

INCIDENCE OF PERTUSSIS IN CHILDREN COMING TO RIMS A HOSPITAL BASED CROSS SECTIONAL STUDY

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ABSTRACTS

Introduction: Pertussis is one of the common vaccine preventable disease in many parts of world including Jharkhand state of India. It is an important cause of death in infants worldwide. Whooping cough is one of the most lethal diseases of infants and young children who are unimmunized, particularly those with underlying malnutrition and other respiratory infections. There has been a paradigm shift in age and cases are being reported amongst older children, adolescents and adults. **Aims and objective:** To screen and confirm cases of pertussis amongst the pediatric patients (0-18 years) presenting with cough for more than 2 weeks duration in OPD and Emergency of Department of Pediatrics and Neonatology in Rajendra Institute of Medical Sciences, Ranchi, Jharkhand by nasopharyngeal throat swab culture. **Material and methods:** This was a cross sectional study in a tertiary care hospital in RIMS Ranchi over more than one year period from April 2018 to July 2019. 500 patients of pertussis like illness, presented with cough of more than 2 weeks duration over the period from April 2018 to July 2019 were included in this study. Relevant clinical examination and microbiological examination including nasopharyngeal throat swab culture and sensitivity test was done. **Conclusion:** Clinical presentation of many cases was akin to pertussis but we could not get a culture positive new case of pertussis.

KEYWORDS: Pertussis, Nasopharyngeal swab, Immunization.

I. INTRODUCTION

Pertussis or whooping cough is the one of the common vaccine- preventable disease in the world. It is an acute respiratory tract infection caused by Bordetella pertussis and Bordetella parapertussis. Pertussis or whooping cough is an ancient disease that continues to cause significant morbidity and mortality.^[1]

Pertussis was well described initially as acute respiratory tract infection in the 1500s. The term pertussis was first used by Sydenham in 1670 which means intense cough. Earlier studies and literature showed that Pertussis is common and one of the serious acute respiratory tract infections that leads to chronic complication and disability in infancy and childhood. The disease is characterized by intense spasmodic cough followed by a typical characteristic sound called whoop.

The worldwide prevalence of illness has declined following widespread vaccination in later part of 20th century. About 2.49 lac cases were reported to World

Health Organization (WHO) globally in 2012 with DPT₃ immunization rate of 83%.^[6] In 2016 about 1.39 lac cases were reported to WHO globally and DPT₃ immunization rate was 86%.^[6] But there has been a dramatic resurgence of pertussis in recent times in some region. India had been one of them.

Prior to UIP India reported 200,932 cases and 106 deaths in the year 1970 with mortality rate of <0.001%. During the year 1987, the reported incidence was about 163,000 cases which came down to 40,508 in 2010 and 39,091 in 2011 reflecting a decline of about 75%.^[3] Andhra Pradesh, Madhya Pradesh, Jharkhand, West Bengal, and Bihar reported the maximum cases in 2010.^[5] In 2010 only 6 and in 2011 a total of 11 deaths were reported.^[6] More than 42000 cases of pertussis reported from India in 2012 was the highest number during last 50 years.^[2] The actual number may be high considering the coverage of three doses of DPT vaccine in infancy was 71.5% and only 41.4% children in the age group of 18-23 months had received first DPT booster.^[4]

There has been paradigm shift in age and cases are being increasingly reported amongst older children, adolescents and adults. Initially there was decline of pertussis after launch of universal immunization program & other child welfare programs. The reported incidence of Pertussis in 1987 was about 1.63 lac ,whereas in 2014 only 61,417 cases were reported showing a decline of about 62.3 percent.^[5] But simultaneously a worldwide trend of paradigm shift and increased no. of cases has been noted. The matter of prime concern is that India is still getting pertussis in children below 5 years, a point contrary to worldwide observations.

In the year 2015 total 31482 case of pertussis were reported out of which 1741 cases were from Jharkhand state.^[8] In 2016, pertussis cases for India were 37,274. In India pertussis cases fluctuated substantially in recent years. There was an increasing trend through 1997 - 2016 period ending at 37,274 in 2016.^[9]

II. MATERIAL AND METHODS

The current study was structured as cross sectional study including simple random sampling. The study included children of pediatric age group(0 to 18 years) reporting with cough in Pediatrics OPD of Rajendra Institute of Medical Sciences, Ranchi, Jharkhand from April 2018 to July 2019. Patients were screened according to CDC classification and further microbiologically confirmed by culture and sensitivity tests. Qualitative data were expressed in percentage & proportion while quantitative

data were expressed in mean & standard deviation. Test of significance applied was Chi square test. Data was analyzed as per descriptive and inferential statistical analysis using SPSS software 17.0 version window. Ethical permission was obtained from Ethics Committee of RIMS Ranchi.

III. RESULTS

Bar diagram showing different microorganisms grown in throat swab culture of children participated in the study. (n=500)

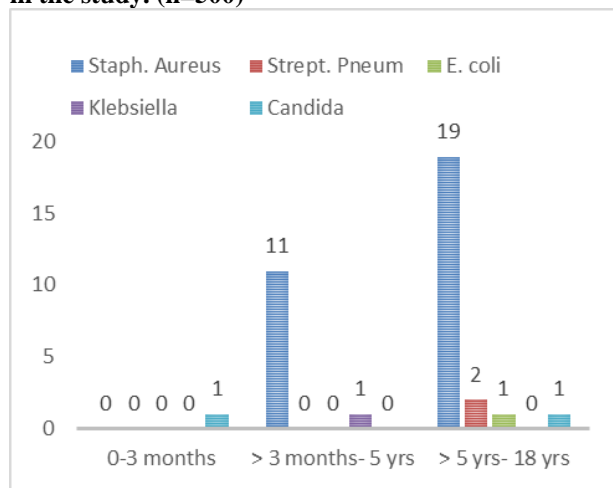


Table 1: Different microorganisms grown in throat swab culture of children participated in the study. (n=500)

Age group	Staphaureus	StrepPneumo	E. coli	Klebsiella	Candida
0-3 months	0	0	0	0	1
>3months – 5yrs	11	0	0	1	0
>5 yrs. – 18 yrs.	19	2	1	0	1

No culture positive case of Pertussis in any of the age group.

IV. DISCUSSION

In this study 500 participants were included out of which 58.8% were males and 41.2% were females. Among the total 500 participants growth in throat swab culture of children which showed Candida in 1 Case in 0-3 months; Staphylococcus aureus in 11 cases in >3 month-5 years and 19 cases in >5yrs-18 yrs; Streptococcus pneumoniae 2 case in >5yrs-18yrs; E coli 1 case in >5yrs-18 yrs; Klebsiella 1 case in >3 month-5 years.

No bacteriological positive cases of pertussis had been found in this study.

V. CONCLUSION

This study was aimed at assessing the incidence of pertussis in children coming to RIMS hospital which may reflect status in Jharkhand. We could not find microbiologically confirmed cases of pertussis in our study. Clinical presentation of many cases was akin to

pertussis but we could not get a culture positive new case of pertussis.

Current study shows that similar situation may be prevalent in Jharkhand and nearby states. The lack of awareness and poor to average penetration of health services amongst masses may also add to possibility of emergence of pertussis at any moment. Hence our state Jharkhand needs strengthening of laboratory services, surveillance services as well as clinical services in our hospital.

The absence of bacteriological confirmed cases of pertussis may be attributed to high vaccination coverage against pertussis by Pentavalent and/or DPT vaccine.

VI. BIBLIOGRAPHY

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