



Acute rotavirus gastroenteritis among children

Ali Y. Saeed

M. Sc. Microbiology / Dept. of Microbiology
College of Medicine / University of Dohuk

ABSTRACT

Stool samples were collected from two hundred children in both sexes under two years of age admitted to the pediatric ward of Azadi Hospital suffering from acute gastroenteritis during winter months of 1999. These stool samples were investigated by Rota- kit agglutination test.

Rotavirus was detected in 60 (30.0%) of children and was all most frequently diagnosed in age group 1-6 months (38.3%), but being considerably decreased with the age increases over one year.

There was no statistical significant difference between boys and girls rotavirus infection.

The pH of the stool samples in the majority of cases was acidic with absence of RBC and pus cells on direct microscopic examination.

INTRODUCTION

Gastroenteritis remains an important problem all over the world especially in infancy and childhood.

In developing countries the Gastroenteritis has a great importance on morbidity and mortality rate among childhood below five years of age⁽¹⁾.

Many aetiological agents are responsible for the appearance of gastroenteritis in children such as viruses, bacteria and parasites. Among these enteric pathogens which cause an acute

gastroenteritis in infants and young children, rotavirus appears to be the most important aetiological agent in all the studies done all over the world⁽²⁾.

Human rotavirus cause severe diarrhea in infants and young children under two years of age⁽³⁾ and the major cause of acute gastroenteritis that requires hospital admission⁽⁴⁾.

The Laboratory diagnosis of rotavirus depends on the demonstration of rotavirus antigen in the stool by electron microscope and various immunological methods such as ELISA and Latex agglutination test.

The former test is the most sensitive and specific while the later test is much simpler and faster in giving the results within minutes of collecting stool specimens⁽⁵⁾.

The present study we have to detect the frequency of rotavirus gastroenteritis in infant and young children who had been hospitalized for treatment in Azadi Hospital in Dohuk during the winter season of 1999.

MATERIALS AND METHODS

This study has been carried out on 200 children, Faecal samples were collected from 104 boys and 96 girls, below two years of age admitted to the pediatric ward of Azadi Hospital suffering from acute diarrhoea. The samples were transported in a clean dry containers to the Laboratory.

The stool sample were examined microscopically to detect the presence or absence of RBCs and pus cells.

The pH of the stool was determined by litmus paper, followed by slidex Rotakit latex agglutination test (Bio Merieux, France) for detection of rotavirus antigen in the stool.

The accepted level of significance was at (P < 0.001).

RESULTS

Rotavirus was detected in 60 (30.0%) cases of 200 children suffering from acute gastroenteritis by using slidex Rota-Kit latex agglutination test. The frequency of rotavirus was significantly different ($X^2 = 48$, $P < 0.001$) in patients from different age groups.

The peak incidence of rotavirus gastroenteritis was seen in children under one years of age particularly up to 6 months of age (38.3%) as shown in table (1).

Table (2) shows the percentage of positive cases among both sexes; they were 29 (27.8%) boys and 31 (32%) girls. The differences in the frequency between both sexes was statistically not significant (Yates $X^2 = 0.477$, NS).

In positive sample for rotavirus no faecal leukocytes and RBCs were seen in the stool.

The stool was found to be acidic in 50 (83.3%) and alkaline in 10 (16%) of children with acute rotavirus gastroenteritis while in non rotavirus group it was acidic in only 20 (14.2%) Table (3).

Table (1) : Distribution of acute rotavirus gastroenteritis in relation to age, depending on Rotalex.

Age group months	Rotavirus positive No. (%)	Rotavirus negative No.	Total
1 – 6	23 (38.3%)	37	60
7 – 12	21 (30.0)	49	70
13 – 18	12 (24.0)	38	50
19 – 24	4 (20.0)	16	20
Total	60 (30.0%)	140	200

Table (2): Acute Rotavirus Gastroenteritis according to sex, detected by Latex agglutination test.

Sex	Rotavirus positive	Rotavirus negative	Total
Boy	29	75	104
Girl	31	65	96
Total	60	140	200

DISCUSSION

This study was performed in order to detect the frequency of rotavirus involved in childhood gastroenteritis during winter months of 1999 in Azadi Hospital, Dohuk.

Rotavirus was detected in 30% of children under two years age. These results were less than recorded by other studies done in Iraq⁽⁶⁾, Finland⁽⁷⁾, USA⁽⁸⁾.

This low level of rotavirus infection during winter months of our study may be attributed to two factors, either to be Climatic factors such as less rain and temperate ambient temperature recorded in winter of 1999. Or Used of Rotalex test which is less sensitive than ELISA which was used by other authers⁽⁵⁾.

Rotavirus diarrhoea was observed more frequently in children under one years of age

with a peak incidence up to 6 months of age (38.3%) and decrease with an increase age. These findings were in agreement with that of other workers⁽⁴⁾ but results of age distribution in rotavirus gastroenteritis disagree with results of⁽⁶⁾, who found low incidence of rotavirus infection (25.4%) up to the age of 6 months.

There was no statistical differences in the incidence of rotavirus gastroenteritis between boys and girls. These results were similar to that reported by^(6,9). Children infected with rotavirus are more likely to have acidic stools. This could be attributed to the lactose malabsorption⁽¹⁰⁾.

The microscopic examination of the stool showed that majority of the children with rotavirus gastroenteritis are free from pus cells and RBCs which agree with that recorded by^(3,11).

Table (3): pH of the stool of acute gastroen teritis

pH of stool	Rotavirus positive	Rotavirus negative	Total
Acidic	50	20	70
Alkaline	10	120	130
Total	60	140	200

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په سه نديکرا له ۲۰۰۰/۷/۱۰ دا

كولبونا تيژا گهده و ريڤيهكا ب نهگهرا فايروسي روتا ل ناقبهرا زاروكا

علي يحيى سعيد

كولبونا پزيشكى - زانكوييا دهوك

كورتة

دوو سهه سامپليت پاشمايا زاروكين ژ دوو ساليى كيمتر هاتنه كومكرن كوئوين ب زك چوونه كادژوار كهفتين ول قايشا زاروكان ل خهستهخانا نازادى شاندى ل پارتيگهها دهوكى و تايهت ل ناقبهرا هه يقين زفستانا سالا ١٩٩٩ى. نهف سامپله ل تاقهگهه و ب رى يا (Latex agglutination) هاتنه پشكين. ريژا زاروكين توش بوى ب فايروسي روتا ٣٠% بو، لى ريژا توشبونى ل ژيى (١-٦) هه يقى و ناف زاروكان دا گلهك يا ئاشكرا بو، و قى ريژى ل كيميى دا ب زيده بوونا ژيى زاروكى به رهف سآلهكى پتر... په كولبوني ژيك جوداهيين پيش چاف نه ديتى دريژا توشبونى دا ل ناقبهرا نيرو مى يان، ههروهسا تيرى يا ترشيبى لبارا پترا سامپلين توشبوى يا ترشى بو، و پشكينا ئيكسهرا سامپلا ب رى يا ميكروسوكوبى ئاشكرا كو خروكيت سوريت خوينى دناقدانين ههروهسا شانين كيم گرتى ژى.

التهاب المعدة والامعاء الحاد المسببة بفايروس الروتا بين الاطفال

علي يحيى سعيد

كلية الطب - جامعة دهوك

الخلاصة

جمعت مائتان عينه من براز الاطفال دون السنة الثانية من العمر والمصابين بالاسهال الحاد والراقدين في وحدة الاطفال في مستشفى نازادي في محافظة دهوك وخلال اشهر الشتاء لعام ١٩٩٩. فحصت العينات مختبرياً بطريقة التلازن. كانت نسبة الاطفال المصابة بحمة الدوار ٣٠% وكانت نسبة الاصابة اكثر وضوحاً في اعمار الاطفال بين عمري (١ - ٦) اشهر وهذه النسبة اخذت بالانخفاض مع ازدياد اعمار الاطفال اكثر من سنة. لم تظهر الدراسة وجود اختلافات احصائية في نسبة الاصابة بين الذكور والاناث. كانت تركيز الحموضة في غالبية العينات المصابة هي حامضياً، وعند الفحص المجهرى المباشر للعينات المصابة ظهر عدم وجود كريات الدم الحمر والخلايا القبيجه.