

# 20-year review of neurological outcomes in HIV-exposed uninfected children in a pediatric HIV referral center

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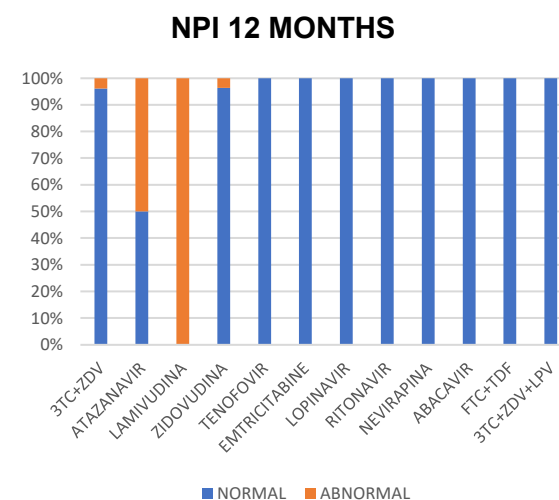
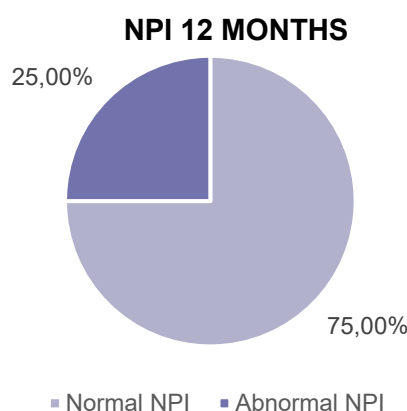
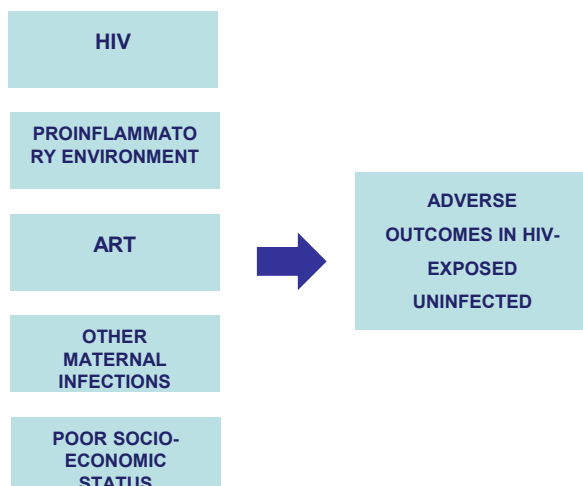
## Introduction/Summary

- The target population of this study are HIV-exposed uninfected children (HEU). These children have many unique and potentially dangerous exposures that by a series of mechanisms may lead to adverse outcomes.
- Children born to HIV-infected mothers have unique and potentially dangerous exposures during pregnancy. HEU children vary in terms of exposure to both HIV and ART.
- We therefore performed a retrospective study to describe neurological outcomes of children who were exposed to HIV during pregnancy.
- We here decided to focus more on middle-long term outcomes, growth and neurodevelopment

## Results

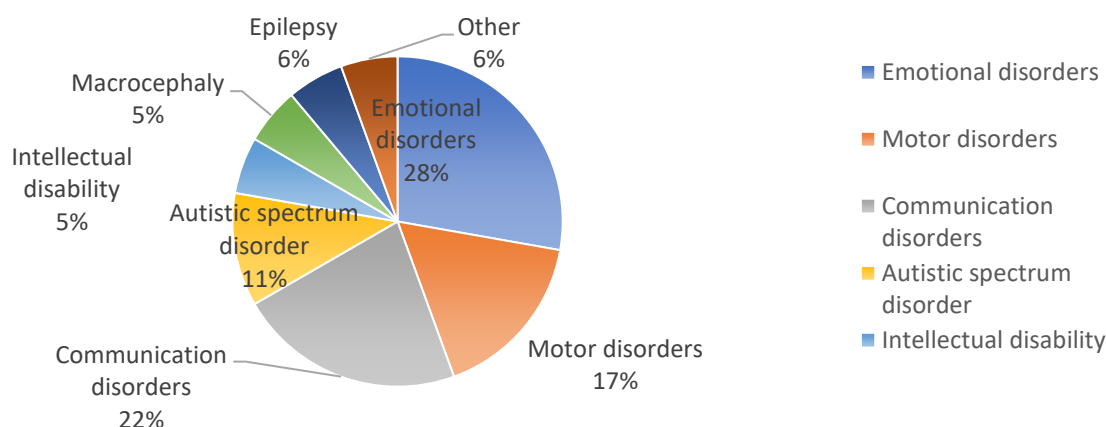
- The study population includes 568 HIV-exposed uninfected children born between November 2000 and September 2022 and followed up at the Pediatric Infectious Diseases unit of Luigi Sacco Hospital (Milan, Italy).
- At birth, neuropsychiatric abnormalities were present in 12% of assessed children, and they appeared to be gradually increasing across time reaching the frequency of 25% at 12 months.
- Most of these newborns had normal neuropsychiatric assessments in the following months, indeed. We tried to study the effect of four antiretroviral drugs, dolutegravir, efavirenz, atazanavir, and didanosine, which are known to have more impact on neurodevelopment.

- Exposure to atazanavir occurred in 77 subjects, and an increased proportion of neurodevelopmental abnormalities (50% vs 18,9 % without atazanavir) was found at assessments after 12 months.
- The number of children exposed to atazanavir during pregnancy who underwent neurodevelopmental assessments after 12 months of age was little (only 8 children), but, importantly, neurodevelopmental abnormalities in this group were all related to language impairment.



## Methods

- This was an observational retrospective study. All children born from HIV+ mothers between 2000 and 2022, followed up in sacco were included. Data from past medical records was collected, this included anamnesic data, data from laboratory and instrumental testing and clinical assessments. These were a pediatric infectiology visit and child neuropsychiatric assessments.
- Child neuropsychiatry assessments (NPI) were routinely performed to all children at birth, 3, and 12 months, with some additional visits at 1, 6, and 18 months.
- Brain ultrasound was performed in all newborns at birth to rule out central nervous system abnormalities.



## Conclusion

- This work comprehensively describes outcomes and complications in a group of HEU children born between the years 2000 and 2022.
- Given these initial results, more focus should be put on HEU children; large prospective studies monitoring over time specific neurodevelopmental disorders using clinical neuropsychiatric assessments and general neurologic development and cognitive functioning using more precise scoring systems should be put in place.

## References

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