ROTAVIRAL AND PROTOZOAL INFECTIONS AMONG MALIGNANT CHILDREN IN BASRAH GOVERNORATE

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SUMMARY

Over five months period , the incidence of rotaviral and protozoal infections in patients receiving treatment for malignancy was investigated in the present study. A total of 58 patients [38 males and 20 females] were involved in this study. Formalin – ether concentration method And direct smear method were used for diagnosis of stool samples. Higher rates of infection were Found among those<2 years old ,and also among males than Females . In this study higher rate of infection in rural than in urban area was found and majority of them with mixed parasitic infections . All them with symptomatic and most patient which positive for Rotavirus with chronic diarrhea (66.7 %) higher than discontinuous diarrhea (33.3 %).

INTRODUCTION

Rotavirus is the most common cause of severe gastroenteritis in infants and young children worldwide(1). In developing countries, rotavirus gastroenteritis is a major cause of childhood death and it is responsible for approximately half a million deaths per year among children aged <5 years (2)Rotaviruses are shed in high concentrations in the stools of infected children and are transmitted by the fecal-oral route, both through close person-to-person contact and through fomites (3-4). Rotaviruses also might be transmitted by other modes, such as water and respiratory droplets (5-6) The spectrum of rotavirus illness ranges from mild, watery diarrhea of limited duration to severe, dehydrating diarrhea with vomiting and fever, which results in death(7-).8 Rotaviral gastroenteritis may result in mortality for populations at risk such as infants, the elderly, and immunocompromised patients . Previous study indicates that may produce a chronic infection in immunodeficient Children(9) the chronic infection is accompanied the generation of extra viral immunodeficient host (10) unusual assortments in an genomic segments and their children and adults with impaired immunity, such as those with congenital immunodeficiency, or post haematopoietic or solid organ transplantation, are at increased risk of severe, prolonged, and even fatal rotavirus gastroenteritis.([11.12])Rotavirus is an important cause of nosocomial gastroenteritis,[13,14] and can also cause disease in adults, especially those caring for children, and outbreaks of gastroenteritis in aged care facilities.[12] Patients with some type of immunocompromised condition and thosesubmitted to immunosuppressive therapy have an increased probabilityof acquiring parasitic infections, generally with a high degree of severity (15,16)

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The intestinal non-opportunistic pathogenic parasites most frequentlyencountered in immunocompromised hosts include *Entamoeba histolytica/ Giardia lamblia* and others. Parasitic infections that cause auto-limited diarrhea in immunocompetent patients may cause profuse diarrhea in immunocompromised individuals(17,18). The aim of the present study is detect of Rotaviral and protozoal infections in malignant children in Basrah

MATERIAL & METHODS

This study was conducted in Basrah Teaching Hospital (IRAQ), over a period of five months from March to August 2010.(58) malignancy affected patients (38) males and (20) females were studied . These subjects who were presumably immunocopromised patients received cytotoxic drugs . Their age varied from 1 to >13 years . The control group was composed of (35) apparently healthy individuals (25 males and 10 females) their age range from 1 t0 13 years none had any past or present history suggesting malignant disease nor had they received any type of anticancer therapy . who were randomly selected . Fecal samples were examined microscopically (wet mounts) by the direct method using normal saline and lugol,s iodine . Formalin – ether concentration method was used according to procedure described in diagnostic microbiology and diagnostic medical parasitology (19-20) . The principle of one step Rotavirus test Device - (FECES) is the mixture migrates upward on the test line region of the test . During testing the specimen reacts with the particle coated with anti - rotavirus antibody .The mixture migrates up word on the membrane chromate graphically by capillary action to react with anti-rotavirus . antibody on the membrane and generate a colored line .The presence of this colored line in the test region indicates a positive result . While the absence indicates a negative result .

RESULTS & DISCUSSION

The types of malignant diseases among tested patients are present in (table 1).The results showed that acute lymphoblastic leukemia (ALL) was the major type (55.1%) of malignant cases in the studied subjects .The other types ranged from (1.7% to 8.6 %). These result similar to the result of various studies.(21-22).Age of most patient with ALL are within age group of (3-11) years and the male higher number than female .

The explanation of this result is possibly due to the changing age structure of such cases with a shift towards the younger age group (23), or may be due to viral infection especially at this age group which lead to changes in immune system. Sex of my patients ,males were more affected than females by malignant. Diseases including leukemia ,similar result was obtained by two studies done in united states (22 ,24)

The clinical symptoms among tested patients was illustrated in table (2) showed that (75.8%) of patients suffered from weight loss , while fever and diarrhea were noticed in 28.3% and 24% respectively . while other study done in southern Iran Showed 74% of patients with fever .(25)

TABLE (3) show the distribution of rotaviral infection among patient &control group . It is clear that patient had the

highest rate of rotaviral infection &the male more affected . In this study the prevalence of rotavirus was 6(10.34)% . Alfalahi2002(26) documented a prevalence rate 24% while Aahmed et al associated 2006(27) erbil recovered prevalence rate are 37% other study mentioned by ali etal2008 (28) , the percentage was 19% and higher than the result of study reported by vesikari et-al, 1981 (29),the percentages was 11% / .The Distribution of cases according to sex show high prevalence rate in male than female May be attributed to(x)linked recessive susceptibility pabset etal &branth etal ,2003 (30-31).

in Table-4- Parasitic infections among patients with malignant disease and control group according to sex out of (58) patients with malignant diseases (24) 41.37% with parasitic infection (18) 31.03% male and (6) 10.34% female . it is clear that , patient had the highest rate of parasitic infections than control group. These result may be related to the fact; that males are more active , mobile and integrated in the environment especially among agricultural community .

Higher percent of infected patient with rotavirus was found in rural area (5) 13.9% than in urban area (1) 4.5% .That agree with the result was observed by AL-Ani in Ramadi city(32) . These differences might be due to poor water supply , poor sewage disposal and low education .

Table -6 The distribution of the parasitic infections is presented in this table Giardia lamblia was the most frequent infection among children (15.5%) , followed by Entamoeba histolytica (10.3%) and Blastocystis hominis (8.6%) . The most prevalent parasites in our study were G. lamblia and E. histolytica . A similar finding has been reported by Azab . et al (33).

This table 7 show higher percent in patients with chronic diarrhea () than patients with acute diarrhea (%) .the same result was observed in some study (9,33) .

TABLES

Table -1-Number of cases in relation of type of malignant diseases with age and sex:

	Type of Malignant cases	Age		Sex		Total	
		< 2	3 – 11	Male	Female	No.	%
Leukemia	1- ALL	6	26	20	12	32	55.1%
	2- AML	1	2	1	2	3	5.2%
	Sarcoma	-	1	1	-	1	1.7%
	Neuroblastoma	2	3	3	2	5	8.6%
	Hepatoblastoma	1	-	-	1	1	1.7%
	Wilm's Tumor	-	1	1	-	1	1.7%
	Lymphoblastic Lymphoma	-	4	2	2	4	6.8%
	H.L	-	3	3	-	3	6.1%
	N.H.L	-	4	3	1	4	6.8%
	Retinoblastoma	-	1	1	-	1	1.7%
	Rhabdomyosar-coma		1	1		1	1.7%
	Ewing's Sarcoma	-	1	1	-	1	1.7%
	Histocytosis	-	1	1	-	1	1.7%
	Total	10	48	38	20	58	100%

ALL = Acute lymphocytic leukaemia; AML = Acute myelocytic leukaemia; HL = Hodgkin lymphoma; NHL = Non-Hodgkin lymphoma.

Table -2- :Clinical Symptoms among tested patients

Symptoms	No.	%
Weight loss	44	75.8%
Fever	15	28.3%
Diarrhea	14	24.1%
Abdominal Pain	10	18.8%
Vomiting	6	11.3%
No. Symptoms	0	0%

TABLE – 3-: Rotavirus infections among patients with malignant disease and control group:

	INFECTION		+VE	-VE	TOTAL
PATIENTS	**MALE**	**NO**	**4**	**34**	**38**
		%	**1O.53**	**89.47**	**100.00**
	FEMALE	**NO**	**2**	**18**	**2O**
		%	**10%**	**90%**	**100.00**
	TOTAL		**6**	**52**	**58**
CONTROL	**MALE**	**NO**	**0**	**15**	**15**
		%	**0.00**	**100.00**	**100.00**
	FEMALE	**NO**	**1**	**19**	**20**
		%	**5%**	**95%**	**100.00**
	TOTAL		**1**	**34**	**35**

Table-4-: Parasitic infections among patients with malignant disease and control group according to sex

	No.examined		Parasitic infection		
		male	%	female	%
Patient group	58	18	31.03%	6	10.34%
Control group	35	2	5.71%	2	5.71%

Table -5-:Rotavirus infection in relation to residence:

Infection			+ ve	- ve	Total
Patient group	Urban	No.	1	21	22
		%	4.5%	95.5%	100.00
	Rural	No.	5	31	36
		%	13.9%	86.1%	100.00
Total			6	52	58
Control group	Urban	No.	0	22	22
		%	0.00	100.00	100.00
	Rural	No.	1	12	13
		%	7.7	92.3	100.00
Total			1	34	35

Table -6-:The Parasitic infections among patients and control groups:

Parasites	Patients		Control	
	No.	%	No.	%
G.lamblia	9	15.5%	2	5.7%
B.hominis	5	8.6%	2	5.7%
E.histolytica	6	10.3%	-	
G + B	4	6.9%	-	
Total	24	41.3%	4	11.4%

Table -7-:Type of diarrhea in patient with rotavirus infection:

Patient	No.	%
Continues diarrhea (chronic diarrhea)	4	66.7 %
Discontinues diarrhea (acute diarrhea)	2	33.3%
Total	6	100.00

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الخلاصة

على مدى فترة خمسة أشهر ، تمت دراسة فايروس الروتا والإصابات الطفيلية في المرضى الذين يعانون و يستلمون علاج للأمراض السرطانية في محافظة البصرة.

العدد الكلي للمرضى في هذه الدراسة هو ٥٨ مريض [٣٨ ذكر و ٢٠ أنثى] استخدمت لتشخيصِ كل عينات البراز التي جمعت من المرضى طريقة التركيز (فورمالين – أيثر) وطريقةِ اللطخة المباشرةِ.

أعلى نسبة للإصابة في هذه الدراسة وجدت بين الذكور منها في الاناث وكذلك

وجد ارتفاع في نسبة الإصابة في المناطق الريفية منها في المدينة واغلبهم

مع إصابات طفيلية مختلطة. كُلّهم بأعراض مرضية وأكثر المرضىِ إيجابيا للروتافايروس يعانون من الإسهال المُزمنِ (٦٦,٧ %) أعلى مِنْ الإسهالِ المتقطعِ (٣٣,٣ %).