

Measles outbreak in AL-kadhimiya, Iraq, 2008-2009 and its common complications

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Abstract

Background: Worldwide efforts for measles elimination are made possible due to the availability of highly effective measles vaccine. In spite of that, there is high percentage of unvaccinated children in our country-making outbreak of measles easy and highly occurred.

Objective: To identify the outbreak of measles in AL-Kadhimiya-Baghdad and its common complications with fatality causes and rate.

Patients and methods: Cross-sectional study was conducted during the period between 20 th December 2008 to 30 th April 2009 on 494 patients with measles attending AL-kadhimiya Teaching Hospital ,AL-kadhimiya Hospital for pediatrics and two Primary Health Center (Al shaheed Basher Al jasaery Primary health center in AL-shaula city and Al Noor Primary health center in AL-Jawaden city)and they were divided into four group according to their age which were (below 1year),(1-4yr),(5-9yr)and above 10 years ,regarding immunization status was assessed by examining the immunization card or parental enquiry on this regard.

Result: Male are nearly equal to female (49.80 %)and (50.20 %) respectively. Of 494 reported

cases 97 (19.64 %) were under one year of age and 287(58.97 %)were 1-4 years old and this mean that more than two-third 384 (78.61 %) of patient were under 4 years ,small group (10.53 %) were vaccinated against measles .Complications were Pneumonia, Diarrhea and Vomiting, Croup and Encephalitis ,in (83.85 %) , (11.46 %) , (2.60 %) , (2.09 %) respectively. Mortality rate was (2.43%) which occurred most commonly in age group below 5 years (91.7 %) and slightly more in male (58.4 %) than female (41.6 %) causes of deaths were pneumonia (83.4 %) and encephalitis (16.6 %).

Conclusion: This outbreak of measles demonstrates the increased susceptibility of unvaccinated children who are below 5 years old .Pneumonia, Diarrhea and Vomiting, Croup and encephalitis are complications of measles and higher mortality rate occur in male sex and younger age group, (below 5 years old).

Key words: measles, vaccine, outbreak, complications, children.

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Introduction

Measles is a communicable viral illness ⁽¹⁾. Caused by a virus, **paramyxovirus** of the genus **Morbillivirus**. Symptoms include **fever, cough, runny nose, red eyes** and a generalized, **maculopapular, erythematous** rash. Measles is spread through respiration (contact with **fluids** from an **infected** person's nose and mouth, either directly or through **aerosol** transmission), and is highly contagious—90% of people without

Its incidence in childhood varies from 58 %in epidemic to 10-15 %in **immunity** sharing a house with an infected person ⁽²⁾.endemic form ⁽³⁾.Globally about 40 million cases of measles occur every year out of which 777000 death occur due to measles ⁽⁴⁾.

Complications with measles are relatively common, ranging from relatively mild and less serious diarrhea, to pneumonia and encephalitis (sub acute sclerosing panencephalitis), corneal ulceration leading to corneal scarring ⁽⁵⁾. The fatality rate from measles for otherwise healthy people in developed countries is 3 deaths per thousand cases. In underdeveloped nations with high rates of malnutrition and poor healthcare,

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fatality rates have been as high as 28%⁽⁶⁾. In immunocompromised patients, the fatality rate is approximately 30 percent⁽⁷⁾. According to the World Health Organization (WHO), measles is a leading cause of vaccine-preventable childhood mortality. Worldwide, the fatality rate has been significantly reduced by partners in the Measles Initiative: the American Red Cross, the United States Centers for Disease Control and Prevention (CDC), the United Nations Foundation, UNICEF and the World Health Organization (WHO). Globally, measles deaths are down 60 percent, from an estimated 873,000 deaths in 1999 to 345,000 in 2005. Africa has seen the most success, with annual measles deaths falling by 75 percent in just 5 years, from an estimated 506,000 to 126,000⁽⁸⁾. By using vaccine we can reduce the morbidity and mortality. although it had been shown that outbreak of the disease occur from time to time, In 2007, a large measles outbreak in Japan caused a number of Universities and other institutions to close in an attempt to contain the disease^(9,10). In developing countries where measles is highly endemic. The WHO recommend that two doses of vaccine be given at six months and at nine months of age⁽¹¹⁾. Some countries like Iran, Syria and U.A.E have started second dose of measles at 15 months of age with high coverage of 90 %or more⁽¹²⁾. Low vaccines coverage rate with low vaccine efficacy leads to higher rate of complication which causes financial burden⁽¹³⁾. Therefore, children hospitalized with complications of measles can provide the magnitude of problem and its future preventive strategies.

Aim of the study

To identify the outbreak of measles in AL-Kadhimiya-Baghdad and its common complications with mortality causes and rate.

Patients and methods

Cross sectional study was conducted at children department of AL-kadhimiya Teaching Hospital ,AL-kadhimiya Hospital for pediatrics and two Primary Health Center in Baghdad-AL-kadhimiya(Al shaheed Basher Al jasaery Primary health center in AL-shaula city and Al noor Primary health center in AL-Jawaden city) from 20th of December 2008 to 30th of April 2009 and involve four hundred ninety four patients , the youngest one was two months old and the oldest one was sixteen years old .All children diagnosed as a case of measles on clinical ground, according to appearance of maculopapular rash, fever of 38 c° or more with cough ,coryza and conjunctivitis and appearance of kopliks spots in some of them .pneumonia was defined according to WHO criteria of respiratory rate⁽¹⁴⁾ , and presence of pulmonary infiltrate on chest radiography .Central nervous system was considered to be involved if there was lethargy ,irritability, headache, fits, disorientation or other neurological deficit .The detailed history, physical examination and measles complications including diarrhea, pneumonia, Croup, and encephalitis were filled in case report form. Immunization status was assessed by examining the immunization card or parental enquiry on this regard. Clinical outcome was compared between male and female as well as different age groups. The patients were divided into four groups according to age. Statistical analysis was done by using chi square and p value of less than 0.05 was designated as statistically significant.

Results

During the period of the study (from 20th of December 2008 to 30th of April 2009), the total number of

children diagnosed as measles were 494 and the findings were.

Total number of male was 246 (49.80 %) while female number was 248 (50.20 %).

Regarding age 97 (19.64 %) patients were less than one year and 287 (58.97 %) patients were between

1-4years Which mean that 384 (78.61 %)patients were under 4 years as shown in(Table 1) , distribution of patients regarding age group and sex Was shown in(Figure 1) , the ratio of unvaccinated to vaccinated patients was 9.5:1.

Table 1: Age distribution of patients.

Age categories	number	%
< 1 yr	97	19.64
1-4 yr	287	58.97
5-9 yr	94	19.03
> 10yr	16	2.36
Total	494	100

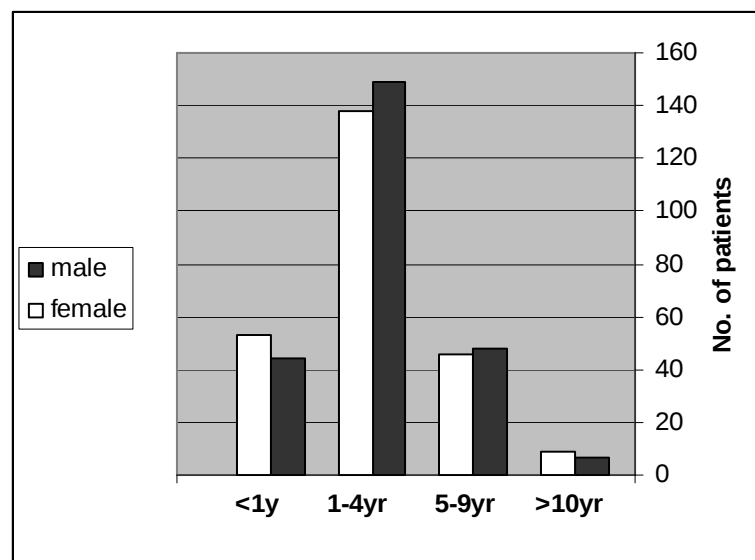


Figure 1: distribution of patients according to age groups and sex.

Vaccination against measles was present in 52 (10.53 %) patients, 65.38 % of them were male and 34.62 % of them were female.

Male to female ratio was 1.9:1 as it is shown in (Figure 2).

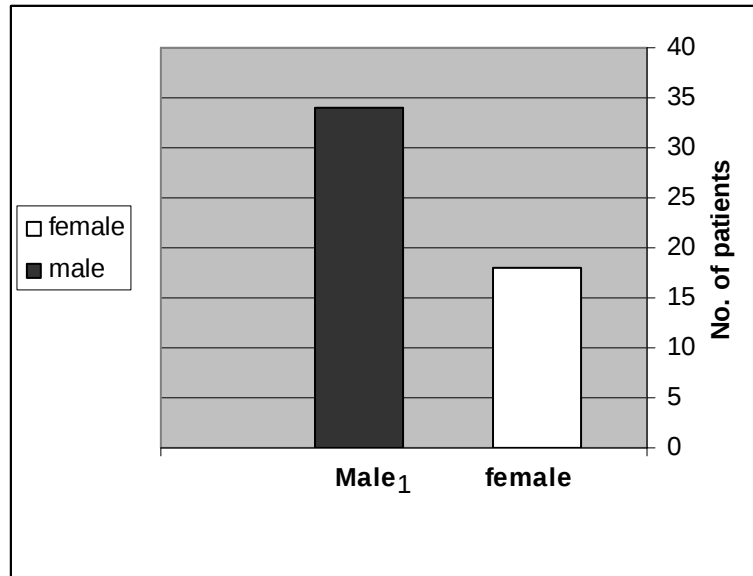


Figure 2:vaccination status of patients in the sample.

The most common complications of measles were pneumonia 161 (83.85 %), diarrhea and vomiting 22 (11.46

%), croup 5 (2.60 %), and encephalitis 4 (2.09 %) as it is shown in (Table 2).

Table 2: Complications and outcome in measles patients.

Complications	NO.	%	Improvement		Death	
			NO	%	NO.	%
Pneumonia	161	83.85	151	83.9	10	83.4
Diarrhea and vomiting	22	11.46	22	12.2	0	0
Croup	5	2.60	5	2.8	0	0
Encephalitis	4	2.09	2	1.1	2	16.6
Total	192	100	180	100	12	100

Total number of death was 12 and mortality rate was 2.43 %, pneumonia was the leading cause of death (83.4 % of death), followed by encephalitis (16.6 % of death) as it is shown in (Table 2). The mortality was

more in male 7 (58.4 %)as well as below one year 7 (58.4 %) while in age group 1 -4 years was 4 (33.4 %) which mean that 91.8 % of death occur bellow 5 years as shown in(Table 3)

Table 3:Demographic profile and morality (n=12).

Parameter		No. of Death	%
SEX	Male	7	58.4
	Female	5	41.6
	Total	12	100
Age group (years)	<1yr	7	58.4
	1-4yrs	4	33.4
	5-9yrs	1	8.2
	Above10yrs	0	0
	Total	12	100

Discussion

The study demonstrate an outbreak of measles in Baghdad from the end of 2008 and beginning of 2009 which is similar to the outbreak occurring in different countries like Saudi Arabia in 2007⁽¹⁵⁾, Pakistan⁽¹⁶⁾, and Vietnam with Ho Noi⁽¹⁷⁾ Also the study show high percentage of the disease in age group below 5 years which is similar to reported in developing countries⁽¹⁸⁾ whereas.

In contrast with the data from developed countries that the incidence is higher in second decade⁽¹⁹⁾, because the disease is still endemic in developing countries .In this study there are no difference in the incidence of the disease between males and females which is differ from that obtain from recent study

In Saudi Arabia which show high percentage of the disease in males than females⁽¹⁵⁾, The result in this study explained by equal affection of Male and female in most of the viral infections

In this study 10.53 % of patients were vaccinated against measles which is similar to other studies from Islamabad⁽¹⁶⁾, Rawalpindi⁽²⁰⁾, And Lahore⁽²¹⁾, this could be due to unavailability of vaccine at times where mothers visit

the primary health center in addition to poor storage in previous months .

Pneumonia in our study is the commonest complication of measles which is similar to the reported from South east Asia and Europe^(22,23) While diarrhea and vomiting is a second common complication in this study in contrast to Indian studies where diarrhea and vomiting was the commonest complications⁽²⁴⁾, this may be due to occurrence of the disease in time when there is high incidence of respiratory tract infection.

Croup was uncommon complication of measles in this study which is differ from study reported from Islamabad⁽¹⁶⁾. Encephalitis also was uncommon complication in our study which is differ from study reported from Saudi Arabia⁽¹⁵⁾. The case fatality rate in this study was lower than Islamabad⁽¹⁶⁾, Saudi Arabia⁽¹⁵⁾, and Pakistan⁽¹⁶⁾, this due to early detection of the Disease and early diagnoses and perfect managements of its complications.

Now there is need to improve measles vaccination coverage at national level and indicates the urgency to improve vaccinations coverage to protect unvaccinated children and introduce two doses of

measles vaccine schedule to boost the Immunity of vaccinated children. .

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