Pathogens in Fecal Samples from Apparently Healthy Children

Pages with reference to book, From 307 To 308

Rakhshanda Baqai, Sarwar J. Zuberi, Mushtaq A. Khan (PMRC Research Centre, Jinnah Postgraduate Medical Centre and National Institute of Child Health, Karachi.)

Abstract

Out of 160 fecal samples from apparently healthy children, 22(13.7%) contained pathogens. Pathogens included parasites (7.5%), pathogenic bacteria (5%), Rotavirus (2%) and Enteropathogenic Esch. coli (5%). None of the Esch. coli strains were positive for heat labile toxin. Among the parasite Giardia lamblia was mainly isolated (JPMA 35 307, 1985).

Introduction

Pathogenic organisms are not only present in fecal samples of children with diarrhoeal diseases but are also present in healthy children[1-3] A study was therefore conducted to determine the frequency of pathogens in apparently healthy children of our population.

Material and Methods

One hundred and sixty children between 0-3 years were selected after clinical examination. None of them had diarrhoea for the last 10 days, and were not taking any antibiotic or antidiarrhoeal drugs. Fecal samples were collected in sterile containers and analysed for parasites, bacteria and Rotavirus. Direct microscopic examination in saline and iodine was done for parasites.
Bacteriological study was done by inoculating the specimen on Mac Conkey's agar, 5.5. agar, Thiosulfate citrate Bile salt agar, Yersina medium. Bacteria isolated were identified by colony characteristics, gram staining, and biochemical reactions were tested on API Kit. For Enteropathogenic E. coli serotyping was done using polyvalent and monovalent seras. Assay for E. coli Enterotoxin. Heat labile toxin (LT) was detected by the modified Elek. test.
Preparation of Biken Agar Yeast extract (Difco 1%), Nacl, 0.25%, K2HPO4 1.5% Casamino acid (Difco) 2%, Trace salt solution (5% MgSo4, 0.5% Fed, $Cocd_2$ (6 H_20 Cobalt Chloride), 1.5% Noble Agar. PH 7.5. Mix all the ingredients and autoclave at 121°C for 15 minutes. Lincomycin 9Oug/ml was added to the medium. Cultures of Esch. coli isolated from fecal samples were inoculated on Biken agar plates and incubated for 40 hours at 37°C. What-man paper disc saturated in polymyxin B solution containing 20,000 iu/ml were placed on the growth formed on the plates. The plates were incubated for 5 hours at 37°C. After incubation 25u1 of LT antiserum was placed in the central well made about 5mm from the cultures of Esch. coli. The plates were again incubated at 37°C for 24-48 hours and then examined for precipitent line.

Results

Of the 160 children examined 114 (71.25%) were under one year of age and 46 (28.75%) over one year. There were 82 males and 78 females. Pathogens isolated from healthy subjects are shown in Table I.

Table I

Pathogens Isolated.

	Number	Percent
Pathogenic Bacteria	8	5.0
Parasites	12	7.5
Rotavirus	2	2.0

Bacteria and parasites were looked for, in 160 fecal samples while 96 specimens were analysed for Rotavirus. Bacteria isolated from feces are shown in table II.

Table II
Bacteria Isolated From Healthy Controls.

Bacteria	Number	Percent
Esch. coli	157	89.20
Proteus mirabilis	7	3.97
Citrobacter fruendi	3	1.70
Klebsiella	3	1.70
Proteus vulgaris	2	1.13
Alcaligenes fecalis	2	1.13
Serratia odiferous	1	0.56
Esch. fruendi	1	0.56
Yersinia	0	0

Esch. coli was mainly cultured followed by other bacteria.
Enteropathogenic Esch. coli was present in 5% of Esch. coli Strains. The serotypes isolated were 018a, 018c, K77, 020a, 020c, K61, 044, K74, 0 6, K61, oh9, K69, 020a, 020b K84, 0111 K58. None of the 160 strain of Esch. coli tested were positive for heat labile toxin. Parasites isolated are shown in Table III.

Table III

Parasites Isolated.

Parasites	Number	Percent
Giardia lamblia	8	66.6
Ascarias lumbricoides	2	16.6
Entamoeba histolytica	1	8.3
Trichomonas hominis	1	8.3

Out of the total parasite positive cases Giardia lamblia was present in 66.6% and Ascaris lumbricoides (16.6%) followed by Entamoeba histolytica and Trichomonas hominis. Frequency of parasites was more children above one year of age.

Discussion

Isolation of pathogens in healthy controls is not infrequent. Rotavirus, bacteria and parasites were isolated in healthy controls in the present study. Asymptomatic Rotavirus infection does occur and the association between Rotavirus and diarrhoea is not necessarily an aetiologic one. Diarrhoea, fever and vomiting syndrome appear as a clinical expression of Rotavirus disease. Rota-virus from feces is of little diagnostic significance as it does not give a differentiation between Rotavirus induced and Rotavirus associated diarrhoea. Rotavirus was found in 40 (24%) of 164 children without diarrhoea[1], while it was absent or present in negligible numbers in other cases. [4-7]
Enteropathogenic Esch. coli has been isolated from controls[5,8] but other reports provide no evidence of its pathogenicity[3], while the relationship of Enterotoxigenic Esch. coli as the aetiological agent of diarrhoea varies.[3,6] Pathogenic bacteria isolated from healthy controls are not of any significance as long as they are present in lesser number while the presence of Giardia lamblia in fecal samples indicates that healthy controls could be carriers.

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