"Effectiveness of the South African Program of Immunization against Hepatitis B in Children Infected with Human Immunodeficiency Virus-1 living in a resource-limited setting of Kwazulu-Natal."

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Abstract

This survey showed low rates of HBV chronic infection in HIV-infected and uninfected children living in a RLS of KZN province. The vertical and horizontal transmissions before 5 years of age decreased in both cohorts since the introduction of the HBV vaccine. Due to their weaker immune system, HIV-infected children had lower anti-HBs rates than the HIV-uninfected patients. Without establishing regular monitoring of their immunity and adaptation of the vaccine schedule, prevalence of HBV could stay high in SA despite optimal vaccination coverage in HIV-infected patients. 1.World Health Organization, 2014. HIV/AIDS (Accessed January 2016). http://www.who.int/hiv/en/ 2.Phung BC, Sogni P, Launay O. 2014 Hepatitis B and human immunodeficiency virus co-infection. World J Gastroenterol. 14;20(46):17360-7. 3.Healy SA, Gupta S, Melvin AJ. 2013. HIV/HBV coinfection in children and antiviral therapy. Expert Rev Anti Infect Ther. 11(3):251-63. 4.Amponsah-Dacosta E, Lebelo RL, Rakgole JN, Burnett...

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Effectiveness of the South African Program of Immunization against Hepatitis B in Children Infected with Human Immunodeficiency Virus-1 living in a resource-limited setting of Kwazulu-Natal.

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Background

Among the estimated 35 million(1) people affected by the Human Immunodeficiency Virus (HIV) worldwide, approximately 2-4 million are chronic carriers of Hepatitis B Virus (HBV)(2). HIV/HBV coinfection worsens the natural progress of HBV infection because it decreases the chance to clear acute HBV infection, induces faster progression to cirrhosis and a higher risk of hepatocarcinoma(3). Since 2000, only two studies(4-5) described the prevalence of chronic HBV (1,2-1,7%) in HIV-infected children living in South Africa (SA) (Gauteng and North West provinces).

Objectives

This survey aims firstly to describe the prevalence of Human-Immunodeficiency-Virus / Hepatitis-B-virus (HIV/HBV) co-infection in children living in a resource limited setting of the Kwazulu-Natal (KZN) province. Secondly, to compare the HBV vaccination response in HIV infected and uninfected children from this same region.

Methods

One hundred eighty-six HIV-infected children; 84 females (45.1%), with a median age of 9.1 years (range 6,5 to 14,8 years) were included in this study. Patients were distributed in 2 subgroups: the 5-10 years (103 children) and the 11-15 years (80 children). One hundred seventeen HIV-uninfected children; 44 females (37.6%), with a median age of 9.0 years (range 5.8 to 15.0 years) were enrolled. Same distribution was done as in the other cohort: the 5-10 years (74 patients) and the 11-15 years (34 children) subgroups.

Results

Non-significantly higher rates of HBV infection were found in the HIV-infected (2,1%) compared to the HIV-uninfected cohort (0%) (p=0.3). Prevalence of HBV infection did not increase with age in both cohorts (p=0.8). Serological response to immunization was shown in 15.8% and 61.1% of HIV-infected and uninfected children respectively (p<0,001).

	HIV infected			HIV-uninfected		
	5-10 years	11-15 years	Total	5-10 years	11-15 years	Total
Ongoing infection (isolated HBsAg)	0/103 (0%)	1/80 (1.3%)	1/183 (0.5%)	0/74 (0%)	0/34 (0%)	0/108 (0%)
Past or ongoing infection (HBsAg or anti-HBc with anti-HBs)	2/103 (1.9%)	2/80 (2.5%)	4/183 (2.1%)	0/74 (0%)	0/34 (0%)	0/108 (0%)

	HIV infected			HIV-uninfected		
	5-10 years	11-15 years	Total	5-10 years	11-15 years	Total
Vaccinated against HBV	21/103 (20.4%)	8/80 (10%)	29/183 (15.8%)	49/74 (66.2%)	17/34 (50%)	66/108 (61.1%)

Conclusion

This survey showed low rates of HBV chronic infection in HIV-infected and uninfected children living in a RLS of KZN province. The vertical and horizontal transmissions before 5 years of age decreased in both cohorts since the introduction of the HBV vaccine. Due to their weaker immune system, HIV-infected children had lower anti-HBs rates than the HIV-uninfected patients. Without establishing regular monitoring of their immunity and adaptation of the vaccine schedule, prevalence of HBV could stay high in SA despite optimal vaccination coverage in HIV-infected patients.

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