Antiviral efficacy and safety of abacavir-containing combination antiretroviral therapy as first-line treatment of HIV infected children and adolescents: a systematic review and meta-analysis.

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Background: Abacavir is one of the recommended nucleoside reverse transcriptase inhibitors (NRTIs) for the treatment of HIV infections in paediatric patients. However, there are concerns regarding the antiviral efficacy and safety of abacavir among children and adolescents.

Methods: We searched four electronic databases, four conference proceedings and two clinical trial registries in August 2014, without language restrictions. We included randomised controlled trials (RCTs) and cohort studies of treatment naïve HIV-infected children and adolescents aged between one month and eighteen years. Two authors independently screened search results, extracted data and assessed the risk of bias of included studies using a pre-specified, standardised data extraction form and validated risk of bias tools. We also assessed the quality of evidence per outcome with GRADE (Grading of Recommendation, Assessment, Development and Evaluation).

Results: We included two RCTs and two cohort studies with a total of 10595 participants. Among the RCTs we detected no difference in virologic suppression after a mean duration of 48 weeks between abacavir-containing and stavudine regimens (2 trials; n=326: RR1.28; 95%CI 0.67 to 2.42) with significant heterogeneity (P=0.02; I^2=81%). We found no significant differences between the two groups for adverse events and death. After five years of follow up, virologic suppression improved with abacavir. For cohort studies, we detected that the virologic suppression activity of abacavir was less effective than stavudine in both the lopinavir/ritonavir (1 study, n=2165: RR0.79, 95%CI 0.67 to 0.92) and efavirenz sub-groups (1 study, n=3204: RR0.79, 95%CI 0.67 to 0.92) respectively. Using the GRADE approach, quality of evidence was low for virologic suppression, virologic failure, adverse events requiring to interruption or switching, hypersensitive reaction and death.

Conclusions: Available evidence showed that there is little or no difference between abacavir-containing regimen and other NRTIs regarding efficacy and safety when given to children and adolescents as a first-line antiretroviral therapy.

This review protocol has been registered in the PROSPERO International Prospective Register of systematic reviews, registration number CRD42014009157.