ejpmr, 2021,8(7), 24-27

SJIF Impact Factor 6.222

EUROPEAN JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

www.ejpmr.com

Research Article

ISSN 2394-3211

EJPMR

RATE OF PERTUSSIS DISEASE AMONG IRAQ POPULATION. A RETROSPECTIVE STUDY DURING 2016 TO 2019

Dr. Abdul Sattar Sahib Hamed*

M. B. Ch. B. Mustansiriyah University. Ministry of Health, Baghdad Al-Rusafa Health Directorate, Al-Shaheed Al-Sadir Hospital, Baghdad – Iraq.

***Corresponding Author: Dr. Abdul Sattar Sahib Hamed**
M. B. Ch. B. Mustansiriyah University. Ministry of Health, Baghdad Al-Rusafa Health Directorate, Al-Shaheed Al-Sadir Hospital, Baghdad – Iraq.

Article Received on 29/04/2021 **Article Revised on 19/05/2021** **Article Accepted on 08/06/2021**

ABSTRACT

Whooping cough is a highly contagious disease that only spreads between humans. This study aimed to identify the rate of whooping cough disease among cases during the studied period. A retrospective cross sectional study was carried out at the Life Statistics Center of the Iraqi Ministry of Health within 4 years, started from 2016 up to 2019. During this period, the study samples were 4262. Data was entered to Excel sheet and the STATA software program was used to analyze this data and make tables and graphs. Out of 4262 cases, there are 49.8% were male cases and 50.2% were female male. The highest frequency 34.2% of studied sample occurred during 2017 followed by 23.8% during 2016 and the less frequency19.1% during 2019. 68.4% of studied samples with pertussis occurred in the age less than 5 years .There are a significant relationship between age groups and gender by years at the p. value less than 0.05. The rate of pertussis disease was higher during 2017. We need to widespread use of the vaccine, it has had a clear effect on lowering infection rates in some countries, which almost reach zero in some areas where the vaccine coverage reaches 100%.

KEYWORD: Pertussis disease, Rate, Gender, Iraq, Retrospective study.

INTRODUCTION

Whooping cough is a highly contagious disease that only spreads between humans.[1] Whooping cough usually spreads to another person through coughing, sneezing, or direct contact.[2] Many babies who get whooping cough are infected by older siblings, parents, or caregivers who may not even know they have the disease.[3] Whooping cough can affect humans of any age, but more than 70% of cases occur in children under the age of 5 years, and about 40% of cases occur in infants under the age of 6 months.[4] Whooping cough is more dangerous in children younger than 2 years of age, and nearly all deaths occur in children younger than 6 months of age.[5] Most deaths result from pneumonia and complications affecting the brain. Whooping cough is dangerous when it affects older adults as well.[6] Worldwide, there are an estimated 24.1 million cases of whooping cough and about 160,700 deaths annually.[7] In 2012, the CDC reported 48,277 cases of whooping cough in the United States, but many more were undiagnosed or reported.[8] This is the largest number of cases reported in the United States since 1955 when public health experts reported 62,786 cases.[9] Since the 1980s, there has been an increase in the number of reported cases of whooping cough in the United States.[10] In 2010, the CDC saw an increase in reported cases among children 7 to 10 years old.[9] Similar trends occurred in the following years; however, the CDC also noted an increase in cases among teens.[11,12] According to United Nations statistics, pertussis infects up to 50 million people around the world annually, of whom between 200,000 and 400,000 cases per year are mostly children.[13] The incidence of pertussis increases in the following human groups.[14] Children who do not fully complete the pertussis vaccination schedule; Infants who are directly exposed to the disease; elderly people who live in epidemic areas of whooping cough, or because they did not receive a full vaccination according to the schedule prepared for them; Babies born prematurely or having heart or lung disease have a higher risk of complications from whooping cough.[15,16] Statistics indicate that the incidence of pertussis for white people is 88%, compared to 8% for blacks.[16, 17] Having a single attack of whooping cough does not provide complete lifelong immunity to the disease, but a second attack, if it occurs, is mild and may not always be diagnosed as a whooping cough. In fact, some adults with "walking pneumonia" actually have whooping cough.[18,19] From this point, this study aimed to identify the rate of pertussis (whooping cough) disease among cases during the studied period.

METHODOLOGY

A retrospective cross sectional study was carried out at the Life Statistics Center of the Iraqi Ministry of Health within 4 years, started from 2016 up to 2019. During this period, the study samples were 4262. Data was entered to

Excel sheet and the STATA software program was used to analyze this data and make tables and graphs.

RESULTS

Out of 4262 cases, there are 49.8% (2124/4262) were male and 50.2% (2138/4262) were female. The highest frequency 34.2% (1458/4262) of studied sample occurred during 2017 followed by 23.8% (1014/4262) during 2016 and the less frequency19.1% (812/4262) during 2019 shows in Table 1. Therefore, in the same table shows that there is a significant relationship between years and gender at the p. value less than 0.05. In Table 2, we show that the highest frequency 68.4% (2914/4262) of studied samples were in the age less than 5 years old and 24.6% (1050/4262) in the age groups 5 to 14 years old and the less frequency 1.1 % (45/4262) in the age more than 45 years old. There is a significant relationship between years and age groups at the p. value less than 0.05 [Table 2]. The rate of pertussis disease was higher 0.39 during 2017, followed by 0.27 and 0.26 during 2016 and 2018 respectively [Figure1].

Table 1: Distribution of studied samples according to gender by years.

Years	Gender		Total
	Male	Female	
	Frequency /Percent	Frequency /Percent	Frequency /Percent
2016	497 49%	517 51%	1014 100%
2017	736 50.5%	722 49.5%	1458 100%
2018	460 47%	518 53%	978 100%
2019	431 53.1%	381 46.9%	812 100%
Total	2124 49.8%	2138 50.2%	4262 100%
This result significant at p < .05.			

Table 2: Distribution of studied samples according to age groups by years.

Years	Age groups				Total
	<5	5-14	15-44	≥45	
	Frequency %	Frequency %	Frequency %	Frequency %	Frequency %
2016	772 76.1	227 22.4	15 1.5	-	1014 100
2017	898 61.6	421 28.8	122 8.4	17 1.2	1458 100
2018	591 60.4	260 26.6	104 10.6	23 2.4	978 100
2019	653 80.4	142 17.5	12 1.5	5 0.6	812 100
Total	2914 68.4	1050 24.6	253 5.9	45 1.1	4262 100
This result significant at p < .05.					

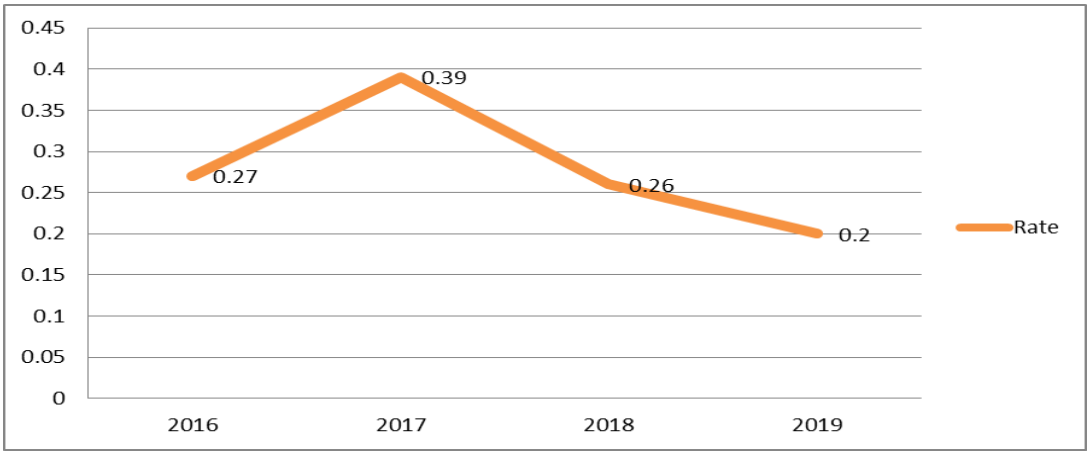

Figure 1: Rate of Pertussis per 10000 of population during 2016 up to 2019.

DISCUSSION

This study aimed to identify the rate of whooping cough disease among cases during the studied period. Gender is a major factor in determining the prevalence of the disease in adolescents and adults. In our study, we found that the female cases 50.2% were more slightly than 49.8% male cases and compared with another studied done it in Iran by Manijeh 2014, the authors found the male cases with Pertussis were more than female cases.[20] A study done it in Tunisia 2012, the researcher found that the female cases with pertussis were more than male cases.[21] While a study done it in Itlay by Gabutti and Maria in 2012, they found the same frequency between them.[22] This difference between the results refers to differ of behavior and culture between the countries. Also, the age is a main factor in determining the prevalence of the disease among childhood and adolescents. In this study we found the highest frequency 68.4% of studied samples occurred in the age less than 5 years and 24.6% in the age 5 to 14 years. Compared with other studied done it in Nigeria[23,24], in Guinea[25] and in Ghana[26], the authors found that the pertussis disease was occurred in children with age less than 10 years old more than other groups. This is due to most of them not receiving the vaccine during childhood, or the health system was deteriorated. In addition to, some countries were suffering from poverty and destitution; it's led to increase the incidence of the disease.

CONCLUSION

We concluded that the pertussis disease was higher among female cases more than male cases. Also the rate of disease was higher during 2017. The pertussis disease had higher frequency among the age groups less than 5 years.

Recommendation

We need to widespread use of the vaccine; it has had a clear effect on lowering infection rates in some countries, which almost reach zero in some areas where the vaccine coverage reaches 100%. But since the early 1980s, there has been an increase in reported cases of whooping cough; it's because the bacteria that first cause whooping cough are always changing at the genetic level. Research is underway to determine whether any of the changes have an impact on public health. However, the latest studies indicate that pertussis vaccines are still effective despite recent genetic changes. Another reason for the high number of cases is weak immunity. From this point, we need to increase the research on this field by the researchers.

REFERENCES

1. Jenkinson D. Pertussis (whooping cough) is common in teens and adults. BMJ, 2019 Apr 09; 365: l1623.
2. Wendelboe AM, Njamkepo E, Bourillon A, et al. Transmission of Bordetella pertussis to young infants external icon. Pediatr Infect Dis J., 2007; 26: 293–99.
3. Tanaka M, Vitek CR, Pascual FB, Bisgard KM, Tate JE, Murphy TV. Trends in pertussis among infants in the United States, 1980-1999 external icon. JAMA, 2003; 290: 2968–75.
4. Leong RNF, Wood JG, Turner RM, Newall AT. Estimating seasonal variation in Australian pertussis notifications from 1991 to 2016: evidence of spring to summer peaks. Epidemiol Infect, 2019 Jan; 147: e155.
5. Skoff TH, Kenyon C, Cocoros N, et al. Sources of infant pertussis infections in the United States external icon. Pediatrics, 2015; 136: 635–41.
6. Kandeil W, Atanasov P, Avramioti D, Fu J, Demarteau N, Li X. The burden of pertussis in older adults: what is the role of vaccination? A systematic literature review. Expert Rev Vaccines, 2019 May; 18(5): 439-455.
7. Lumbreras Areta M, Martinez De Tejada B. [Preventing whooping cough in infants: vaccinated mother, protected newborn]. Rev Med Suisse, 2018 Oct 24; 14(624): 1884-1886.
8. Centers for Disease C, Prevention. Pertussis epidemic--Washington, 2012. MMWR Morb Mortal Wkly Rep, 2012; 61(28): 517–22.
9. CDC. Centers for disease control and prevention. Pertussis in Other Countries. Available at https://www.cdc.gov/pertussis/countries/index.html. 2017.
10. CDC. Pertussis vaccination: use of acellular pertussis vaccines among infants and young children. Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR, 1997; 46(No. RR-7): 1–25.
11. CDC. Recommended antimicrobial agents for the treatment and postexposure prophylaxis of pertussis. 2005 CDC Guidelines. MMWR, 2005; 54(No. RR-14): 1–16.
12. CDC. Preventing tetanus, diphtheria, and pertussis among adults: use of tetanus toxoid, reduced diphtheria toxoid and acellular pertussis vaccine: recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR, 2006; 55(No. RR-17): 1–33.
13. National Notifiable Diseases Surveillance System, 2004–2014. Division of Integrated Surveillance Systems and Services, National Center for Public Health Informatics, Coordinating Center for Health Information and Service, Centers for Disease Control and Prevention, U.S. Department of Health and Human Services, Atlanta, GA 30333.
14. Bisgard KM, Pascual FB, Ehresmann KR, et al. Infant pertussis: who was the source? external icon Pediatr Infect Dis J, 2004; 23: 985–89.
15. American Academy of Pediatrics. Pertussis. In: Pickering L, Baker CJ, Kimberlin D, Long SS, eds Red Book: 2009 Report of the Committee on Infectious Diseases. 28th ed. Elk Grove Village, IL: American Academy of Pediatrics, 2009; 504–19.

16. Greenberg DP. Pertussis in adolescents: increasing incidence brings attention to the need for booster immunization of adolescents. Pediatr Infect Dis J, 2005; 24: 721–8.
17. Ward JI, Cherry JD, Chang SJ, et al. Efficacy of an acellular pertussis vaccine among adolescents and adults. N Engl J Med, 2005; 353: 1555–63.
18. Tan T, Trindade E, Skowronski D. Epidemiology of pertussis. Pediatr Infect Dis J, 2005; 24(5Suppl): S10- 8.
19. Mohammad A. Muhsim. The Epidemiological profiles of hospitalized pertussis patients in Babylon province. Kufa Med.Journal, 2009; 12(2).
20. Manijeh Sedaghat,1 Masoume Nakhost Lotfi,1 Malihe Talebi,2,* Mahnaz Saifi,1,* and Mohammad Reza Pourshafie1,* Status of Pertussis in Iran. Jundishapur J Microbiol, 2014 Nov; 7(11): e12421.
21. Zouari A, Smaoui H, Brun D, Njamkepo E, Sghaier S, Zouari E, et al. Prevalence of Bordetella pertussis and Bordetella parapertussis infections in Tunisian hospitalized infants: results of a 4-year prospective study. Diagn Microbiol Infect Dis, 2012; 72(4): 303–17.
22. Gabutti G, Maria C. Pertussis: A Review of Disease Epidemiology Worldwide and in Italy. Int J Environ Res Public Health, 2012 Dec; 9(12): 4626-4638.
23. Oloyede IP, Ekanem AM, Udoh EE. Pattern of childhood pertussis in a tertiary hospital in Nigeria: a five-year review (2007-2011). Niger J Paed, 2015; 42(2): 83-87.
24. Sadoh AE, Oladokun RE. Re-emergence of diphtheria and pertussis: implications for Nigeria. Vaccine, 2012 Nov 26; 30(50): 7221-8.
25. Cutter J, Mcpherson M, Aldana JM, Partridge J. Outbreak investigations in the Western Pacific Pertusis outbreak in Papua New Guinea, 2012.
26. Iddrisah, Florence Nzilanye et al. "Outbreak of pertussis at community A in Dormaa Municipality, Ghana, August 2016." The Pan African medical journal, 30, Suppl 1 15. 18 May. 2018, doi:10.11604/pamj.supp.2018.30.1.15290.