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TREATMENT OF PERTUSSIS IN THE CITY OF NASIRIYAH AND REVIEW OF TREATMENTS FROM WORLDWIDE SOURCES

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Abstract

The study is to determine the treatment used against pertussis in the city of Nasiriyah and compare it with treatments from international sources. based on data available from pectorlis service in Nasiriyah for whooping cough and compared with other antibiotic used by different sources on the basis on age group of patients ,effect and duration of antibiotics.

drugs(Dexmethasone , Amoxicillin , ketotifenfumarate) that used in AL- Nasiriyah and their effect . used as primary agents (Azithromycin ,Erythromycin ,clarithromycin) and recommended antimicrobial that used as alternate agents trimethoprin with sulfamethoxazole (TMP-SMZ) . both by age group and use of antibiotics (clarithromycin ,Erythromycin ,Azithromycin, trimethoprin with sulfamethoxazole) for pertussis treat according to adult dose ,daily frequency and duration. treatment of pertussis in Nasiriyah has been shown to be inefficient compared to other sources.

Introduction

Bordetella pertussis is the bacteria that causes whooping cough, often known as pertussis, a highly contagious disease of the human respiratory tract that can be prevented with vaccination. In the 1940s, the first whole-cell pertussis (wP) vaccinations were released. The World Health Organization has recommended the pertussis vaccine since 1974 (WHO, 2003). Before vaccinations became common, whooping cough was one of the leading causes of newborn mortality, and before they started school, more than half of the kids had pertussis (Halperin 2007). The incidence of pertussis significantly decreased when the vaccination was widely used. Nevertheless, according to WHO (2003), the illness is one of the main global causes of mortality that can be prevented by vaccination.

Within the Alcaligenaceae family, Bordetellae are strictly aerobic Gram-negative coccobacilli and proteobacteria.(Locht, 2007). Both B. parapertuss and its human host, B. parapertuss, are subdivided into two subspecies by their respective hosts, B. parapertuss and its sheep host, B. parapertuss. De Baillou, who reported the whooping cough pandemic in Paris in 1578, provided the first account of the outbreak.The contemporary history of whooping cough began in the early 1900s when Bordet and Gengou successfully cultivated the whooping cough-causing bacteria in1904, publishing their results in 1906 (Gerlach et al. 2001).

During the first three weeks of infection, Bordetella pertussis is primarily spread through airborne droplets from coughs or sneezes (Crowcroft and Pebody 2006). In 73-28% of newborns with pertussis, the infection originates from family members (Wendelboe et al. 2007). The fact that more than 80% of family members have experienced a secondary attack indicates how contagious

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the illness is (Long et al. 1990). Nonetheless, according to Mertsola et al. (1983), up to 46% of secondary cases are asymptomatic and not anticipated to be sick. An estimated five secondary instances of asymptomatic or clinically inconsequential infection result from each main incidence of symptomatic pertussis. (Ward et al. 2006).

According to Kerr and Matthews (2000), virulence factors such the bacterial toxins secreted by B. pertussis are the primary cause of the clinical symptoms. There are three stages of the sickness, which usually last six to twelve weeks or longer: catarrhal, paroxysmal, and convalescent (Loeffelholz 2003). First, the onset of symptoms is preceded by an incubation period of 7–10 days following introduction to the bacteria. The catarrhal stage lasts for seven to fourteen days and is characterized by nonspecific symptoms such as rhinitis and a mild cough. Although rarely suspected, the disease is highly contagious at this point. The cough eventually turns into a paroxysmal episode with violent coughing fits, whooping, and possibly vomiting after a bout of the flu. Also, the patients could become cyanotic and need assistance with their airways. Nonetheless, in babies under six months old, the whoop might not be there; instead, they might just exhibit apnea or even pass very suddenly (Heininger et al. 2004b).

Infant immunization programs have been successful in lowering the morbidity and mortality of pertussis worldwide. Pertussis is a vaccine-preventable disease. In several places, pertussis vaccinations were first made available in the 1940s and 1950s. WHO has recommended the pertussis vaccine since 1974. According to estimates from (WHO 2005b), the pertussis immunization prevented 607,000 deaths and over 40 million infections globally in 2003.

A thorough review of treatments for pertussis-related coughs has been conducted (Pillay and Swingler 2003). Nevertheless, it was shown that cough suppressants including salbutamol, antihistamines, and corticosteroids were ineffective in treating pertussis-related coughing fits. Moreover, they are not advised because of their possible adverse consequences. Azithromycin and clarithromycin, or sulfa/trimethoprim in the case of a macrolide allergy, are prescribed for the treatment of pertussis in individuals whose cough has persisted for less than three weeks (KTL 2007).Antibiotics have no further impact on the patient's ability to recover from the illness. A recent review demonstrated that antibiotic therapy is successful in getting rid of B. pertussis from the NP and preventing the disease from spreading., but do not have significant effect on the clinical course of the disease (Altunaiji et al. 2007).

This can be the result of a delayed diagnosis leading to a delayed course of treatment. Accordingly, before test confirmation, antibiotic treatment should be decided upon based on a clinical diagnosis (Tozzi et al. 2005). Since macrolide-resistant strains of B. pertussis have rarely been identified, testing for antibiotic susceptibility is not a common procedure (Bartkus et al. 2003; Korgenski and Daly 1997).,the study aimed to determine the treatment of pertusis used in the city of Nasiriyah and compared with the review of antibiotics used from global sources.

Method

This study based on data available from pectorlis service in Nasiriyah for whooping cough and compared with other antibiotic used by different sources on the basis on age group of patients, effect and duration of antibiotics.

Result

Table1 show drugs (Dexmethasone ,Amoxicillin and ketotifenfumarate) that used in AL Nasiriyah and their effect.

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Table .1 : Drugs used in AL-Nasiriyah to prevent whooping cough .

Drugs	effect	Comments
Dexamethasone DECADRON®	Corticosteroide medication	Long-term dexamethasone use can cause cataracts, thrush, easy bruising, and muscle weakness.In the US, it is under pregnancy category C, therefore usage should be determined by whether or not benefits outweigh dangers. It is classified as category A in Australia, which indicates that it has been widely used during pregnancy and has not been linked to any issues for the fetus. When nursing, it should not be taken.Dexamethasone suppresses the immune system and reduces inflammation.
Amoxicillin (Amoxil**)**	Bactericidal	If you don't fully treat your infection, it may return more strongly. Bacteria that become resistant to amoxicillin can also result from stopping the medication too soon.
ketotifenfumarate(ZADITOR®	antihistamine	Ketotifen (Zyrtec, Claritin eye drops, Alaway, Zaditor) An antihistamine for topical use is ketotifen. For children three years old and older with itchy, watery eyes, it is safe to use once daily. For the treatment of allergies in children, we do not advise using eye drops that "reduce redness," such as Visine and similar products.

Table 2 show recommended antimicrobial that used as primaryagents (Azithromycin ,Erythromycin ,clarythromycin) and recommended antimicrobial that used as alternate agents(TMP-SMZ).both by age group(infants>6 months ,school children and adults).

Table. 2 : Age-Group-specific recommended antimicrobial therapy for pertussis.

Primary agents

Age group	Azithromycin	Erythromycin	Clarithromycin	TMP-SMZ
Infant(aged>6months) and children	Day 1: 10 mg/kg as a single dosage; Days 2–5: 5 mg/kg per day (maximum: 500 mg(	For 14 days, take 40–50 mg/kg daily in 4 split doses (maximum: 2g daily.(	For seven days, take 15 mg/kg per day in two divided doses (maximum: 1 g per day.(	TMP 8 mg/kg daily and SMZ 40 mg/kg daily for 14 days in two separate doses
Adults	On day 1, take 500 mg all at once; on days 2 through 5, take 250 mg daily.	2 g daily for 14 days, divided into 4 doses.	1 g daily for seven days, divided into two doses.	SMZ 1,600 mg daily in two divided doses for 14 days, and TMp 320 mg daily
School children	300mg/kg as an ingested dose on day 1, followed by 150 mg/kg daily on days 2–5.	For a period of 14 days, take 50–70 mg/kg (maximum: 2 g daily) in 4 divided doses.	25mg/kg daily divided into two doses (maximum: 1g daily(	TMP 250 mg/day and SMZ 1 mg/day for 14 days in two separate doses

Alternate agent*

*In patients older than two months who are allergic to macrolides, cannot take macrolides, or are infants infected with a rare strain of Bordetella pertussis that is resistant to macrolides ,trimethoprin sulfamethxazole (TMP-SMZ) can be administered as an alternate medication to macrolides.

Table.3: Show effect antibiotics (clarithromycin , Erythromycin , Azithromycin , trimethoprin with sulfamethoxazole) for pertussis by adult dose ,daily frequency and duration.

Table. 3 : Effects of antibiotic therapy for pertussis

Drug	Adult dose	Daily frequency	Duration
Clarithromycin.*	500mg (7.5 mg/kg maximum(	two times	7days
Erythromycin.	250(10mg/kg up to 250 mg)	Four time	7days
Azithromycin**	10mg/k(up to 500 mg)	once	3days
Azithromycin*	First day: 500 mg (10 mg/kg up to 500 mg) days 2–5: 250 mg, or up to 5 mg/kg	once	5days
Sulfamethoxazole and trimethoprim together	160+800 (up to 160+800 mg) (4+20 mg/kg)	two times	7days

* the most effective microbiological clearance regimen with fewer negative

** While not included in Australian antibiotic guidelines, this regimen is described in a Cochrane systematic review.

The American study was displayed in table (4). With the exception of newborns fewer than two weeks old, the US Centers for Disease Control and Prevention (CDC) continues to advise erythromycin as the medication of choice in these situations. In order to prevent pneumonia related to medical care, the course of treatment should last for more than 14 days. Azithromycin or clarithromycin should be used to treat patients who are intolerant to erythromycin or newborns who are too young to receive the medication. Trimethoprim-sulfamethoxazole is recommended for individuals who are intolerant to macrolides. Despite proof that prophylactic use of antibiotics has been effective in suppressing pertussis epidemics.

Table .4: The US Center for Disease Control's recommendations regarding the preparation of antibiotics for pertussis patients

Drug	Dose	Duration of prophylaxis, d	Indication	Contra indication
Erythromycin	Kids: 40–50 mg/kg each day 500 mg for adults 333 mg three times a day if delayed-release tablets; four times a day if erythromycin estolate	14	First -choice therapy	Age ≤ 2 weeks; intolerance to macrolides
Azithromycin	10–12 mg/kg every day Day 1: 10 mg/kg; Days 2–5: 5 mg/kg daily	(5-7) 5	Individuals who are erythromycin intolerant or newborns younger than two weeks	Macrolide intolerance
Clarithromycin	Children: divided dosages of 15–20 mg/kg per day Adults: two doses of 500 mg	(10-14)	Individuals who are intolerant to erythromycin or newborns younger than two weeks	Macrolide intolerance
Sulfamethoxazole-trimethoprim (TMP-SXT)	Children: split daily dosages of STX 40 mg/kg and TMP 8 mg/kg. Adults: take one pill twice a day, twice the strength.	14	Intolerance or hypersensitivity to macrolides	Term pregnancy; nursing; younger than two months

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Table 5 indicates that the average length of stay in the hospital was 9.6 days. Patients who got erythromycin as opposed to clarithromycin had similar hospital stays and elapsed times before their cyanosis improved.

Table .5: median age, length of stay in the hospital, and amount of time passed before patients receiving clarithromycin versus erythromycin show improvement

	Group of Clarithromycin (n=20)	Group Erythromycin (n=8)
Median age	(62) days	(49) days
Duration of hospital stay (median)	8.5 days	7 days
Time elapsed since improvement (median)	4 days	3 days

Conclusions

use of antihistamines and dexamethazole in the treatment of pertussis in the city of Nasiriyah has been shown that these treatments are not recommended for use. In general because it has not been adequately evaluated.

Recommendations

We recommend a comprehensive study on the treatment of pertussis and consideration of the use of antibiotics with Bacteriocidaleffect and narrow spectrum.

Discussion

The current study showed the use of antihistamines and dexamethazole in the treatment of pertussis in the city of Nasiriyah has been shown that these treatments are not recommended for use. In general because it has not been adequately evaluated.

Its use to treat cough only reduces the symptoms of the disease and is not bacteriocidal of Bordettela pertusis. antimicrobial agents should be taken on target cells such as macrolides

When combined with supportive lifestyle therapy, azithromycin is the standard of care for patients with active infections and is generally the antibiotic of choice for patients of all ages.(Spector et al., 2013; Bettiol et al., 2010)For the treatment or chemoprophylaxis of pertussis, macrolides (such as azithromycin, clarithromycin, and erythromycin) are advised antimicrobial medicines.It is also possible to utilize trimethoprim-sulfamethoxazole (Kline et al., 2013; Cornia et al., 2010).Antimicrobial drugs used later help to lessen the likelihood of transmission and prevent or treat secondary infection, while those administered earlier may lessen the severity of symptoms and the spread of the disease.

Strong CYP3A4 and CYP2C9 enzyme inhibitors are erythromycin, clarithromycin, and trimethoprim-sulfamethoxazole. These drugs may interfere with other medications that patients are taking. Trimethoprim-sulfamethoxazole side effects are frequently associated with gastrointestinal disturbances (e.g., nausea, vomiting, and appetite loss).(Kline and others, 2013).Since azithromycin has not been linked to the development of infantile hypertrophic pyloric

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stenosis, it is favored for postexposure prophylaxis and treatment in newborns under one month old. Azithromycin is generally well tolerated in these patients.(Kline and others, 2013).

Macrolide antibiotics, such as azithromycin, clarithromycin, or erythromycin, have proven to be efficacious and are the cornerstone of care for both PEP and pertussis patients (Tiwari et al., 2005). While treating PEP or pertussis with erythromycin has been advised, unfavorable side effects have resulted in poor drug adherence and a rise in the prescription of more recent macrolides, such as azithromycin and clarithromycin (Tiwari et al., 2005). Relapse prevention has been proposed to require a comparatively long PEP (two completed weeks) of treatment (Tiwari et al., 2005).

Azithromycin is advised for use in newborns because to its high safety profile and good tolerance (Tiwari et al., 2005); nonetheless, there might be a connection between azithromycin and IHPS. Morrison (2007) reported on premature triplets that were 7 weeks old when they were admitted to the hospital because to clinical signs that were similar to pertussis. Azithromycin had been used to treat them all. After that, it was determined that two of the babies had IHPS and underwent surgical treatment.

Azithromycin, clarithromycin, or erythromycin can be utilized for both adults and children (Centers for Disease Control and Prevention, 2013). Less frequent dosing is possible with azithromycin and clarithromycin, which usually improves adherence to treatment. Moreover, azithromycin has very little or no effect on the cytochrome P450 system; as erythromycin and clarithromycin both suppress cytochrome P450, additional drug-drug interactions are anticipated (Watkins et al 1997).

As an alternative to macrolides, trimethoprim-sulfamethoxazole, or co-trimoxazole, is utilized, although it should only be used in adults and children older than one month if macrolides are not well tolerated (Tiwari et al., 2005). Co-trimoxazole should not be given to expectant mothers, nursing mothers, or infants younger than two months old due to the possibility of kernicterus in young children (Tiwari et al., 2005).

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