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Neurodevelopmental Disorders in French HIV-/ARV-Exposed Uninfected Children: A National Cohort Study

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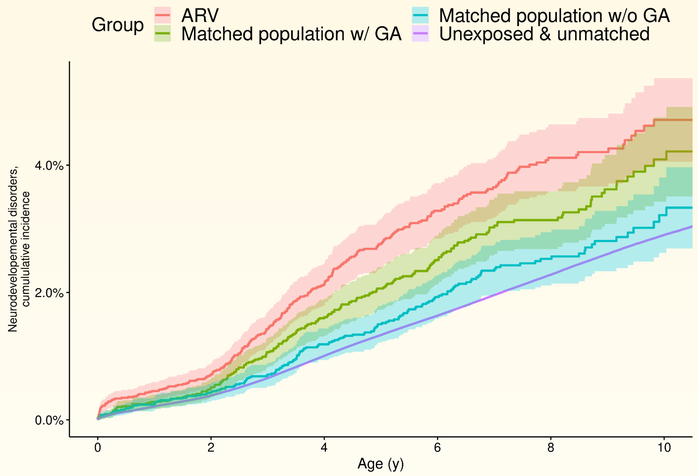
BACKGROUND

The health of **children prenatally exposed but uninfected by HIV** requires long-term assessment, in particular in terms of **neurological and cognitive development**. Numerous **confounding factors** have hampered such assessment, and **published data are contradictory**.

METHODS

- **Live born singletons, 2012-2022**, from the French National Health Data System
- Population-based cohort study, **children prenatally exposed to antiretrovirals (ARVs) and HIV**, *vs*. unexposed children. **Matching** based on **gestational age** and **5 sociodemographic criteria** (maternal age, estimated income, city of residence and affiliation status to complementary healthcare for low-income households; date of birth)
- **Outcomes**: **diagnosis of neurodevelopmental disorders** (NDs); **specialized consultations** likely to indirectly reflect NDs
- Risk of NDs assessed using the **Cox survival model**.

(1) Incidence of neurodevelopmental disorders among children exposed to HIV and ARVs *vs.* unexposed children

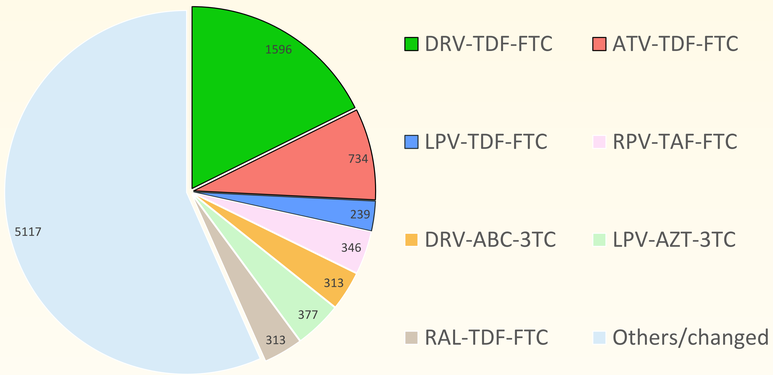


Uninfected children prenatally exposed to HIV/ARVs face a higher risk of developing neurodevelopmental disorders even after accounting for gestational age and several sociodemographic factors

RESULTS

- **6,667,363 live born singletons,** among which **9,035 born to mothers with HIV**, all **prenatally exposed to ARVs**, followed for **up to 11 years** (mean 5.5 years).
- **Incidence of NDs in exposed children was higher than in the general population** even after matching for sociodemographic criteria and gestational age (**HR 1.24** [95% CI 1.04-1.47]) (Fig. 1).
- Among tenofovir-emtricitabine-based protease inhibitors (PI) regimens (Fig. 2), **higher combined incidence of NDs and specialized consultations** was observed for ritonavir-boosted **darunavir** (DRV/r) combined with TDF-FTC (Fig. 3).

(2) Unmodified ARV regimens dispensed during pregnancy



CONCLUSION

- **Higher risk** of **neurodevelopmental disorders for children prenatally exposed to HIV and ARVs** than the general population at equal gestational age and measured sociodemographic criteria.
- Prenatal exposure to **DRV/r-TDF-FTC** led to a **higher incidence of NDs and related specialized consultations** compared to other PIs with TDF-FTC.
- Results strengthened by **large number of children** and **long follow-up period** compared to literature.
- Effect of **HIV and ARVs** could not be discerned; **discrepancies** exist in ARV prescription trends within the study period. Residual **confounding** might persist.
- Vigilance is needed in **early detection and management of NDs** in children born to mothers living with HIV.

ADDITIONAL KEY INFORMATION

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(3) Incidence of NDs and specialized consultations among children prenatally exposed to each boosted PI (DRV/r, ATV/r, LPV/r) in combination with TDF/FTC

