in the rilpivirine arm had higher adherence and lower incidence of grade 2 t0 4 adverse events (RR 0.99; 95% CI 0.90 to 0.97; 1039 participants) and (RR 0.94; 95% CI 0.90 to 0.97; 2154 participants) respectively. The treatment failure and development of resistance was higher with the use of rilpivirine (RR 1.70; 95% CI 1.25 to 2.32; 2336 participants) and (RR 2.07; 95% CI 1.48 to 2.89; 2336 participants) respectively.

Authors' conclusions: Findings from this review suggest that rilpivirine and efavirenz have similar effects on mortality, viral load suppression and CD4 cell count. Rilpivirine has a better tolerability and safety, but a higher virological failure rate and higher rate of development of resistance. More studies are needed to evaluate the safety and efficacy of rilpivirine in other population groups, including pregnant women, children and individuals with HIV and tuberculosis co-infection