Prevalence of HIV seropositivity in children with chronic diarrhea

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Abstract

The present study was conducted in children and adolescents aged 0 – 15 years with chronic diarrhea attending Pediatric OPD, Gastroenterology Clinic or admitted in Pediatric or Diarrhea ward. Children, who were later diagnosed as celiac disease or disaccharidase deficiency, were excluded from the study. After informed consent from parents/attendants, 4 ml of venous blood was drawn from a peripheral vein using all aseptic precaution and collected in a sterile vial. All samples were subjected to initial screening by the ELISA based test for detection of HIV antibodies. The second test used was immunocomb II obtained from Organics (Israel). Analysis of report was done according to strategy II of National AIDS Control Organization recommendations. Of the 95 blood samples collected, one child came out to be HIV seropositive making the prevalence of 1.05%. We conclude that prevalence of HIV seropositivity is low in chronic diarrhea cases in this part of the country.

Introduction

Of the 40.30 (range 36.7-45.3) million people living with HIV around the world, 2.3 (range 2.1-2.8) million are children under 15 years of age [1]. Pediatric HIV is rampant in India due to the increasing prevalence of HIV infection in women and ineffective measures for prevention of perinatal transmission. Sexual route and infected needles account for most infections in the adolescent period [2]. Diarrhea occurs in almost 90% of patients with HIV, in developing countries, at sometime during the clinical course [3]. Studies conducted in Africa show high prevalence of HIV seropositiv-ity in chronic diarrhea patients [4]. Hence in the light of currently available information, the present hospital based prospective study was undertaken to determine HIV seropositivity in children with chronic diarrhea and to study the clinical profile of seropositive cases.

Subjects and Methods

The present study was conducted in Departments of Pedi-atrics and Microbiology of J. N. Medical College, Aligarh Muslim University, Aligarh, between May 2004 and September 2005. The study was reviewed and approved by the Institutional Ethical Committee. All children in the age group 0 – 15 years, attending Pediatric OPD, Gastro-enterology Clinic or admitted in Pediatric or Diarrhea ward, were included in the study protocol if they presented with chronic diarrhea (diarrhea lasting longer than 2 weeks). Children, who were later diagnosed as celiac disease or disaccharidase deficiency, were excluded from the study. Demographical data, historical details and examination findings with special reference to clinical signs associated with AIDS, were recorded on a predesigned proforma. The occupation of parents was ascertained in detail to know any high-risk behaviour in the parents. All subjects and their parents were enquired about past history of blood transfusion, hospitalization with intravenous injections, operative procedures or any other significant history related with the risk of HIV infection. All patients were subjected to routine

as well as relevant investigations. After informed consent from parents/attendants, 4 ml of venous blood was drawn from a peripheral vein using all aseptic precaution and collected in a sterile vial. The samples were transported to Department of Microbiology, where serum was separated and tested for HIV. All samples were subjected to initial screening by the ELISA based test for detection of HIV antibodies. The second test used was immunocomb II obtained from Organics (Israel). Analysis of report was done according to strategy II of National AIDS Control Organization recommendations [5]. If the first ELISA was negative, sample was considered to be negative. If it was positive, the same sample was subjected to second ELISA based on a different principle using a different kit. If this was also positive, samples were considered positive.

Results

A total of 95 blood samples were collected from children, who presented with history of chronic diarrhea. Majority were in the age groups 18-months-5-years (38.9%) and 0-18 months (37.9%) and only 5.3% in the more than 10 years. Seventeen of the total cases were persistent diarrhea cases. Weight loss was present in almost all the cases. Thirty nine percent of cases were not having any symptoms other than chronic diarrhea. Risk behavior (forHIV seropositivity) in the form of sexual promiscuity as well as IV drug abuse was present in fathers of 2 patients. History of blood transfusions was present in fathers of 2 patients. Giardiasis and helminthiasis was seen in 15.8% and 7.4% respectively (Table I).

Out of 95 children, one child came out to be HIV sero-positive making the prevalence of 1.05%. The child who was found to be HIV seropositive on screening was 12 years old, male child, admitted with history of prolonged fever, weight loss, recurrent pneumonia and watery non bloody diarrhea for 5 months. His father had history of sexual promiscuity. Both parents were diagnosed cases of pulmonary tuberculosis and they were on irregular treatment. His weight z score was –3.90 and height z score was -2.37. Physical examination revealed oral thrush, xerophthalmia, glossitis, moderate pallor and bilateral crepitations in the chest. Other specific clinical signs of HIV infection were absent. Investigations revealed hemoglobin to be 7.5 g% and total leucocyte count to be 7000/mm3 with 70% neutrophils. His renal function tests were normal. Chest X-ray showed right middle and lower lobe consolidation. Blood culture, urine culture and stool culture were sterile. His parents were also screened and both turned out to be HIV seropositive. The patient left against medical advice and did not come back for follow up.

Table I: Demographic and clinical profile of the cases

Age	Groups n (%)
0-18m	36 (37.8)
19m-5yrs	37 (38.9)
6-10yrs	17 (17.8)
>10yrs	5 (5.2)
Male n (%)	70 (73.6)
Weight z score μ (SD)	-2.94 (1.45)
Height z score μ (SD)	-2.93 (1.99)
Weight loss n (%)	94 (99.7)
Fever > 1 mo n (%)	2 (2.1)
Oral Candidiasis	11(11.6)
Recurrent LRTI n (%)	nil

Weight loss + Fever > 1 mo n (%)	9 (9.4)
Moderate to Severe anemia	67(70.5)
Risk behavior in fathers n (%)	2 (2.1)

LRTI = Lower respiratory tract infections

Discussion

Diarrhea is a common manifestation in all groups of AIDS patients. The diarrhea and wasting syndrome are AIDS defining symptoms by WHO [6] and Centers for Disease Control and Prevention (7). Selective screening based on clinical suspicion can maximize the benefit from limited resources. In a cohort of 95 children with chronic diarrhea, the prevalence of HIV seropositivity was 1.05% in the present study. Of the 95 children with chronic diarrhea, 17 had persistent diarrhea in the present study, whereas the highest HIV prevalence (84%) was reported by Colebunders et al in Zaire in a study done in persistent diarrhea cases [4]. Various workers from African subcontinent report seropositivity of HIV infection in diarrhea ranging between 26 – 39% [8,9,10]. The authors did not mention percentage of persistent diarrhea in their sample. HIV seropositivity was seen in 24%, 18.2% and 48.8% of chronic diarrhea in studies from Mumbai [11,12,13]. Chronic diarrhea was not a significant independent risk factor for predicting HIV infection (12). The positive predictive value of HIV infection increases with the presence of other risk factors along with chronic diarrhea [14]. In our study, 11.6% of cases had oral candidiasis and one of them turned out to be HIV seropositive. In the present series, 38.9% of the cases had only chronic diarrhea exHIV seropositivity in children with chronic diarrhea 43 plaining the low prevalence of HIV in this group. Of the 9 cases with the triad of weight loss, prolonged fever and chronic diarrhea one was seropositive, hence we can say that one (11.5%) of the 9 cases with this triad of symptomatology was seropositive. Keeping in view the small subgroup, we need further studies with larger sample size to establish the above correlation. We conclude that prevalence ofHIV seropositivity is low in chronic diarrhea cases in this part of the country.

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