Outbreak of Mumps Disease in Al-Hashimayh District- Babylon ProvinceFor The Year 2016

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الخلاصة:

النكاف هو مرض انتقالي يسببه فايروس النكاف. وغالبا ما تشمل الاعراض والعلامات الأولية حمى ،آلام في العضلات، صداع، والشعور بالتعب. ثم يتبع ذلك تورم مؤلم في إحدى أو كلتا الغدد اللعابية النكفية، ويمكن الوقاية من المرض باللقاحات الأهداف، لدراسةحدوث مرض النكاف في قضاء الهاشمية خلال عام 2016. اضافة، الى دراسة العلاقة بين مرض النكاف والموقف التلقيحي(المناعي) للمرضى المصابين مع بعض المتغيرات ذات الصلة.

هذه الدراسة كانت دراسة وصفية - مقطعية، نفذت خلال الفترة من 29اذار / 2017 لغاية 30/ نيسان 2017. تم جمع البيانات من سجلات وحدة الامراض الانتقالية في قطاع الهاشمية باستخدام استبيان خاص صمم لهذا الغرض. عينة الدراسة كانت(749)حالة مصابة بمرض النكاف.

نتائج هذه الدراسة أظهرت بأن أغلبية حالات مرض النكاف كانت ضمن الفئة العمرية اكثر من (10) سنوات وسجلت 485 (64,8%). حوالي 537 (7,17%) كانوا ذكور، واغلب المصابين كانوا ضمن المستوى التعليمي (الابتدائية) حيث كانت 323 (64%). أما بالنسبة الى الاقامة فكانت اغلبية الحالات في المدينة حيث سجلت 488 (66%). بخصوص الموقف التلقيحي أغلبية الحالات المسجلة كانت من غير الملقحين بلقاح الحصبة المخلطة (MMR). بخصوص الموقف التلقيحي أغلبية الحالات المسجلة كانت من غير الملقحين بلقاح من المسرلة الى الاقامة فكانت اغلبية الحالات في المدينة حيث المعلمة فكانت اغلبية الحالات المسجلة كانت من غير الملقحين بلقاح الحصبة المخلطة (MMR) حيث سجلت 483 (65%). كما اشارت النتائج في هذه الدراسة بأن اعلى نسبة من المصابين سجلت في منطقة القاسم وكانت 403 (65%)، كما اشارت النتائج في هذه الدراسة بأن اعلى نسبة من المصابين سجلت من المسرلين الثاني – كانون الاول) وكانت 317 (62%). وأخيرا من المصابين سجلت 40% (65%)، كما اشارت النتائج في هذه الدراسة بأن اعلى نسبة من المصابين سجلت 40% (65%)، كما اشارت النتائج في هذه الدراسة بأن اعلى نسبة من المصابين سجلت 40% (65%)، كما الشارت النتائج في هذه الدراسة بأن اعلى نسبة من المصابين سجلت في منطقة القاسم وكانت 4036 (65%)، كما الله والي أعلى نسبة من الاصابات خلال من المصابين سجلت في منطقة القاسم وكانت 4036 (64%)، كما سجلت أعلى نسبة من الاصابات خلال من المصابين سجلت في منطقة القاسم وكانت 403 (60%)، كما سجلت أعلى نسبة من الاصابات خلال الفصل الرابع من السنة (تشرين الاول – تشرين الثاني – كانون الاول) وكانت 137 (62%). وأخيرا مكرفت هذه الدراسة وجوداختلافات معنوية تم تسجيلها (0.01 > P) بخصوص علاقة الموقف التلقيحي المرضى المرضى المصابين والاقل المرضى المصابين والاقله من المرضى المولة المرضى 100 (700 > P) بخصوص علاقة الموقف المرضى المرضى المرضى المرضى المرضى المرضى المرضى المول – تشرين الثاني – 200 (100 > P) بخصوص علاقة الموقف اللمرضى المرضى المرضى المرضى المرضى المصابين والاقله مالم من المرضى المول المول مالمول مالمول المول مالمول المول المول مالمول مال

Abstract

Mumpsis a communicable disease caused by the mumps virus. Initial signs and symptoms often include fever, muscle pain, headache, and feeling tired. This is then usually followed by painful swelling of one or both parotid salivary glands,the disease can be prevented via vaccination. The objectives, to study occurrence of mumps disease Al-Hashimayh district through the year 2016. Additionally, to study the association between the mumps disease and vaccination (immunization) status of affected patients with some related variables.

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This study was; A descriptive, cross-sectional, carried out during the period 29thMarch2017 till 30thofApril2017. Data were collected from records of communicable diseases unit in Al-Hashimayh sector, by using a special questionnaire format was constructed for this purpose;Sample of thestudy were(749)cases of mumps.

The results of the study shows that the majority of mumps cases were registered at age group more than (10) yrs., and they were accounted 485(64.8%). 323(43%)were About 537(71.7%) were male, and atprimary school education.Relative to residency:488(65%) of cases were reported at urban areas.Regarding to vaccination statuswere443(59%)ofaffected casesnon vaccinated with (MMR) vaccine. The majority of registered cases364(48.6%) was reported at 4thseason, Al highly registeredat which Qassim and were area, accounted317(42.3%). Finally, the results had reported a highly significant association at (P<0.01), concerning the relationship of vaccination status of patients and residency.

Key words: Mumps, Outbreak, Vaccination, MMR vaccine.

Introduction:

Mumps, is an acute viral infection caused by paramyxovirus(RNA virus),can causesevere symptoms or asymptomatic. The disease mostly characterizedby headache, fever, and lethargy, followed by parotitis and swelling of the salivary glands [1,2].

Mumps is endemic in developing countries because of lack vaccination coverage, and it is transmitted by droplet spread or by direct contact with infected patients. Humans are the only known host.Incidence of the disease is increased in springand winter season and can occur at any age especiallythe children at age 5-9 years³; the incubation period of the disease is 16-18 days[3, 4, 5].

Encephalitis, Orchitis, Oophoritis and aseptic meningitis are common complication of mumps;other complications include pancreatitis and hearing loss(deafness) [6].

Several countries reported large numbers of mumps cases; One of the first large mumps outbreaks in avaccinated population occurred in England and Wales including (2,562) laboratory confirmed cases in 2012 [7].On January to April

(2006),mumps outbreak occurred in USA and reported (2786) cases, beginning in lowa countyand spread quickly to resulting infections in (40) states; In the same year, specifically in December, the total number of mumps cases arrived to (6584) case [8].

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In United States; before began the mumps vaccination programs in 1967, each year about(186,000) case were reported. Since, an application program of vaccination, there has been a more than (99%) decrease in mumps cases [9].

The disease; mostly diagnosed clinically depending on salivary gland swelling and not neededfor confirmatory laboratory testing. Salivary test and blood test such as PCR and serum amylase very important for confirmation[10].

Mumps disease;can be prevented by live attenuated vaccine (MMR) measles - mumps- rubella. In many countries, (MMR) vaccines are included in the routine childhood immunization schedule (two doses)1st dose at age 15 months, while 2^{nd} dose at age 4-6 years which that reduction the incidence of mumps infections (<1 case per 100,000 population)[11, 12].

In some countries used a combination(MMRV),(measles, mumps, rubella and varicella - chickenpox)vaccines instead of (MMR) vaccine; especially in the United States, Australia, Italy,Canada and Germany[13].

Materials and Methods:

A descriptive;Cross-sectional study design was used. This study was conducted at Al-Hashimayhdistrict / Babylon province.

Sample of study consisted of (749)cases of mumps, that diagnosed clinicallyat primary health care centers of Al-Hashimayh sector.

Data collection lasted from 29thMarch to 30th of April 2017. The data were collected by registration information of the mumps patients from records of communicable diseases unit/Al-Hashimayh sector, by using a special questionnaire. This information included socio - demographic data, vaccination (Immunization) data which included vaccinated- Admixed (fully & partially)andnon-vaccinated (Any patient unknown history of the previous vaccination was recorded in a category non vaccinated by health staff of communicable diseases unit), and finally, data of affected cases according to seasons and areas of Al-Hashimayh district which included (Center of Al-Hashimayhdistrict, Al Qassim district (new), Al



Age Groups (years)	No.	%
<5	61	8.1
5 - 10	203	27.1
>10	485	64.8
Total	749	100%
Gender	No.	%
Male	537	71.7
Female	212	28.3
Total	749	100%
Education	No.	%
Illiterate	78	10.4
read & write	102	13.6
Primary school graduate	323	43
intermediate school graduate	216	29
secondary school graduate	30	4
Collage graduate	0	0
Total	749	100%
Residence	No.	%
Urban	488	65
Rural	261	35
Total	749	100%

Taliaa area, Al Shumali area, and AL madhatiyh area).

Statistical Analysis: The results of the study were analyzed under application of the statistical package (SPSS) version (18); for testing the independency distribution of the observed frequencies, and their non-restricted of an expected outcomes; Binomial test, for testing the different of distribution of the observed frequencies of two categories (nominal or ordinal) scale and, their non-restricted of an expected outcomes at (50%);Contingency Coefficients (C.C.) test for the causes correlation ship of the association tables. The abbreviations of the comparison significant (C.S.), as the following:

- NS: Non significant at P > (0.05).
- S : Significant at P < (0.05).
- HS: Highly significant at P < (0.01). -

Results:

The result shows that the majority of registered cases were reported atage group more than (10) yrs., and they were accounted 485(64.8%).Regarding to Gender, 537(71.7%) were male, and about 323(43%) of registered cases were reported at primary education. Relative to residency, most of registered cases were reported at urban areas, and they were accounted 488(65%); Table (1).

Table (1): Distribution of affected patients according to demographical characteristics variables(Socio-demography).

^(*)No. = Number; % = percent.

The results indicated a highly significant association P<0.01 at throughoutvaccination (Immunization) status, and they were accounted 443(59%) of affected caseswerenon vaccinated with (MMR) vaccine; While 306(41%) werevaccinated-Admixed (fully and partially) with (MMR) vaccine; Table (2).

Table	(2):	Distribution	of affected	patients	according	to	vaccination s	tatus
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Areas	No.	%
Center of Al-Hashimayh district	32	4.3
uistrict		
Al Qassim district	364	48.6
Al Taliaa area	46	6.1
Al Shumali area	109	14.6
Almadhatiyh area	198	26.4
Total	749	100%

(Immunization) with comparison significant

^(*) HS: Highly Sig. at P<0.01; Bin. : Binomial test; No. = Number; % = percent.

Relative to (Areas of Al-Hashimayh District), the result shows mumps cases highly reported at Al Qassim and AL madhatiyh areas, and they were accounted364(48.6%), 198(26.4%) respectively; **Table (3)**.

Table (3): Distribution of affected patients according to areas of AlHashimayh

District.

Vaccination status	No.	%	P. value
Vaccinated- Admixed	306	41	



(fully & partially)			Bin. test
Non Vaccinated	443	59	$\mathbf{P}=0.000$
			(HS)
Total	749	100%	
Total	7 - 7	10070	

^{(*}No.

Number; % = percent.

The result showed most of the cases were registered at 4thSeason(October-November-December),and they were accounted 317(42.3%);**Table (4**

Table (4): Distribution of Mumps cases according to seasons of the year.

Seasons	No.	%
1 st season	121	16.2
(January - February -		
March)		
2 nd season	235	31.4
(April - May - June)		
3 rd season	76	10.1
(July - August -		
September)		
4 th season	317	42.3
(October-November-		
December)		

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Total

^(*)No. = Number; % = percent.

The results had reported a highly significant association at (P<0.01), according to the relationshipbetween the vaccination (Immunization) status and residency, which including of the total sample with a positive evaluation; Since the number of non-vaccinated patients were increased compared with those vaccinated; Contingency coefficient of measuring the association betweenvaccination (Immunization) status and residency, which had reported non-significant correlation ship at (P>0.05), which indicated that the residency were non-differentiated with their vaccination status assessment; **Table (5)**.

Table (5): Relationship of vaccination status of patients according to Residency with comparison significant

Residen ce	Numbers and percent's	umbers Vaccinated status of patients with MMR vaccine ercent's		Total	P. value
		Yes	No		
	Numbers	197	280	477	Bin.
Urban	Percent in Row	41.3%	58.7%	100%	P=0.00
	percent in Column	64.4%	63.2%	63.7%	(HS)
	Numbers	109	163	272	Bin.
Rural	percent in Row	40%	60%	100%	P=0.00
	percent in Column	35.6%	36.8%	36.3%	(HS)
	Numbers	306	443	749	Bin.

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Total	percent in	41%	59%	100%	test
	Row				P=0.00
	percent in	100%	100%	100%	3
	Column	10070	10070	10070	(HS)
		C.	C. = 0.061		
Р	. value	F	P = 0.092		
			(NS)		

⁽¹⁾ HS: Highly Sig. at P<0.01; NS: Non sig. at P > (0.05); %	% = percent.
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Bin. : Binomial test; C.C: Contingency Coefficient.

Discussion:

It has long been known, mumps disease continue to occur in several regions of the world, despite of lowering incidence rate of infections by using the vaccinations[14].

The results in table (1);Shows that the majority of affected cases were reported at age group more than (10) yrs., and they were accounted 485(64.8%); Most of them 537(71.7%) were male; Because this age groups is highest risk toward the disease due to waning of immunity in their bodies with increasing time since vaccination. The findings of the present study is agreement with study ofKutty P. K. and et al., in New York-USA (2014), they found of the (790) cases of mumps,(64%) were male and highest attack rate was among (11-17) years age group [15].In comparison with other study, this is coincide with the findings of Wang W. et al., in China (2014), who reveals that among the (960) mumps cases,(76.2%) were younger than 17 years old, and 732 (76.3%) were male[16].

Results oftable (1);Relative to education, 323(43%) of registered cases were reported at primary education, this is because lack of health and hygiene practices in primary schools and decreased knowledge of the students to avoiding the infectious diseases. So, this result supported by study of Hashimoto H., in Japan (2009), he showed that(60%) of mumps cases occurs at school aged children; Additionally; Study of Xing G.J.,in Kaifeng City- China(2009), found that most cases of the

mumps recorded among primary students, at aged (4-12) years old [17,18], which strongly in agreement with the present study.

Results of table (1);Concerning residency, most of registered cases were reported at urban areas, and they were accounted 488(65%), this because overcrowding and impoverished to the health education information concerning mumps disease, these results were comparable to the studies which done by Xing G.J., in Kaifeng City- China (2009), and Longs., in China (2008), they stated that the incidence of mumps cases in urban was higher than in rural areas[18, 19].

Results of table (2),Regarding to vaccination (Immunization) status of affected patients, the results showed that 443(59%) of affected cases werenon vaccinatedwith (MMR) vaccine, this is because most of the cases dropoutsof the vaccination; On the other hand, some patientsunknowna previous history of vaccination and then wrongly registered as a non-vaccinated in the records by health staff. This result is strongly in agreement to the results ofTakla A., in Germany (2007), who found of the total notified cases with mumps, (57.6%) in Bavaria and (75.4%) in Eastern federal stateswere unvaccinated[20].Additionally, study ofFanoyE. et al. in Netherlands (2011), they found of the total (161) mumps cases, of them (111) patientswereunvaccinated[21], which in agreement with the present study;In comparison with other study, this is coinciding with the finding of Kayal K., in Nepal (2012), he showed that a total of (113) affected persons with mumps, were completely unvaccinated against the disease[22].

Results of table (3), regarding to areas of Al-HashimayhDistrict, the result shows the majority of mumps cases reported atAl Qassim and Almadhatiyh areas, and they were accounted364(48.6%), 198(26.4%) respectively; This is because Al Qassim and Al madhatiyh the largest areas in Al-Hashimayhdistrict and the trends of mumps infection being related to a highly populated areas. these finding were comparable with the results of George E. N. et al, in Guamterritory – USA (2013), in their study reveals that were (505)mumpscases, reported commonly in Pohnpeians and Chuukese areas, which were accounted (54.7%)and (19.7%), respectively[23]. In comparison with other study, this is coincide with study of Adil R.K.in Baghdad-Iraq (2008), he stated that there were (8622) cases of infectious diseases recorded in Baghdad city, 1724(20%) of these cases were mumps and highly registered at Al Sadar city, Al Rusafa, Al A'adhamyiah and Al Madaain, respectively[24], which nearly had some correspond with the present study.

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Results of table (4),Relative to seasons of the year, the result showed that most of mumps cases recorded at 4thSeason(October-November-December), and they were accounted 317(42.3%), this is because the virus activated in the winter and spring seasons. So, this result supported by studyJitendra S., in India (2015), he found a peak of mumps incidence occurredon (October) and thendeclined slowly [25], which strongly agree with this study.The present findings were comparable with Su Q.R.et al. in china (2016),they found peaks of mumpsoccurred regularly from (November to January)[26], which strongly in agreement with the present study.

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Results of table (5),the results had reported a highly significant association according to the relationship between the vaccination (Immunization) status and residence including the total sample with a positive evaluation; Since the number of non-vaccinated patients, were increased compared with those vaccinated; Contingency coefficient of measuring the association between vaccination (Immunization) status and residency, which had reported non-significant correlation ship at (P>0.05), which indicated that the residency were non differentiated with their vaccination (Immunization) status assessment; This results for the first time studied in such aspects. Unfortunately, there is no similar evidence for comparison this result the literatures.

Conclusions:

- 1. Mumps cases were spread in Al-Hashimayhdistrict, especially in thepatients at age group more than(10) years, and inurban areasmore thanruralareas.
- 2. Most of Mumps cases were unvaccinated and dropouts from vaccinations.
- 3. Mumps peaks highly occurred at the 4th seasons of the year, especially in the winter and spring.

Recommendations:

- 1. Vaccinationcampaigns with (MMR) vaccine must be implemented for the dropout'spersons and vaccinated students in the primaryschools, especially in urban areas, and before coming the winter season.
- 2. Emphases of non-acceptancea new students in the primary schools and kindergartens unless taken doses of (MMR)vaccinecompletely and bring health certificate confirmed that. Additionally, any school in whichmumps cases occurred must be closed immediately and for one month at least.

3. Application strategies of herd immunity in the borders areas of Al-Hashimayhdistrict with others governorates, which that registered highly numbers of mumps cases; and at all primary schools.

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