DSEN ABSTRACT

Safety and effectiveness of antiretroviral therapies for HIV-infected women and their infants and children: systematic review and network meta-analysis

Summary

We screened 5494 citations and 1077 full-text papers to include 157 studies. In a network meta-analysis of 10 randomized trials, we found a reduced risk of congenital abnormalities amongst children born to HIV-infected women administered lopinavir + ritonavir. In another network meta-analysis of 18 observational studies, we found a reduced risk of congenital abnormalities amongst children born to women taking zidovudine + lamivudine + nevirapine. We also found that zidovudine reduced risk versus zidovudine + lamivudine.

Implications

Our results should be interpreted with caution, as these are very preliminary results. Next steps include conducting a network meta-analysis that combines the data from the included randomized trials and observational studies, as well as analyzing the remaining outcomes of interest. We were unable to identify relevant studies on darunavir and are currently looking into this.

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What is the current situation?

- Evidence suggests that antiretroviral therapy (ART) may reduce mother-to-child transmission (MTCT) of HIV.
- However, the use of these agents has been associated with an increase in harm, including preterm birth, anemia, and low birth weight.

What was the aim of the study?

- We aimed to conduct a systematic review and network meta-analysis (NMA) of ART for HIV-infected women and their infants and children.

How was the study conducted?

- The study population included HIV-infected women who were receiving ART during pregnancy or breastfeeding, and their infants.
- We included the following outcomes: MTCT, malformations, pre-mature birth, fetal loss, miscarriage, stillbirth, and small for gestational age. Here, we present preliminary results for the malformations outcome only.
- Rigorous methods were used to search, screen, abstract and assess quality.
- The protocol (or plan) for the review was registered and published.

What did the study find?

- After screening 5494 titles and abstracts and 1077 potentially relevant full-text articles, 157 studies were included.
- 18 randomized trials and 27 observational studies reported data on congenital abnormalities; some studies were excluded from analysis because all arms reported zero malformations or the same drug was examined (at different dosages).
- Network meta-analysis (NMA) was conducted with 10 randomized trials and 6996 children of HIV-infected women. Combination lopinavir + ritonavir statistically significantly decreased the risk of congenital malformations overall compared to placebo, any ART (unspecified), and combination didanosine + stavudine.
- No statistically significant results were observed in another NMA including 4 randomized trials and 3114 children for major congenital malformations.
- NMA was conducted including 18 observational studies and 30809 children for congenital abnormalities overall. Combination zidovudine + lamivudine + nevirapine statistically significantly decreased the risk of congenital malformations compared to no treatment, combined zidovudine + lamivudine, and any ART (unspecified). However, combination zidovudine + lamivudine statistically significantly increased the risk of congenital malformations compared with zidovudine alone.
- An NMA including 5 observational studies and 1391 children for major congenital malformations reported no statistically significant results.

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Link to publications: Tricco et al, 2014; Veroniki et al, 2018