The Danger of Diphtheria Microbe to Humans

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Abstract

This study aims the impact of the diphtheria microbe on human health, how to diagnose the diphtheria microbe and its impact on humans, what is the treatment used for the diphtheria microbe and its impact on humans. A questionnaire was prepared via Google Drive and distributed to the population aged 25-55 years, men and women, in the city of Mecca. As for the questionnaire, it was distributed via the social networking program (WhatsApp) for the purpose of distancing for fear of the presence of the Corona virus, 400 questionnaires were distributed, and 380 responses were obtained via email to the principal researcher. It concluded that Can diphtheria infection be transmitted from a person to commonly used microbes?100%. Diphtheria can infect anyone, but it is most common among unvaccinated children?83.3%. Can the effects of toxins on the nerves lead to rapid heartbeat, irregular heartbeat, and low blood pressure?66.7%. Can bacterial toxins cause myocarditis? Which sometimes leads to cardiac arrhythmia, and then heart failure and death?66.7%.

Keywords: The danger, of diphtheria, microbe, to humans

Diphtheria (1) (2) or croup (2) (3) or angina (3) or diphtheria (Diphtheria ("a pair of skin scrolls")) is a disease of the system due to the deficiency of Corynebacterium diphtheriae, a gram-positive anaerobic bacterium (4)(5). The disease is characterized by inflammation of the pharynx, low-grade fever, and a thin membrane (pseudomembrane) on the tonsils, pharynx, and/or nasal cavity (6). Hide diphtheria can disappear on the skin. It is an infrequent consequence of myocarditis (about 20% of cases) (7) and neuronal neuropathy (about 10% of cases) (8). Diphtheria is a contagious disease spread by direct physical contact or breathing droplets of secretions from infected people. It is so common that historically, diphtheria has been largely eradicated in industrialized countries by widespread vaccination. In the United States, for example, there were 52 cases of diphtheria (diphtheria) between 1980 and 2000, and between 2000 and 2007 there were only three cases (9) because the triple vaccine (diphtheria - pertussis - tetanus) was recommended for all... School-age children. Booster doses of the vaccine are recommended for adults because the benefits of the vaccine decrease with age without

continuous re-exposure; These doses are especially recommended for travelers to areas where the disease has not yet been eradicated. The particular form that infects the respiratory system has an incubation period of 2-5 days. The onset of the disease is usually gradual and includes symptoms such as: fatigue, fever, mild sore throat, and swallowing problems. Infected children have symptoms that include nausea, vomiting, chills and a high temperature, although some do not show symptoms until the infection has progressed further. In 10% of cases, patients experience neck swelling, informally referred to as "bull's neck," and these conditions are associated with a greater risk of death. In addition to the symptoms at the site of the infection (sore throat), the patient may suffer from more general symptoms, such as listlessness, paleness, and rapid heartbeat. The cause of these symptoms is a toxic substance called "toxin" released by bacteria. It may develop and lead to low blood pressure in these patients, and the long-term effects of diphtheria toxin include cardiomyopathy (7) and peripheral neuropathy (sensory type) (8). The cutaneous form of croup is often a secondary infection of a pre-existing skin disease. Signs of diphtheria skin infection develop within seven days after the initial appearance of the skin disease. The current definition of diphtheria used by the Centers for Disease Control and Prevention is based on both laboratory and clinical criteria. Isolation of Corynebacterium diphtheriae from a clinical sample, or Diagnosis of diphtheria by histopathology. Antibiotics have not been shown to affect the resolution of local infections in diphtheria patients treated with antidotes. Antibiotics are used on patients or carriers of the disease to eliminate the Corynebacterium diphtheriae bacterium and prevent its transmission to others. The CDC(10) recommends either: Erythromycin (oral or injection) for 14 days (40 mg/kg daily to a maximum of 2 g daily), or Procaine penicillin is given intramuscularly for 14 days (300,000 U/d for patients weighing less than 10 kg and 600,000 U/d for those weighing more than 10 kg). Patients who are allergic to penicillin or the erythromycin group can use rifampin or clindamycin. In cases that progress beyond a sore throat, diphtheria toxin spreads through the blood and can lead to potentially life-threatening complications affecting other organs in the body, such as the heart and kidneys. Toxins can cause damage to the heart and affect its ability to pump blood or the kidneys' ability to remove waste. It can also cause nerve damage, eventually leading to paralysis. It can lead to death in 40% to 50% of those left untreated.

Material and Methods:

The study began in (the city of Mecca in the Kingdom of Saudi Arabia), and the study ended with writing the data collection in September 2024. The researcher used descriptive analysis, an approach that uses quantitative or qualitative description of the social phenomenon (The danger of diphtheria microbe to humans). The independent variable (The global prevalence of diphtheria in humans) and the dependent variable (The local prevalence of diphtheria in humans). This type of study is characterized by analysis, reason, objectivity, and reality. It is also concerned with individuals and societies, as it studies the variables and their impact on the health of the individual, society, and the consumer, and the spread of diseases and their relationship. For demographic variables such as age, gender, nationality, and marital status. Status and occupation (11), and use the Excel 2010 Office suite pie chart to sort the results (12). The questionnaire is a wonderful and useful tool for collecting a huge amount of data, but the researchers were not able to conduct personal interviews with the participants in the online survey, due to social distancing rules at the time to prevent infection between participants and researchers and vice versa (Coronavirus sharing has not completely disappeared. of the community), and the questionnaire was only answered electronically, because the

questionnaire consists of fifteen questions, all of which are closed-ended.

Results and discussion:

The percentage of approval to participate in the questionnaire (the danger of diphtheria to humans) was 100%, as the age of participants from 25-34 years was 0%, the age of those between 35-44 years was 60%, the age of 45-55 years was 40%, and the gender was male. It was 40% and females 60%, and the nationalities of males and females were 100% Saudi, their educational status, they were all university graduates, male or female, 100%, and their professions were all male and female government employees, 100%.As for their responses to the questionnaire questions, they were as follows: First question: Diphtheria is a contagious and sometimes fatal infection of the upper respiratory tract, caused by bacillary bacteria? Yes, 80% and I don't know, 20%. The second question: Diphtheria is a contagious disease caused by toxin-producing bacteria. Can diphtheria infection be transmitted from a person to commonly used microbes? Yes 100%, diphtheria can infect anyone, but it is more common among unvaccinated children (vaccinated)? Third question: Yes 83.3% and no 16.7%. Question Four: Diphtheria infection is treated by giving the patient an intravenous diphtheria antitoxin or intramuscular injection, and he is also given antibiotics to eliminate the bacteria and their production of toxin and prevent the infection from being transmitted to others? Yes, 83.3%, and I do not know, 16.7%. the question five: All children around the world should be immunized against diphtheria. A child's receipt during infancy of an initial vaccination series consisting of three doses of diphtheria vaccine forms the basis for building his immunity to diphtheria for life? It was the same as the previous answer. Question Six: Should people who are not vaccinated against diphtheria or partially vaccinated against it receive at what age the necessary dose of the vaccine to complete their vaccination? Yes, 66.7%, and I do not know, 33.3%. Question Seven: Can the effects of toxins on the nerves lead to rapid heartbeat, cardiac disturbance, and low blood pressure? Question 8: Can bacterial toxins cause myocarditis? Which sometimes leads to cardiac arrhythmia, and then heart failure and death? Same as the previous answer. Question nine: May severe infection lead to kidney damage as well? Same as previous answer. Question ten: Diphtheria (diphtheria) has become a rare condition in countries with high resources, and this is mainly due to the widespread spread of childhood vaccinations? Yes, 83.3%, and I do not know, 16.7%. Question eleven: Diphtheria bacteria still exist in other places in the world, and may lead to outbreaks of the disease if vaccination is not sufficient? Yes 100%, Question Twelve: Diphtheria causes severe damage to the kidneys, nervous system and heart if not treated, and is it considered a serious disease that may lead to death? Yes 66.7% and I don't know 33.3%. Question thirteen: signs of diphtheria appear within 2-5 days of infection? Yes 66.7% and I don't know 33.3%. Question fourteen: Some people may not suffer from any symptoms, while others suffer from mild symptoms similar to the symptoms of the common cold. The most obvious symptom of diphtheria is the thick gray coating on the throat and tonsils? Same as previous answer. Final question: do you have previous information about diphtheria? Yes 50%, No 33.3%, and I do not know 16.7%.

Table:no-1: The danger of diphtheria microbe to humans according to participants

The danger of diphtheria microbe to humans	Yes	No	I don't know
Diphtheria is a contagious disease caused by toxin-producing bacteria. Can diphtheria infection be transmitted from a person to commonly used microbes?	100%	0%	0%
Diphtheria can infect anyone, but it is most	83.3%	16.7%	0%

common among unvaccinated children.			
Can the effects of toxins on the nerves lead to rapid heartbeat, irregular heartbeat, and low blood pressure?	66.7%	0%	33.3%
Can bacterial toxins cause myocarditis? Which sometimes leads to cardiac arrhythmia, and then heart failure and death?	66.7%	0%	33.3%

There was a study entitled (diphtheria remains a threat to health in the developing world: an overview) in december 2003(13) , Ana Luíza and others mentioned that The worst diphtheria epidemic of the last decades forced a new generation of clinicians, laboratories, and epidemiologists worldwide to relearn old lessons and, develop new methods in the prevention, control, and treatment of diphtheria. In countries were diphtheria incidence is still relatively high and coverage is still Insufficient laboratory support should be supplied due to current severe limitations on basic laboratory capacity. Continued investment in improved vaccines, control strategies, training and laboratory techniques remain necessary.

Conclusion:

Diphtheria is a contagious disease caused by toxin-producing bacteria. Can diphtheria infection be transmitted from a person to commonly used microbes?100%. Diphtheria can infect anyone, but it is most common among unvaccinated children?83.3%. Can the effects of toxins on the nerves lead to rapid heartbeat, irregular heartbeat, and low blood pressure?66.7%. Can bacterial toxins cause myocarditis? Which sometimes leads to cardiac arrhythmia, and then heart failure and death?66.7%.

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