

The prevalence of measles among children in Misurata city in the absence of vaccination and the importance of vitamin (A) in the treatment process.

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Abstract

Measles is an infectious disease that is transmitted through the respiratory tract and causes the virus Morbillivirus, the symptoms appear in high fever, cough, colds and inflammation of the eye and end with the appearance of skin rashes, and disease a serious health problem especially developing countries, they can be combated only through large-scale immunization programs as well as health care and the use of vitamin A supplements, this study was conducted on the data obtained from the statistics department children of Misurata Medical Center in the period from 1 January 2017 to 30 September 2019, suspected cases were identified in this period which reached 65 cases, including 28 cases of measles, the proportion of girls 75% higher than boys 25%, while the most affected age groups less than 5 years, the number of children who visited the center reached 9551 and the number of suspected cases was 33, including 5 cases of the disease. There were no deaths in this period, we find from the results obtained that the most cases were in 2019 and may be due to interruption of vaccination in this year in addition to follow-up of the infected found that most of them were given vitamin A, this is due to using doctor of supplements to reduce the spread of the disease and the number of deaths.

Key words: Prevalence of measles, Vaccination, Vitamin A, Misurata.

1. Introduction

Measles is an infectious disease that is transmitted through the respiratory tract and causes the virus Morbillivirus (M. Rasool *et al.*, 2016), the virus has the H protein and consists of single RNA which encodes different proteins (Riddell *et al.*, 2007), the virus is transmitted through direct contact with the infected person or through the air where the mucous membranes settle down and spread to the body, during a period of four to six days and then appear symptoms that begin to appear rash at this stage and the risk of infection from one person to another is high (Who., 2013).

Measles has three stages (incubation period, prodromal stage, which begins with several symptoms including (fever, cough, colds and conjunctivitis) after which the rash stage Other risk factors for increased measles complications are the age of the patient when they are less than five years old, as well as malnutrition, which includes a lack of vitamins and minerals, especially vitamin A (Khan *et al.*, 2018).

Measles is a leading cause of death especially in children at an early age due to the lack of effective vaccines. It is more common in age groups over 12 months, especially those with

vitamin (A) deficiency, several studies also recommend vaccination campaigns, the only way to raise immunity and reduce the spread of the disease (Rasool *et al.*, 2018) Measles is a very dangerous virus and the leading cause of death especially in children around the world Before the routine measles vaccine spread in the 1980s, measles epidemics estimated 2.6 million deaths each year (Klepac *et al.*, 2013), it is recommended to take two doses of the vaccine to ensure immunity about 15% of the children vaccinated with the first dose did not have immunity against the disease with the increase in routine immunization, the incidence rate decreased to 85% between 2000 and 2015 (Alkoshi & Ernst, 2018), however it still causes an estimated 134,000 deaths, equivalent to 365 worldwide, death rates and complications of the disease are increasing in unvaccinated children and pregnant women who have not been vaccinated high levels of transmission have been seen particularly in developing countries lacking health care and lacking a measles vaccine It is recommended to take vitamin A twice daily in children with measles in developing countries. Its importance is to help prevent eye damage and blindness and reduce mortality (Alkoshi & Ernst, 2018).

The study examined the prevalence of measles in children in Misurata city in the absence of vaccine and the role of vitamin A in treatment and reduce its symptoms.

2. Materials and Methods

Study population

After approval from Misrata Medical Center, the pediatric section of the data collection from the statistics and documentation section of the center collected information from the files of patients with measles.

Data collection

The children were counted from 1 January 2017 to 30 September 2019, which reached 9551 children and collected information such as sex, age, clinical symptoms, vaccination travel of the patient before the onset of symptoms and housing, and in addition after reviewing the children' files most patients were given a dose of vitamin A and routine blood samples were taken from blood sugar, urea, calcium, sodium and potassium. and blood cell tests and C-reactive protein (CRP), and count blood cell and sent a blood sample to Tripoli Medical Center in order to analyze.

3. Results and Discussion

This study targeted children with measles in Misrata area from 1 January 2017 to September 2019 in view of the data obtained from the Statistics and Documentation Department at the Center, the total number of suspected cases was 65 children, including 28 children of cases, and girls 75%, which was higher than boys 25% and as shown in Figure (1), similar to a study in Sudan (Ahmed *et al.*, 2019).

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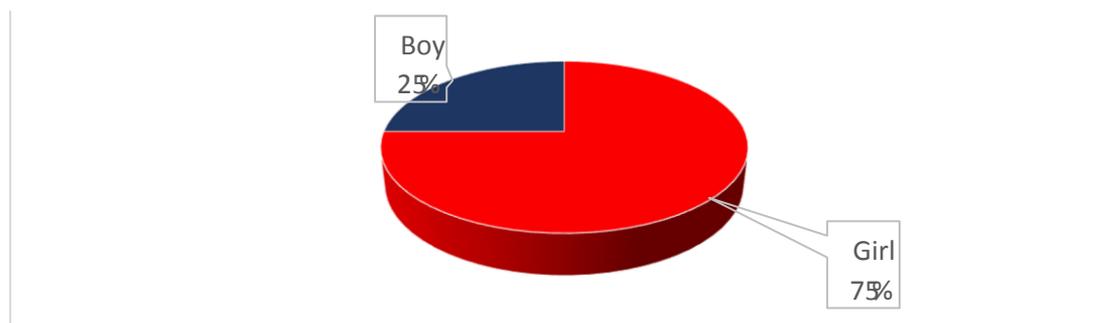


Figure (1): Percentage of cases of measles for both sexes

The incidence rate varied between age groups and we find most injuries less than five years and this as shown in table (1), similar to a study in Libya And the Netherlands (Alkoshi & Ernst, 2018; Vos *et al.*, 2019), it may be due to immunodeficiency in age groups less than five years.

Table (1): Age groups of cases.

<i>Age of children</i>	<i>Suspicion of measles</i>	<i>Negative</i>	<i>Positive</i>
<1	22	13	9
1-5	35	18	17
>5	8	6	2
	65	37	28

While we found most of the infected cases in 2019 and may be due to the interruption of vaccination campaigns in this year, as shown in table (2).

Table (2): Years of study.

<i>study years</i>	<i>Suspicion of measles</i>	<i>Negative</i>	<i>Positive</i>
2017	13	10	3
2018	15	11	4
2019	37	16	21
	65	37	28

At the beginning of the identification of the disease was diagnosed initially by medical tests mentioned above in addition to the clinical symptoms of the disease where it helped as a preliminary image to detect the disease, this was similar to the study in Japan where it helped in the early diagnosis of the disease (Yasui *et al.*, 2014) , Most of them had a high fever, coughs, colds and rashes, but eye inflammation was not a major indication of the disease, I found most of the infected cases do not have this symptom in addition to the vaccine is also not a measure to prevent infection, some cases that took the vaccine was

infected and may have been credited with vaccination to reduce the symptoms of injury and prevent death, as well as travel was not a catalyst in the spread and transmission of infection, most patients were not outside the country before the period of injury and Figure (2) shows the impact of clinical symptoms on the detection of the disease.

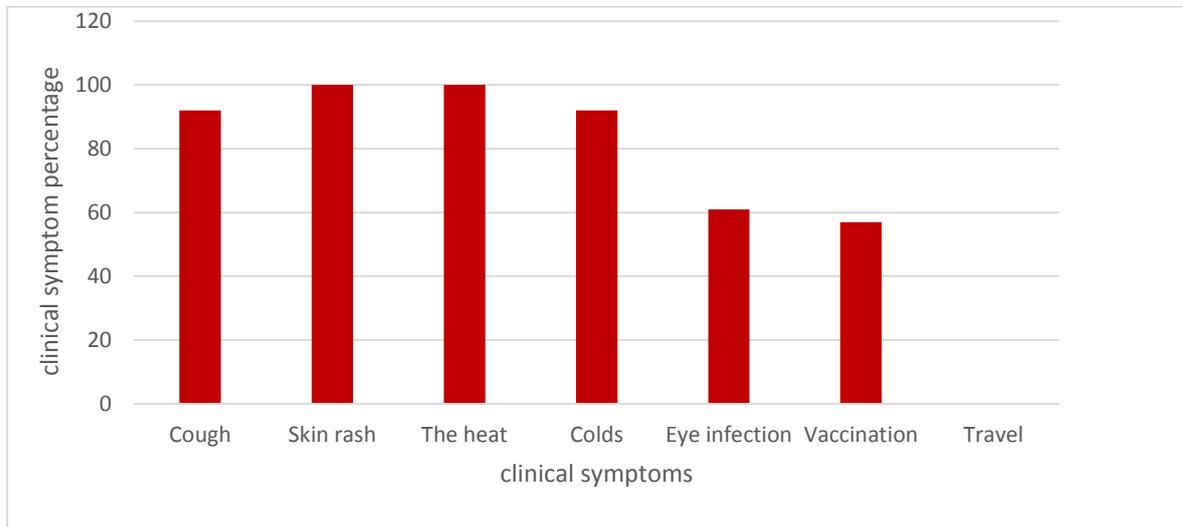


Figure (2): clinical symptoms on the detection of the disease.

In view of the geographical distribution of cases, the majority of cases in rural areas, where the proportion of 47% may be due to the lack of cultural awareness of the need for immunization of this disease, and similar of study in Nigeria and Tanzania (Chotta *et al.*, 2017; Umeh & Onyi, 2014) as shown in Figure (3).

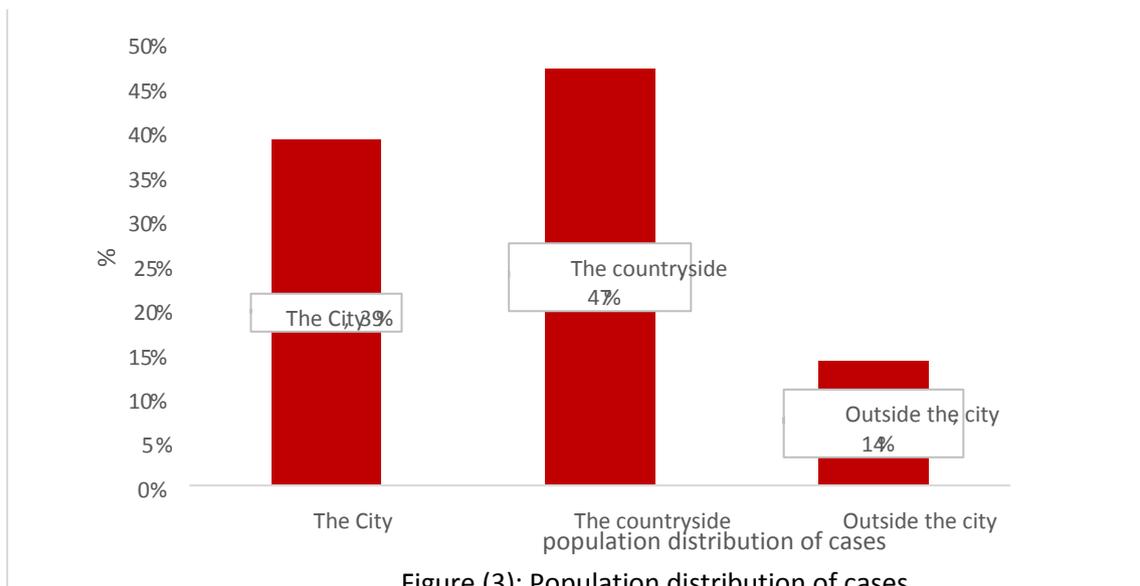


Figure (3): Population distribution of cases

This is obtained from the available data and information, however can be used that immunization plays a role in preventing the spread of the disease and reduce symptoms, especially in the age groups less than five years.

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Compared to the number of cases reported from the previous data of patients attending Misurata Medical Center, which is one of the largest centers in the city where the number of children visiting the center in the previous period 9551 children amounted to 58% boys while girls 42% as shown in Figure (4).

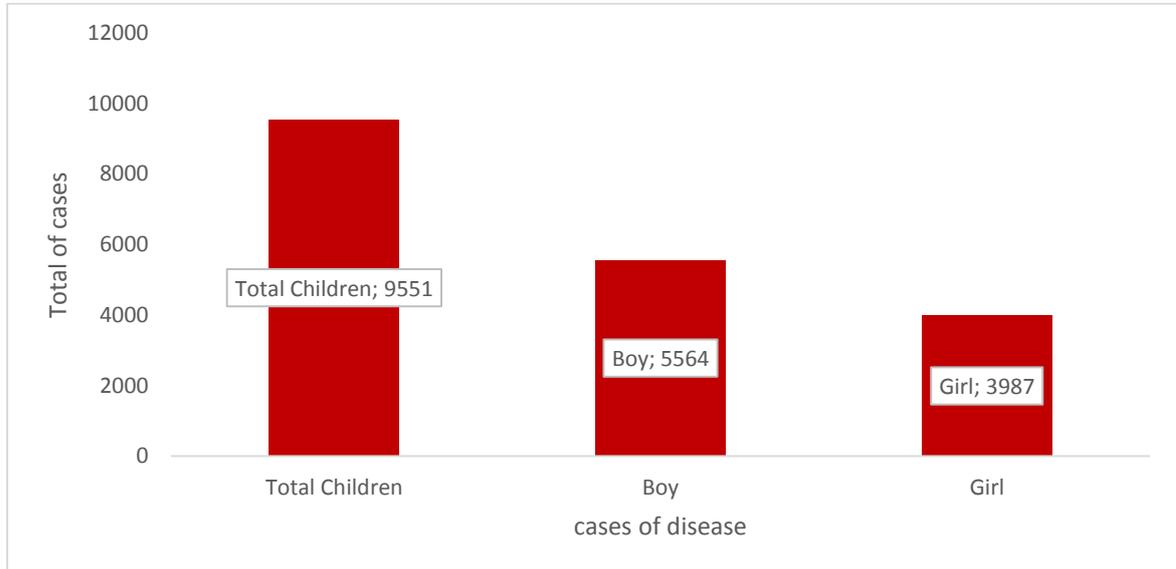


Figure (4): cases of disease

The suspected cases were 33 children, including 5 children of cases, as shown in Figure (5).

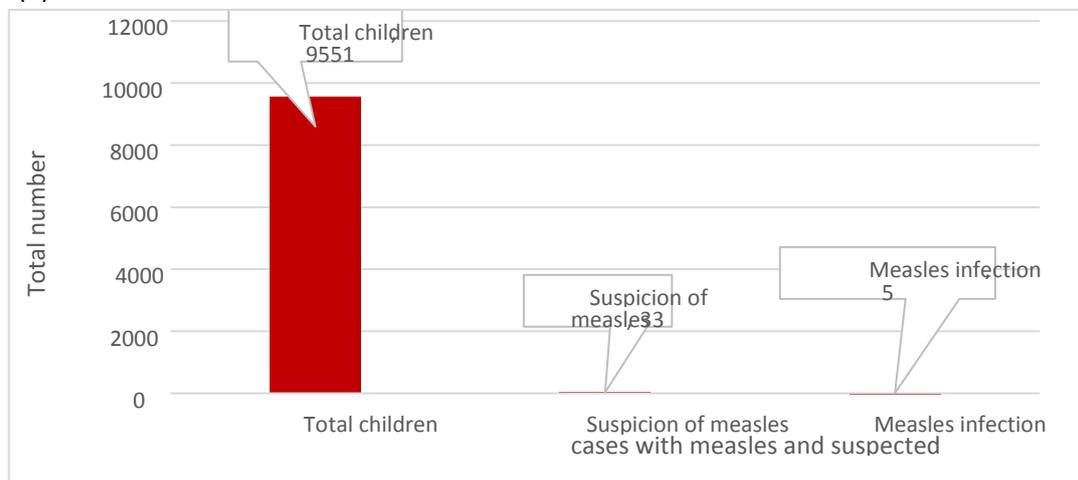


Figure (5): cases with measles and suspected

The infection was concentrated in the age groups less than five years as shown in table (3).

Table (3): Age group of cases.

<i>Age of children</i>	<i>Suspicion of measles</i>	<i>Negative</i>	<i>Positive</i>
<1	16	14	2
1-5	10	8	2
>5	7	6	1
	33	28	5

The majority of cases were in 2019 due to the interruption of the vaccine in this year as shown in table (4).

Table (4): Years of study.

<i>study years</i>	<i>Suspicion of measles</i>	<i>Negative</i>	<i>Positive</i>
2017	7	6	1
2018	3	3	0
2019	23	19	4
	33	28	5

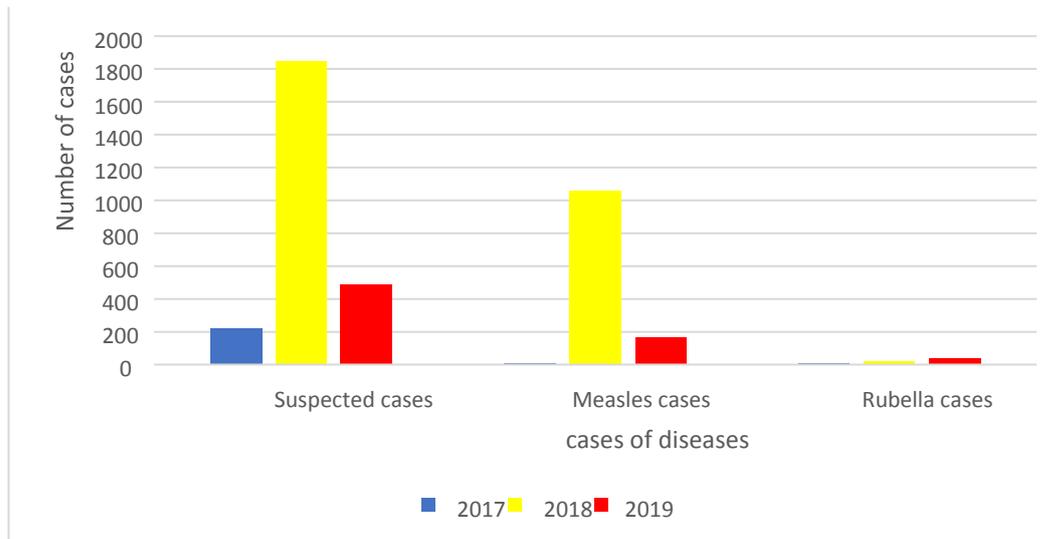
The clinical symptoms also played in the early detection of the disease did not report cases of death during the aforementioned period and took the survival of the child in a period of one day to a week, but it is identical to the recovery and to see the information we found most of the children were given vitamin A, this is due to the awareness of the doctor treating the importance of using supplements to reduce symptoms and reduce the number of deaths of this epidemic disease, this was for the city of Misrata. When taking information from the National Center for Disease Control in Tripoli regarding measles and rubella Same period as 2017 to September 2019, the total number of suspected cases in Libya was 490, While the number of measles cases was 164, while the Rubella 38 cases and there are no deaths in this period, most of the cases were in the age group less than 5 years as shown in table (5).

Table (5): Age of cases.

<i>Age of cases</i>	<i>measles cases (%)</i>	<i>Rubella cases (%)</i>
< 1year	45%	24%
1-<5 years	30%	34%
5- <10 years	7%	24%
10-<15year	4%	-
>15 year	14%	18%

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When comparing the number of cases in the study years, it was found that the lowest cases in 2017 for both types of measles, while increased in 2018 for each of them, while the number of cases decreased in 2019 as shown in Figure (6).



Figure(6): Patient Cases Years of Study

From the information obtained on the prevalence of measles and rubella in Libyan cities, we found that the city of Zliten has the highest number of cases and reached 32 cases, while 29 cases of Tripoli and Benghazi were 26 cases in Misrata, while the number varied from one to four cases among other cities as shown in Figure (7).

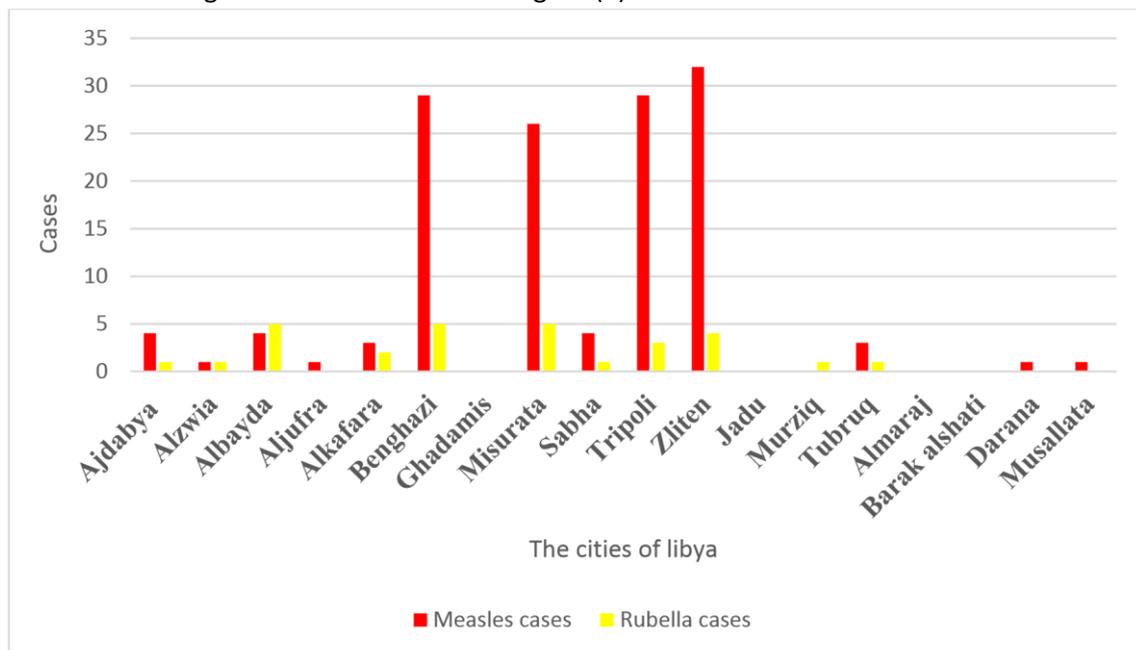


Figure (7): prevalence of measles disease in cities Libya.

4. Conclusion

We conclude from this information obtained that measles is an infectious disease and spread rapidly in the availability of appropriate conditions for the spread of the disease and that the health care of the patient plays an important role in reducing its spread, whether giving the vaccine or supplements to the patient.

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