

## Descriptive Study of Pertussis in the Post Graduated Hospital Khost Afghanistan

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### Abstract:

Whooping cough is an acute, severe infectious disease of the respiratory tract during childhood, in which patients will have a persistent cough, specific inspiratory whoop, and vomiting after cough.

The microorganism that causes this disease is called *Bordetella Pertussis*, which is a gram-negative non-mobile rod-shaped cocci bacillus. All ages are susceptible. In the prevaccine era, almost all children became infected. Afghanistan is not an exception. Whooping cough remains a significant cause of childhood mortality and a serious health problem. In the world, about 60 million people get whooping cough every year. More than 1 million children die, especially in the first year of life.

#### Research Question (WHY PERTUSSIS IS IMPORTANT)

Infants and Children Pertussis affects all ages, but most severely infants, who experience the highest age-specific incidence and account for almost all pertussis hospitalizations and deaths. Case of whooping cough in the khost post graduated hospital From the 1399/01/01 to 1399/12/30.

**Keywords-** Pertussis; pertussis vaccine; vaccine-preventable diseases; whooping cough; complication.

## I. INTRODUCTION

Whooping cough is an acute, severe infectious disease of the respiratory tract during childhood, in which patients will have a persistent cough, specific inspiratory whoop, and vomiting after cough.

The microorganism that causes this disease is called *Bordetella Pertussis*, which is a gram-negative non-mobile rod-shaped cocci bacillus. It is not stained by gram staining, but stained by methylene blue. Widespread use of pertussis vaccines dramatically reduced cases, but concern over adverse reactions lead to the replacement of standard whole-cell by acellular pertussis vaccines that contain only a few selected pertussis antigens and are far less reactogenic agent. Routine administration of acellular pertussis vaccines combined with diphtheria and tetanus

toxoids is recommended in infancy with toddler and preschool boosters, at age 11, and during pregnancy. Boosting in the second half of every pregnancy is critical to protection of the newborn. Waning of vaccine immunity over time has become an increasing concern, and several new pertussis vaccines are being evaluated to address this problem. Around the world, 60 million people suffer from whooping cough and half a million die. Before the discovery of whooping cough vaccine, pertussis was an important cause of death in children. Most of the incidents are seen in late autumn and early spring.

## II. RESEARCH QUESTION

*Why Pertussis is Important?*

Infants and Children Pertussis affects all ages, but most severely infants, who experience the highest age-specific incidence and account for almost all pertussis hospitalizations and deaths. Case of whooping cough in the khost post graduated hospital from the 1399/01/01 to 1399/12/30

### III. RESEARCH IMPORTANCE

Since whooping cough is one of the emergency cases, the main reason for the client is multiple complications. In order to prevent complications, children are brought to the hospital by paramedics, so the patients should be classified according to their age, gender, residence, complications, and Laboratory tests. Treatment should be evaluated and the obtained results should be proved to be effective for increasing the knowledge of the health workers and community members, to reduced disabilities death.

Also, inventing a specialist department so that the whole disease can be diagnosed and treated well, so that all the comprehensive reasons can be taken under hand to identify the disease, to avoid the bad consequences of the disease of whooping cough.

### IV. BENEFITS OF RESEARCH IN THE HEALTH SYSTEM

Since whooping cough is a serious and deadly childhood disease, because of this reason we selected this topic to know about this disease, isolated from other respiratory tract diseases and for on time treatment. Even though this disease is dangerous but on time diagnosis and treatment decrease the mortality.

Also, the impact of this disease is significant in the society from the social and economic aspect, so the data should be regularly collected, analyzed and reported to the relevant authorities for next step.

**Table1: All patients**

All medical ward patient	Respiratory tract patient	Other patient
1592	718	2310
69%	31%	100%

**Table 2: Percentage of respiratory tract infection and Whooping cough patients**

Respiratory tract patient	Whooping cough	Other patient
718	85	633
100%	11,83%	88,16%

**Table 3: Percentage of patient according to age**

Age < 1 year old	Age from 1 – 2 years old	Age > 2 years old

20	25	40
23%	30%	47%

**Table 4: Cases of whooping cough during deferent session of the years.**

Fall	Winter	Other	All patient
52	24	9	85
61,5 %	27,7 %	10,8 %	100 %

**Table 5: Percentage of patient treated with antibiotics.**

Resistant with antibiotic	Treated with antibiotic	All whooping cough patient
19	24	52
22,35%	77,64%	100 %

**Table 6: Cases of whooping cough in vaccinated and Nan vaccinated patient**

Nan accinated patient	Vaccinated patient	All whooping cough patient
76	9	85
89.41%	10.58%	100 %

**Table 7: Cases of leukopenic patient**

W.B.C< 4000	WBC >5000	All whooping cough patient
67	18	85
78.83%	21.17%	100 %

**Table 8: Percentage of patient according to residency**

Patient who live suburban area	Patient who live city	All whooping cough patient
31	54	85
36,7%	%63,3	100%

### V. LITERATURE REVIEW

**Internal Investigations on Whooping Cough:**

1-Pakistan: A study was conducted in Pakistan from October 2006 to March 2006 by Muhammad Iqbal Maryam Durrani and Asif Khan Mohammadi in a descriptive form regarding the epidemiology and clinical manifestations of pertussis. This study was conducted on 107 children with an average age of They were between 5 and 11 months old and their weight ranged from 2.2 to 9.3 kilograms, of which 48 percent were fed by bottle. 38 percent were fed by mothers, 38 percent had ARTI family history and 14 percent had family history of allergy, 91 percent of 107 had persistent cough, 96 percent had nasal flaring and 72 percent had wheezing, and 64 percent had fever, 41 percent had chest pain. Retraction and 32 percent had nutritional deficiencies. (1, 2)

2- A study in a teaching hospital in Dhaka, Bangladesh in the winter of 2005 in Dhaka by Asif Ali, Ashiya Dadani

and Sona Jason in a descriptive way on all the patients with pertussis who visited the hospital. About the treatment of pertussis, whether or not they took antibiotics, it was done according to the history and physical examination. Out of 126 patients, to 30 patients given IV Ampicillin, 33 given Oral Erythromycin and 63 patients were given supportive treatment without antibiotics. Out of 126 patients, 104 patients were cured. 29 patients had taken intravenous antibiotics, 32 patients had taken oral antibiotics and 43 patients had not taken any kind of antibiotics, and the remaining 22 patients had a severe course (2, 3,4)

3- A study in 2011 in Pune Hospital in India by Srinivasa Hanggar, Chawan Ramanujan, Shet Alina, Shamsundar Robertson and Suraj Gupta in a prospective form on 328 children who were less than 10 years old. Among the 328 patients who had acute respiratory disease, pertussis was diagnosed in 114 of which 88 were under one year and 107 was less than 10 years old. (5)

## VI. DISCUSSION

It was generally observed in the literature that most patients with whooping cough do not have complications. But in my research most of the patients with whooping cough (95.5%) who were admitted to Khost Provincial Hospital during the research period were accompanied by complications.

In the literature, it was seen that the level of complications was different in different countries. For example, the research conducted on hospitalized patients in America and India found that the highest percentage of complications in these countries was diarrhea, as well as the research that In Pakistan, Sri Lanka and Ghana were performed on hospitalized patients and it was observed that a high percentage of pertussis was pneumonia. But in the research that was done in the last six months of 2019 on 85 inpatients, in the internal department of Khost Civil Specialized Hospital showed that there was a high percentage of respiratory complications, especially pneumonia

Encephalitis cases have also been shown in the literature, although the percentage is low (7.28% in Pakistan and 6% in Sri Lanka), but I could not find any encephalitis patients during my research.

Malnutrition has not been discussed in some laboratories, namely in Pakistan and America, but malnutrition is a serious challenge for our children that should be given full attention, in my research, the incidence of malnutrition has been shown to be 10.5%, but my daily work from experience, I think that the incidents are more than that.

In the literature, more emphasis is placed on ampicillin and co-tramixazole, but in my research, the results were better with chloramphenicol and penicillin. In the literature, the cases of whooping cough were shown to be low in vaccinated people, and in my research, these cases were also low. In the researches of different

countries, from the point of view of the season, it has been found that the occurrence of whooping cough is more in spring and autumn, and in the same way, any research that I have done shows that the incidence of whooping cough is high in spring and autumn. The effort that I have made to conduct my research, I have seen that until now, since 2011, no special research has been done on this topic in the near country, so I hope that my research be took the Attention of dear readers.

## VII. CONCLUSION

The most cases of whooping cough and its complications were seen in children under two years. Almost most of the patients were seen with complications. In this study, pneumonia had a very high percentage of all complications. Otitis media and other respiratory complications such as bronchiolitis are often overlooked. The most cases of the disease and its complications are in the spring, less cases are in the fall and partially in other seasons of the year. 80 percent of pneumonia patients respond to antibiotics. In 83 percent of the cases of pneumonia complications, response was available against Chlorafenicol and Penicillin. The incidence of whooping cough in vaccinated children seems to be very low. Unvaccinated children are at much higher risk of infection and, if infected, at much higher risk of adverse outcome. A number of approaches to new vaccines with more durable protection are under investigation.

## PROBLEMS WITH ME FACED DURING RESEARCH

- 1- There is no well-equipped research center to do your research, because for research we need equipped laboratory and equipment.
- 2- Non-availability of a standard service for all patients.
- 3- Admission of different type of patients in the same room in one bed.
- 4- The low level of people's knowledge about whooping cough.
- 5- Late arrival of whooping cough patients to the hospital.
- 6- Most of the patients come to the hospital while they have had whooping cough with complication.

## SUGGESTIONS

- 1- Expand the current EPI programs which are funded by UNICEF and other agencies.
- 2- Employing professionals staff on jobs.
- 3- Monitoring and evaluation of vaccination programs in nearby and remote areas should be done regularly on time.
- 4- It should be recommended to the public health officials that the vaccine staff should not be made up of their non-professionals, friends and acquaintances,

because this will bring down the quality of the work on the one hand, and on the other hand, the personal relationships of each employee will be compromised.

5- Public awareness and information tools help people to understand the benefits of vaccination, which has given very positive results in the centers, but there are still many problems in the areas, because of this special measures should be taken for this work.

6- The increase in the incidence of whooping cough in old age, it should be investigated whether it is due to too early application of the vaccine that causes problems with maternal immunity or due to non-application of the second dose. Or it is because of them that the area of their work is very limited and they don't take care of their children.

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