MEASLES IN IRAQ: IS IT UNDER CONTROL?[+]

[*]Dr. Sulaf A. Hussain

Abstract:

Aim of the study:

To assess the success of control program of measles infection in Iraq through:

1. ***determining the frequency of measles in Iraq during the year 2001 and the status of vaccination of these patients***
2. ***determining the epidemic picture of the disease in Iraq for the last thirteen years***

Patients and Methods:*Data was obtained from the Communicable Disease Control Center (Ministry of Health). The data included number of cases of measles that were reported during the year 2001 from Iraqi provinces, and the number of cases registered during the years from 1989-2001. Data about the status of measles vaccination was obtained from the Immunization Section in the Ministry of Health.*

Results:*There were 491 reported cases of measles in Iraq during 2001. The highest number of cases was in age groups 1-5 years and 6-10 years (33.2% and 27%) respectively, age group 11-15 years had a rate of infection of 19.4%. The rate of vaccination with measles .5%. The coverage rate with the first ٣vaccine among patients infected with measles was 5 dose of measles vaccine during the year 2001 in Iraq was 53%, and with the second dose 22%. Three epidemics of measles infection had taken place in Iraq during the period from 1989-2001.*

Conclusion:*Measles infection is still poorly controlled in Iraq with a high number of cases every year as well as epidemics every few years. Poor control may be attributed to poor coverage rate with measles vaccine and insufficient immunity conferred to vaccine by one dose of the vaccine that they receive mostly.*

Key words: Measles; immunity; coverage.

المستخلص

هدف الدراسة: تقييم خطة السيطرة على مرض الحصبة في العراق من خلال:

١. تحديد عدد الإصابات بمرض الحصبة خلال عام ٢٠٠١ والموقف التلقيحي للمرضى.
٢. تحديد الشكل الوبائي للمرض خلال الثلاث عشرة سنة السابقة للدراسة.

طريقة البحث: أخذت البيانات من مركز السيطرة على الأمراض الانتقالية في وزارة الصحة. وشملت البيانات معلومات وبائية تخص حالات الحصبة المسجلة في القطر خلال عام ٢٠٠١ وعدد الحالات المسجلة للسنوات الثلاثة عشر الماضية. أخذت المعلومات التي تخص نسبة التغطية باللقاحات من شعبة التحصين في وزارة الصحة.

النتائج: تبين من الدراسة أن هناك ٤٩١ إصابة بالحصبة مسجلة لدى مركز السيطرة على الأمراض الإنتقالية لمحافظات القطر خلال عام ٢٠٠١ ، ولوحظ أن أعلى نسبة إصابات حسب الفئات العمرية كانت في فئة

[+] **Received on 7/7/2004 - Accepted on: 9/6/2005**

Teacher / College of Medical and Health Technologies . [*]

العمرية ١-٥ سنوات (٣٣,٢%) تليها الفئة ٦-١٠ سنوات (٢٧%) والفئة ١١-١٥ سنة (١٩,٤%). وبلغت نسبة الملقحين من بين المصابين بالحصبة (٥٣,٥%)، والنسبة المئوية للتغطية بلقاح الحصبة خلال عام ٢٠٠١ كانت (٥٣%) للجرعة الأولى و (٢٢%) للجرعة الثانية . وجدت ثلاثة تفشيات وبائية لمرض الحصبة للأعوام الثلاثة عشر السابقة.

الاستنتاج: لاتزال السيطرة على مرض الحصبة ضعيفة في العراق والمرض يتكرر كل سنة بمعدلات عالية مع تفشيات وبائية كل بضعة سنين . العوامل المسببة لضعف السيطرة هي التغطية الضعيفة بلقاح الحصبة وعدم اكتساب الملقحين المستوى الكافي من المناعة بسبب تلقيهم لجرعة واحدة من اللقاح في أغلب الأحيان.

Introduction

Measles is an eradicable disease as it can meet the four criteria for a disease to be considered eradicable:

1- Humans must be critical to maintaining transmission, 2- Accurate diagnostic tests must be available, 3- An effective intervention must be available, and 4- It must be possible to interrupt transmission for a prolonged period in a large geographic area [1].

Measles still causes almost one million deaths annually, primarily in the developing world [2], and theis accounts for 5% of all deaths among children aged < 5 years. The reason for the ongoing measles disease burden is underutilization of measles vaccine, both of coverage with the first dose and lack of a second opportunity for measles vaccination [3].

In 2001 the WHO and UNICEF developed a Global Measles Strategic Plan 2001-2002, the objectives of the plan includes:

1. to half the annual number of measles deaths by 2005.
2. to achieve and maintain interruption of indigenous measles transmission in large geographical areas with established elimination goals.
3. to convene a global consultation in 2005 to review the feasibility of global measles eradication [2].

Mass “catch up” measles immunization campaigns are recommended by the WHO as one of the main strategies to control or eliminate measles [4]. Measles elimination is the interruption of transmission of measles in a sizeable geographical area in which vaccination would nevertheless need to continue because of the continuous threat of reintroduction of the virus [5]. The immunity conferred by a single dose of MMR is only in 95% of vaccinated children, the second dose can increase the percentage to 99%. The second dose is given now between the age of 4 - 6 years or 11-12 years [6].

Immunity to the disease occurs after vaccination or after infection; passive immunity of an infant whose mother is immune lasts most of the first year of life. Children borne to younger mothers who have vaccine induced antibodies tend to become sero-negative earlier than infants borne to mothers who have had natural infection [7]. Before widespread immunization, measles was very common during childhood so that 90% of the population had been infected by the age of 20. Susceptible individuals are young infants as the maternal

antibody decreases, and those who refuse immunization. Teenagers and young adults who have not received a second immunization are also susceptible [5].

Measles epidemics occur every 2-3 years in areas of the world without effective immunization programs and there are small localized outbreaks in the intervening years [8].

In Iraq measles is still a problem in spite of the efforts of the Ministry of Health (MOH) to control the disease by the inclusion of a single Measles vaccine at the age of nine months and a second dose at the age of fifteen months, in the Expanded Program of Vaccination adopted by the Ministry. This study aims to show the size of the problem and to identify factors that are playing a role in its causation.

Methods:

The present study was conducted in Baghdad during the year 2002. The study had used information obtained from the Communicable Diseases Control Center (CDC) in the Iraqi Ministry of Health (MOH). The information included data about number of measles cases registered during the year 2001 and whether they were previously vaccinated or not. The coverage rate with measles vaccine during the year 2001 was obtained from the vaccination section in the MOH. Number of cases registered for the period from 1989-2001 in Iraq was also obtained from the center.

Results

There were 491 cases of measles registered in Iraq during the year 2001. Table 1 shows that the highest number of cases was in age group 1-5 years (33.2%) which indicates low coverage rate with measles vaccine as this is the risky age group for measles infection before the administration of measles vaccine [6]. The second highest age group affected was 6-10 years (27%) and the age group 11-15 years (19.4%), which is either due to the low coverage rate or to waning immunity as a result of the lack of a second dose of immunization with measles vaccine [5]. There were 64 cases below 9 months of age, which accounts for 13% of cases and that figure indicates the necessity of a high coverage rate with the first dose of measles vaccine.

About half of the patients (53.5%) were previously immunized with measles vaccine while 46.5% of them did not receive vaccination as shown in table 2. This result shows that the problem is of two folds, the first is in the coverage with measles vaccine as 53.5% of cases were not vaccinated and the second is a problem with the immunity conferred by the vaccine as 46.5% of cases did receive at least one dose of the vaccine.

Table 1**: Distribution of cases according to age group**

Age group	No.	%
<9 months	64	13
9-12 months	8	1.6
1-5 year	163	33.2
6-10	133	27
11-15	95	19.4
16-20	15	3.1
> 20	13	2.7
Total	491	100

Table 2: Status of vaccination of patients infected with measles

Status of vaccination	No.	%
Vaccinated	263	53.5
Not-vaccinated	228	46.5
Total	491	100

Table 3: Coverage rate with measles vaccine during the year 2001

No. of doses	Percentage
Not vaccinated	23
One dose	53
Two doses	22
Three doses	2
Total	100

Table 3 shows that the coverage rate of Iraqi children with the first dose of measles vaccine during the year 2001 was 53% while coverage rate with the second dose was 22%. The result of this table indicates poor control of measles infection as coverage rate with the first dose was 53% while we need a sustained coverage rate of at least 80% in order to control measles [9]. The first dose of measles vaccine in Iraq is given at age of nine months due to high rate of infection in infants below one year of age, but this dose does not confer sufficient immunity to prevent infection in all vaccinated infants as some of them may still retain maternal antibodies. According to the American Academy of Pediatrics, implementation of the two-dose schedule is necessary to control measles [5]. Therefore there is a need to have a high coverage rate with the second dose of measles to increase the immunity of the vaccinated children. A low coverage rate with the second dose can be even considered lower as some of these children may not have gained immunity from the first dose which explains the high rate of infection (53%) among vaccinated children as they are actually receiving one dose only.

Figure 1 shows the number of measles cases during the previous thirteen years. The curve shows three peaks one in the year 1989 (11707), and another in 1992 (16930 case) and the third in 1998 (28573 case), in 1999 cases dropped to 9920 and reached to 491 case in 2001. To prevent measles outbreaks we have to have at least a coverage rate of 95% with measles vaccine [9], which explains the two outbreaks seen in figure one.

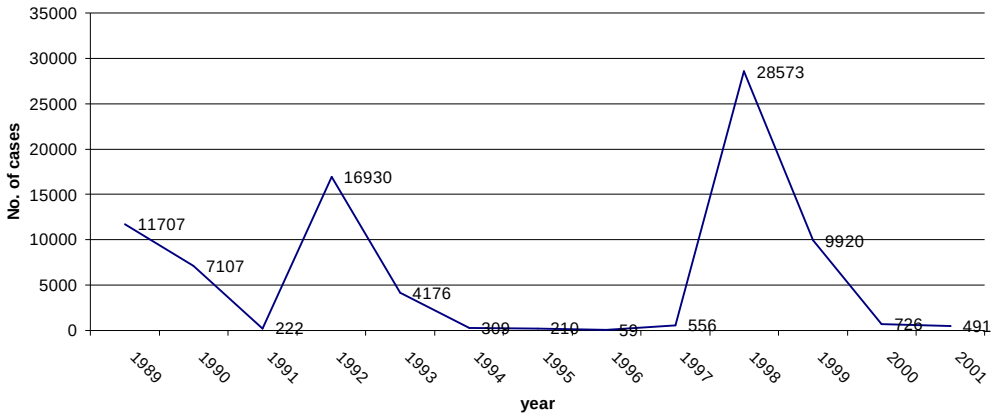

Figure 1: The number of measles cases for the years 1989 -2001

Conclusion and Recommendations:

The present study shows that measles control in Iraq is still poor, as there is high number of cases every year and epidemics occur every 3-4 years, and these two facts are manifestation of poor coverage with measles vaccine and especially the second dose; therefore the researcher recommends:.

1. A higher coverage rate of immunization with the first and the second dose of measles vaccine;
2. Considering the addition of a third dose of vaccination on entry to school, to compensate for the weak and perhaps weaning immunity conferred by the first dose and to achieve a real two-dose vaccine program;
3. Repeated measles immunization campaigns should target large population and includ age groups 1-15 years to increase the coverage rate to more than 90%.

References

1. Walter, A; Peter M; Mark, P. "Measles Eradication: Is it Our Future?" *American J of Public Health*, Vol. 90, No.10, pp1521-1525, 2000.
2. WHO. "Global Measles Mortality Reduction and Regional Elimination, 2000-2001, part I". *Weekly Epidemiological Record*, No. 7, 15 Feb,2002.
3. WHO. "Global Measles Mortality Reduction and Regional Elimination, 2000-2001, part II". *Weekly Epidemiological Record*, No. 8, 22 Feb. 2002.
4. Shuk KC, Yu LL, Wei LL. "Mass Measles Immunization Campaign: Experience in the Hong Kong Special Administrative Region of China". *Bulletin of the WHO*, Vol. 80 (7), pp 585-591, 2002.
5. WHO, the Pan American Health Organization, and CDC. "Measles Eradication". *Morbidity Mortality Weekly Report* Vol. 46: RR-11, 1997.
6. Benenson A. *Control of Communicable Diseases Manual*, 16th Ed.. united Book Press, Inc. Baltimore, Md., 1995, P 293-98.
7. Robert Wallace . *Maxcy-Rosenau-Last Public Health and Preventive Medicine*, 14th edition. Appleton and Lang Stamford, Connecticut, pp 89-93.
8. sney Mead. *Infectious Diseases*. Second edition, Blackwell Science Ltd., 2000, pp:225-292.
9. Duke T, Mgone CS. "Measles not Just Another Viral Exanthema". *The Lancet*, Vol. 361, P 763-71 March 2003.