Epidemiological Study of Hand, Foot and Mouth Disease in Al-Kindy Teaching Hospital/ Baghdad

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ABSTRACT

Background: Hand, foot, and mouth disease is viral disease caused commonly by coxsackie virus A_{16} virus. It is a mild disease and children usually recover with no specific treatment within 7 to 10 days. Rarely, this illness may be associated with aseptic meningitis were patient may need hospitalization.

Objective: To determine significance of clinical features of hand, foot and mouth disease.

Methods: A cross sectional study of cases with clinical features of hand, foot and mouth disease visiting the dermatological consultation unit of Al Kindy teaching hospital. Sampling was for Zyona and Edressi Quarter patients over the period of 1st December 2017 to 30th of November 2017.

Aim: To determine significance of clinical features of hand, foot and mouth disease

Results: The mean age of patients (100 patients) was 29.99 months. Males were 65 (65%) and females were 35 (35%), (P 0.23). Tenderness of skin lesions, Malaise and decreased Appetite were the most frequent symptoms. Winter months illness was common .Cases were diagnosed two days before seeking medical help, while home contact of patients was most common place for infection transmission .Involvement of palms and soles was universal and indifferent (100%). Groin was more commonly affected (67%), (P 0.015). Fever was present in 81%.

Key words: exanthem, fever, Coxsackievirus A_{16}.

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INTRODUCTION

Hand, foot and mouth disease (HFMD) is a moderately contagious, common viral illness affecting infants and children and rarely adults. It is a viral exanthem, caused by a spectrum of pathogens in the enterovirus (EV) family and it is most commonly caused by Coxsackievirus A_{16} and sometimes by enterovirus A_{71} [(1,2)]. Outbreaks in day care centers, summer camps or within the family may occur, and are usually during the summer and early autumn seasons. It is transmitted via the oral–fecal route and by contact with contaminated fluids and respiratory droplets. It starts with low-grade fever, reduced appetite, and malaise. Presenting symptom is usually throat pain secondary to the enanthem. In form of vesicles surrounded by erythema, and rupturing and forming superficial ulcers. The exanthem can be macular, papular or vesicular involving the dorsum of the hands, feet, buttocks, legs and arms and treatment is mainly symptomatic [(3,4,5)]

METHODS

A cross sectional study with descriptive methodology to assess patients with hand, foot and mouth lesions as dependent variable with other independent variables, whom were attending the Dermatological Consultation Unit of Al-Kindy Teaching Hospital in Baghdad/ Al-Rusafa Health Directorate.

The study was done done over period from 1st December 2017 and was finished at 30th of November 2017. The sample size is "100", which have been chosen cavernously, depending on duration of each questionnaires filling and study duration concerning data collection.

The study was approved by ethical and scientific committee of the College of Medicine/ Al-Mustansiriyiah University, and all participants (100) agreed to the study methodology, and informed with verbal consent about the aims of the study. No specific funding was received in relation to this article. All authors report no conflicts of interest. All authors were involved in the conception,

analysis and interpretation of data, drafting of the manuscript and final approval of the manuscript.

The questionnaire was designed according to international guideline adapted from (reviews of literatures) and revised and supervised by committee in the department of pediatrics. It is attached below. Proper history from patients and their parents was taken, thorough physical examination for manifestations of the disease and its complications were done, and treatment is usually symptomatic, a generally recommended antiviral therapy does not exist [6]. Statistical Package for Social Science (SPSS) program version 17, was used for data analysis. Chi square test used to find the statistical association , and p-value of less than 0.05 is considered statistically significant.

RESULTS

The mean age of patients (100 patients) in the study group was 29.99 ± 23.68 months, with age range of 7 - 144 months. Males were 65 (65%) and females were 35 (35%) with no significant difference (P value 0.23).

The frequency of general symptoms in patients with HFMD is shown in table 1, and tenderness of skin lesions, Malaise and decreased Appetite were the most frequent symptoms. The seasonal distribution of cases showed illness was more common in winter months than other seasons (P value 0.0001). (Table-2) and (Figure-1).

Table (1): The frequency of general symptoms in patients with hand, foot and mouth disease

	Symptoms	No. of patients (100)	%
Symptoms	Fever	81	81%
	Malaise and decreased Appetite	85	85%
	Score throat	81	81%
	Itching	41	41%
	Tender skin lesions	94	94%

Table (2): The seasonal distribution of cases of hand, foot and mouth disease

		No.	%	P value
Seasonal distribution of illness	Winter	57	57	0.0001
	Spring	17	17	
	Summer	11	11	
	Autumn	15	15	
Total		100	100	

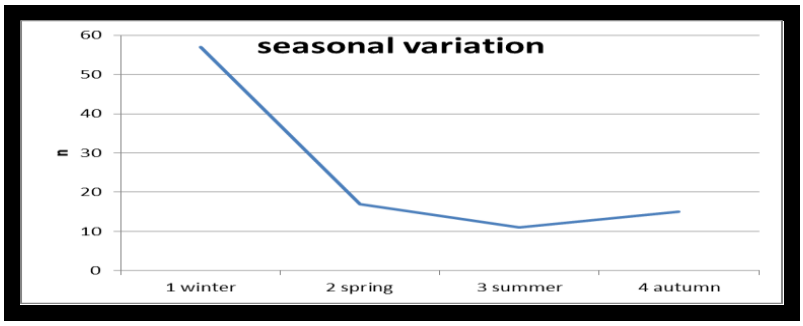

Figure (1): The seasonal distribution of cases of hand, foot and mouth disease.

It was found that most of cases were diagnosed two days after starting of illness and family started seeking medical help with a significant variability (P value 0.0001). (Table 3). Home contact of patients was the most common place for infection transmission (P value 0.0001). (Table 4). Involvement of palms and soles in patients

with hand foot and mouth disease was universal and indifferent (100%). While the groin was more commonly affected (67%) of patients, and buttocks was (33%) with significant difference (P value 0.015).

Presence of fever was more commonly encountered in hand foot and mouth disease patients (81%), and absent in (19%) of them (P value 0.0001).

Vesicles were the most common oropharyngeal lesions and Skin lesions.

The type of oropharyngeal involvement has no significant correlation with neither gender nor fever. The type of skin lesions had no significant correlation with neither gender nor fever (P 0.571, 0.758 respectively). (Table 5)

Table (3) : Distribution of hand, foot and mouth disease patients according to duration of illness before diagnosis.

	Duration (days)	No. of patients	%	P value
Duration of illness before diagnosis	1	13	13	0.0001
	2	42	42	
	3	30	30	
	4	10	10	
	5	2	2	
	6	3	3	
Total		100	100	

Table (4): Source of contact of hand foot and mouth disease patients for infection transmission

	Source of contact	No. of patients	%	P value
Source of contact	Home	44	44	0.0001
	Day care clinic	31	31	
	School	23	23	
	None	2	2	
Total		100	100	

Table (5): Type of oropharyngeal involvement & type of skin lesions according to gender and fever.

		Mean age (mo.)	Gender		Fever	
			Male	Female	+ve	-ve
Oropharyngeal Involvement	Inflammation	31.28	25	7	23	9
	Vesicles	71.2	5	0	3	2
	Inflammation and vesicles	28.54	18	15	27	6
	Vesicles and ulcers	15	2	1	3	0
	Inflammation, vesicles and oral ulcers	24.25	16	11	25	2
Skin lesions	Maculopapular rash	26.16	6	6	10	2
	Vesicles	51.24	5	2	7	0
	Maculopapular rash and vesicles	28.22	24	8	25	7
	Maculopapular rash and pustules	29	31	19	41	10
Total		29.99	65	35	81	19

Fever was present in 81% of cases of hand foot and mouth disease, and there was significant positive correlation of fever with cough and coryza (P value 0.023), also fever with increased diarrhea, vomiting (P value 0.001).

Fever had no significant correlation with increased itching (P 0.913), increased tenderness of skin lesions (P 0.881),

conjunctivitis (P 0.340). No cases of encephalomyelitis, myocarditis, pericarditis, and pulmonary hemorrhage were monitored (P N/S). No death was recorded.

DISCUSSION

Hand foot mouth disease is a common, usually mild childhood illness caused by enteroviruses, and coxsackie virus A_6 has been identified as a causative agent in outbreaks in South-East Asia, Europe, and America [7]. It is generally easily diagnosed on clinical grounds.

The mean age of patients (100 patients) in this study group was 29.99 ± 23.68 months, a finding correlates with Weijia Xing study were the median age of reported cases was 27 months (18–43 months). Most cases occurred in children below the age of five, and incidence was very low in young infants aged <6 months, older children, and adults [8]. Baoyan Liu study found most patients were children under 5 years of age (92.9%), and 71.9% falling into the age group 0–3 years [9]. The mean age was 2.9 years and the median age was of 1.8 years. The results showed that the peak month-specific incidence occurred in June and July [9].

Most HFMD patients (76.9%) were 1-4year old, and boys showed a higher prevalence rate (65.3%) than girls (34.7%) [10]. While Shah VA study found male-to-female ratio was 1.3:1, and median numbers of day of illness before presentation was 3 days [10].

Males to females ratio was 65:35, with insignificant difference (P value 0.23), a finding similar to a study in Beijing Region of China were boys outnumbered girls [11]. The incidence of HFMD was 1·6 times higher in boys under 5 years than in girls of the same age (p<0·001) [8]. Males are being predominantly affected in Ang LW et al study. [12] While other study by Baoyan Liu found Males (62.4%) were more affected than females (37.6%) with male to female ratio was 1.6: 1[9].

Loss of appetite and rash were main presenting symptoms (49.0%), followed by loss of appetite with oral lesions ± fever (48.7%, and 38.2%, respectively)[9], loss of appetite accounted for 76.7% of the admissions[10].

Oral mucosa lesions were found in almost all cases, with the typical petechial maculopapules lesions, followed by vesicles [9]. While Shad VA study found oral ulcers were found in 96.1%, hands rashes in 87.6%, feet rashes in 86.8% and buttocks rashes in 54.3% [10].

Tenderness of skin lesions, Malaise and decreased appetite are common symptoms [4, 13].

HFMD was found more in winter months in present study. Onozuka D study and Ma E study found transmission demonstrates seasonal variation, which suggests that local meteorological variables influence the temporal risk of this disease [14,15].

HFMD peaked annually in June in the North, whereas Southern China experienced semi-annual outbreaks in May and September/ October [8]. Ma E et al found a seasonal peak in the warmer months (May-July), and a smaller winter peak (October-December) [15].

It was found that most of cases were diagnosed two days after starting of illness. A study by Weijia Xing showed the median time from illness onset to diagnosis is 1·5 days (range 0·5–2·5 days) [8]. The median time from symptom onset to diagnosis was one day [9].

Home contact of patients was the most common place for infection transmission. Two studies showed that a higher percentage of diagnoses occurred among children who did not attend a nursery or preschool [16, 17].

It was found that HFMD and fever had significant association with increased diarrhea and vomiting, a finding is similar to Baoyan Liu study were gastrointestinal symptoms occurred in two-third of the cases, but neurological symptoms were infrequent[9]. Other study by Kar BR showed; "Fever and rash were the most common presenting symptoms with the rash distributed mostly over buttocks (83.3%), knees (77.5%), both surfaces of hands and oral mucosa (78.2%)"[18].

It was found that HFMD associated with enterovirus 71 occurred with fatal complications, there was a significant association between CNS involvement and pulmonary oedema [19]. Coxsackievirus A_{16} and A_6 are the major causative agents of HFMD may cause aseptic meningitis,

encephalitis and/or paralysis, while Enterovirus A_{71} (EV-A71) can cause severe encephalitis [20].

No death was recorded in present study, while Weijia Xing found the overall case–fatality is 0.03%, and consistently across all age groups, EV-A71 infections were much more severe than CA-V16 infections, and no antiviral needed as it is an RNA virus [8]. It was found that some viruses were more common in some geographic areas than others [21], this fact may explain absence of severe neurological sequelae and death may be due to less EV-A71 spread locally.

A study in China found the case severity rate has been estimated at 1%, with a case fatality rate at 0.03%, and EV-A71 was involved in 90% of the fatal cases [3].

CONCLUSION

Hand foot mouth disease is a common, usually mild, childhood illness. Cleanliness of the hands, utensils and drinking water limits spread in house. Restriction of the affected children from attending day care centers is preventive.

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