Assessing the efficacy and safety of lopinavir/ritonavir-based second-line regimens in HIV-infected patients: a meta-analysis as a key evidence to support WHO recommendations

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Background

- LPV/r is a key second-line antiretroviral drug in resource-limited settings.
- International guidelines recommend LPV/r plus 2NRTIs be used as a preferred second-line regimen and LPV/r plus RAL as a simplified alternative second-line regimen.
- The evidence for the efficacy and safety of LPV/r-based regimens in the second-line therapy is still not very strong.

Aims

- We conducted this meta-analysis on the efficacy and safety of second-line ART regimens containing LPV/r for patients who have failed the first-line therapy.
- To get a general idea of the efficacy and safety of LPV/r-based regimens as the second-line therapy.
- To make a comparison between LPV/r plus 2 NRTIs and LPV/r plus RAL.

Research strategies

- Electronic Databases: Cochrane Library, Pubmed, and Embase
- Key Words: HIV, ritonavir-boosted lopinavir
- Search period: Inception to January, 2018
- Targeted studies：randomized controlled trials and observational cohort studies

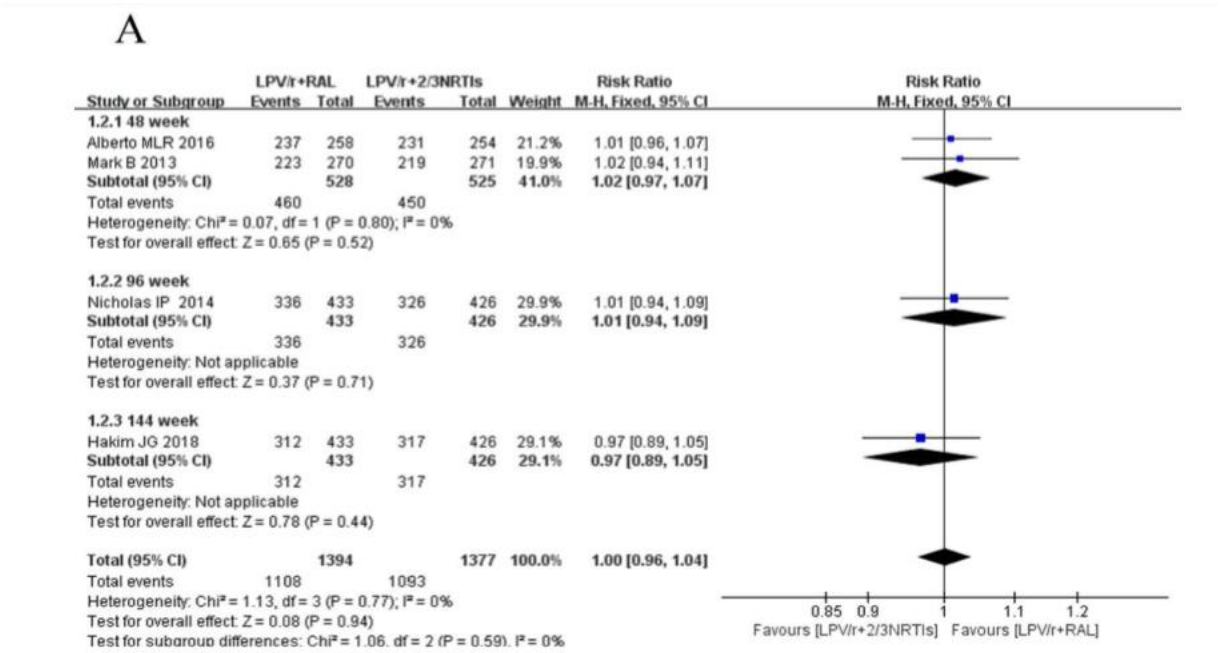
Inclusion articles and patients

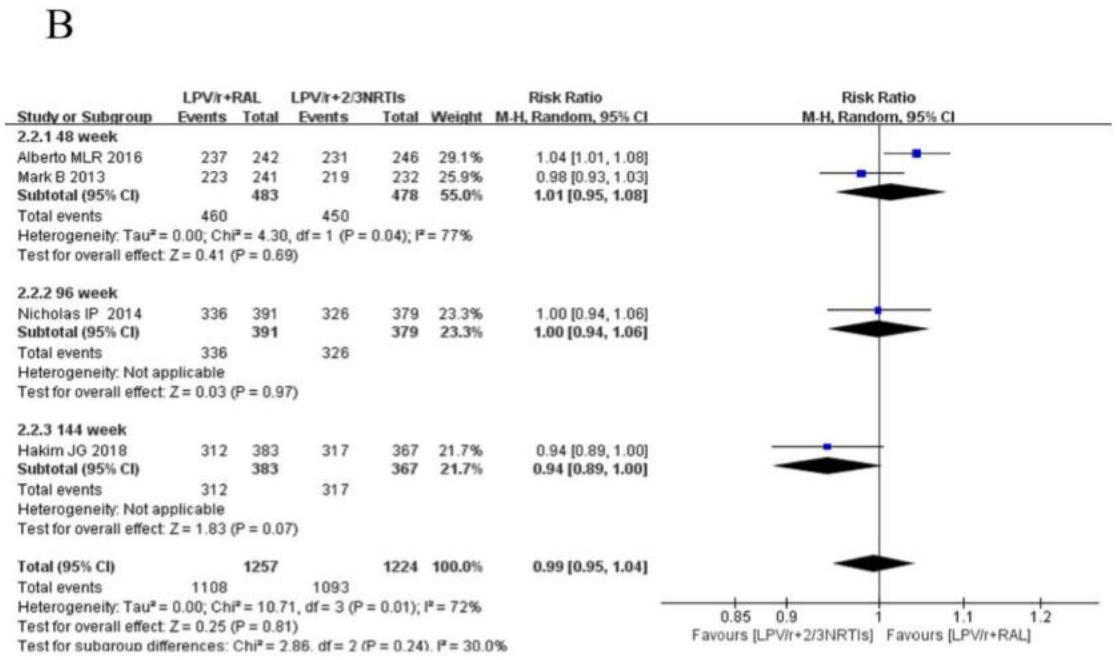
- 9 articles involving 3773 patients who have failed first-line ART regimens and switched to LPV/r -based second-line ART regimens were included in the present meta-analysis.

Virologic suppression rates at week 48

	ITT		PP	
	Range	Rate (95%CI)	Range	Rate (95%CI)
LPV/r-based regimens	61.9-91.9%	77% (70%-84%)	68.2-97.9%	87% (81%-93%)
LPV/r + RAL	82.6-92.0%	87% (78%-96%)	92.5-97.9%	95% (90%-100%)
LPV/r + 2NRTIs	61.9-90.9%	74% (66%-83%)	68.2-94.4%	81% (72%-91%)

Forest plot of virologic suppression rates

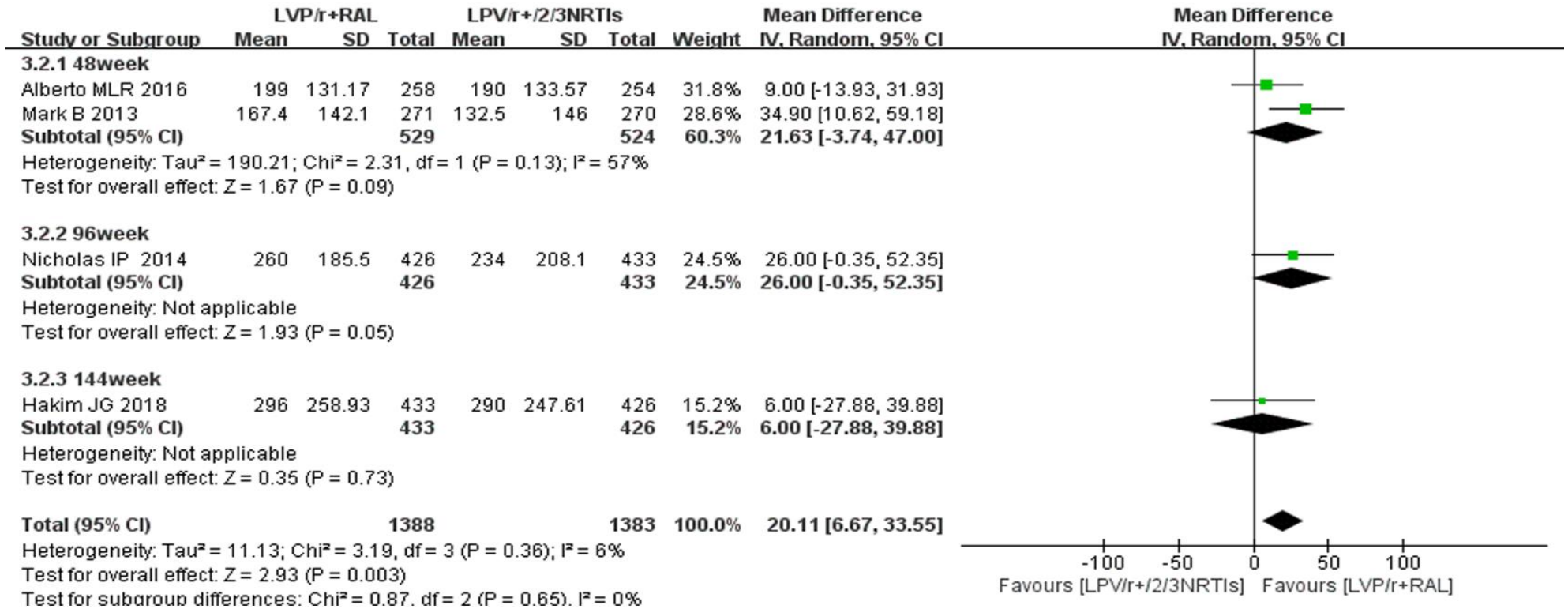




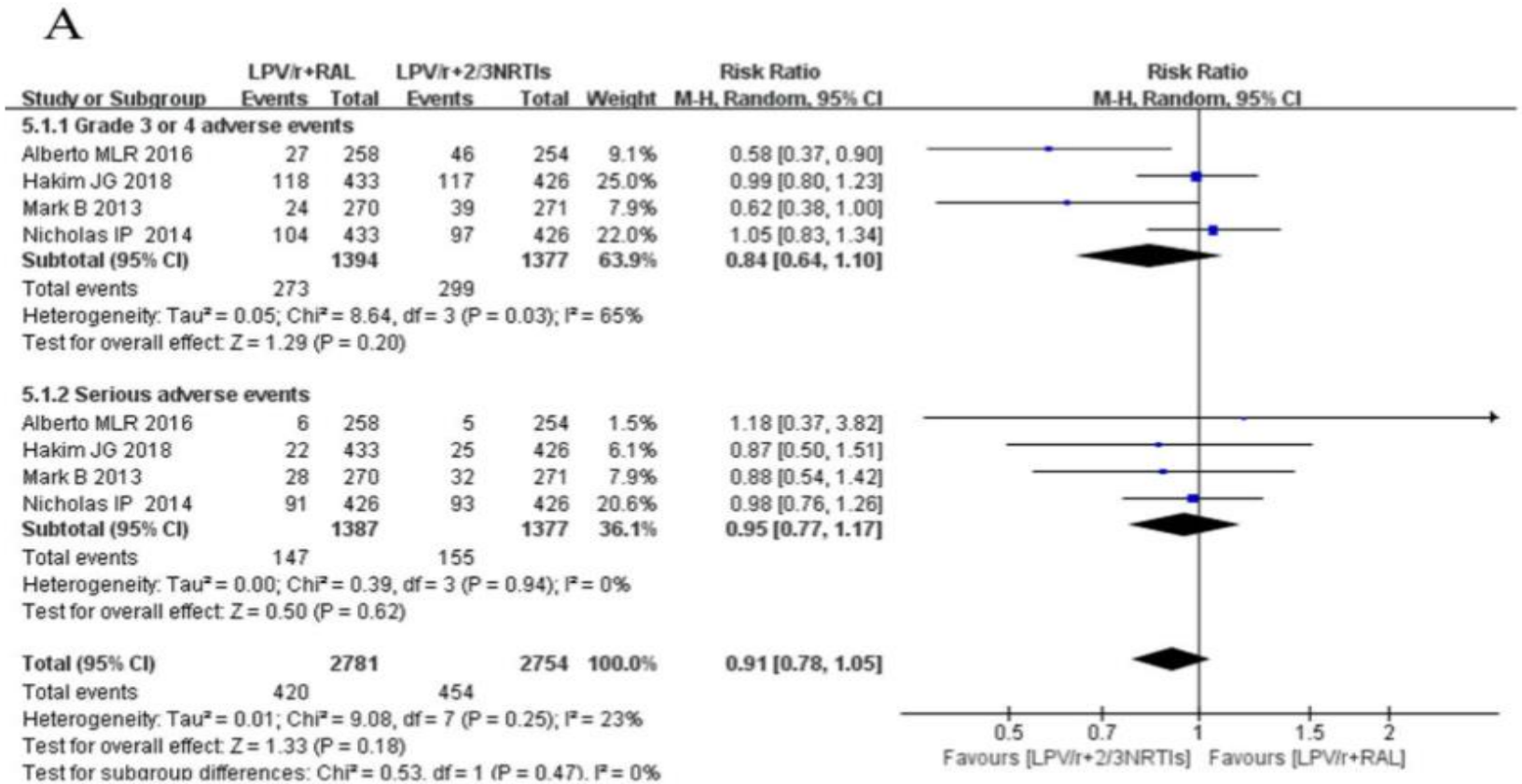
ITT

PP

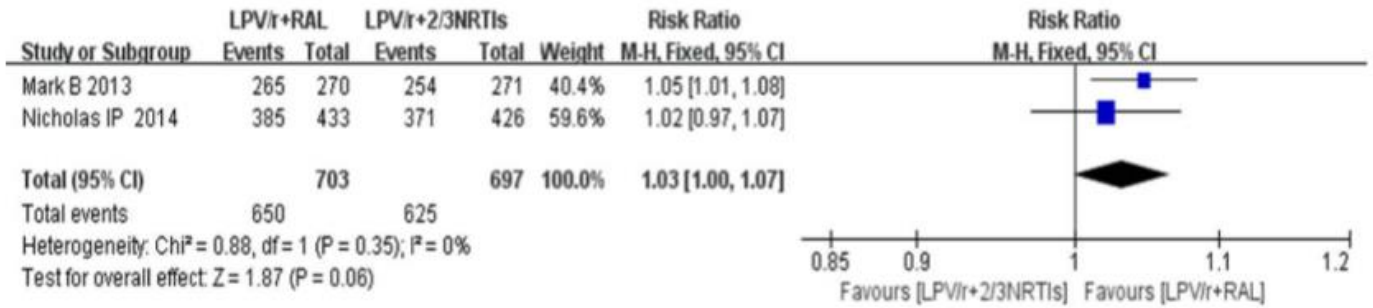
Forest plot of CD4 cell counts



Forest plot of adverse effects



Forest plot of treatment adherence



Conclusions

- LPV/r-based regimens had good efficacy as the second-line therapy.
- LPV/r plus RAL was not inferior to LPV/r plus 2NRTIs in viral suppression, immune reconstitution, adverse events, and treatment adherence.
- Our results support WHO recommendations of using LPV/r-based regimens as the second-line therapy.