

Assessment of HBV Vaccine-induced Immunity in HIV-positive Orphans

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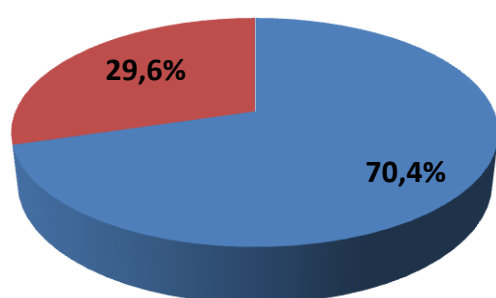
Background: According to current pediatric vaccination calendar in Russia, HBV vaccination should be completed at the age of 6 months with further revaccinations every 5 years. However, data on HBV vaccination in HIV positive children is quite limited.

Methods: This study included all orphans living at orphanage No.25 of Yekaterinburg - 27 HIV positive orphans (all on ART with average CD4 1230 cell/microliter(825-1423) at the age of 4 years old), and 22 healthy controls (orphans born by HIV-positive mothers). All of them received triple anti-HBV vaccination during first 6 months of life. The concentration of anti-HBs antibodies were measured in all participants within 1 month of their fourth birthday to determine sufficiency of anti-HBV immunity. Concentrations lower than 10mIU/ml has been considered as insufficient.

Results: 8 HIV-positive children (29.6%) and only 1 healthy child (4.5%) had insufficient concentrations of anti-HBs antibodies ($p < 0,05$). The mean antibody titer was found significantly lower ($p < 0,05$) in HIV-positive children than in healthy controls.

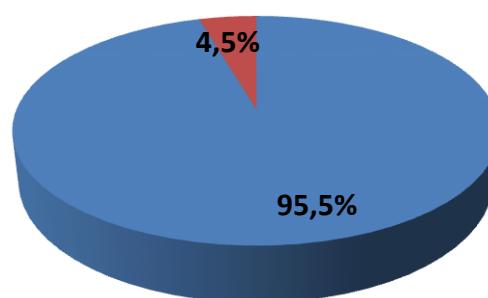
HIV positive children

- Sufficient anti-HBs concentrations
- Insufficient anti-HBs concentrations



Healthy children

- Sufficient anti-HBs concentrations
- Insufficient anti-HBs concentrations



Conclusions: Our study has shown significant difference in sufficiency of HBV vaccine-induced immunity between HIV-positive and HIV-negative children. The study suggests that HIV positive children may require more frequent HBV vaccinations, and yearly evaluation of anti-HBs concentration in HIV-positive children should be introduced into clinical practice.

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