

Five year screening on occurrence of vaccine-preventable diseases in rural Anantapur

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ABSTRACT

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Objective: The main objective of the study was to screen the occurrence of Vaccine- preventable disease (VPD) in the rural Anantapur area in South India by reviewing the diseases treated in the most popular referral hospital in the area.

Methods: Screening of patients' records of five year period (2006-2010) was done to find the occurrence of VPDs. Significance of gender variation on occurrence of measles was assessed by paired t-test. Microsoft Excel was used for tabulation and graphs.

Results & Discussion: All the children born in the hospital had 100% adherence to first schedule of the vaccination. The complete schedule for the vaccination of children up to 5 years is given free of cost, but still there were no full adherence to vaccination because of reasons such as unawareness, relocating from the mother's house to father's house after delivery and following the vaccination in other health care facilities etc. There was no gender discrimination in the access to vaccines. Eighty two cases of VPD were reported in the hospital from 2006-2010. On an average 16 VPD were observed per year. Among them most commonly observed diseases, measles accounts for 56 cases in five years.

Conclusion: Adherence to vaccination was high for the first schedule. Measles was the most common VPD observed in rural Anantapur region. There were no cases of polio, diphtheria and tetanus reported in the period of 2006-2010. The limitations of the study include not identifying the occurrence of hepatitis B infection due to lack of information about type of hepatitis. It was also not sure that the patients with VPDs were properly vaccinated or not due to unavailability of their vaccination cards.

Keywords: Immunization, DPT, OPV, BCG, hepatitis B, occurrence.

INTRODUCTION

The induction of immune response by the deliberate inoculation of appropriate immunogen(s) in the form of a vaccine is termed as vaccination.¹ The immunization of children in India has resulted in a significant reduction in morbidity and mortality. The current immunization schedule protects against poliomyelitis, diphtheria, tetanus, pertussis, measles, and tuberculosis. The Government of India (GOI) established its Expanded Programme on immunization (EPI) in January 1978. Initially the EPI offered free immunization to every child against tuberculosis, poliomyelitis, diphtheria, tetanus and pertussis. In 1985, the EPI was modified as the Universal Immunization Programme (UIP) with inclusion of the Measles vaccine and increasing the target of immunization coverage from 80 to 100%.²

Immunization forms the major focus of child survival programmes throughout the world. Roughly 3 million children die each year of VPDs with a disproportionate number of these children residing in developing countries. Recent estimates suggest that approximately 34 million children are not completely immunized and almost 98 % of them residing in developing countries.³ Prevention is better than cure, especially when there is an effective vaccine.

A study at Bellary in 2011 shows that on analyzing information in cards, complete immunization was found to be 96%, whereas on the basis of parents recall alone, the coverage of complete immunization was 87%.⁴

The immunization status needs to be improved by education, increasing awareness, and counseling of parents and caregivers regarding immunizations and associated misconceptions. The most common reasons for partial or non-immunization were: inadequate knowledge about immunization or subsequent dose; belief that vaccine has side-effects; lack of faith in immunization; or oral polio vaccine is the only vaccine required.⁵

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A study at Bareilly in 2010, states that Immunization coverage was high for BCG (92.86%) and lowest for measles (62.38%). Most common reason (50%) for partial and non immunization of children was found to be ignorance on the part of parents. Religion, education of both mother and father was found to be significantly associated with immunization status. The need of the hour is to make routine immunization a “felt need” of the community. Increasing the knowledge and understanding of the caretakers of the young children about the essentiality and benefits of routine immunization would be a strong step forward in achieving the goals.⁶

According to World health organization number of vaccine preventable cases reported are as follows;

needs of the public of Anantapur and it is one of the first choices for majority of the population.

There was same vaccination schedule provided by the hospital for the past 8 years. In order to screen the number of patients treated in the hospital due to VPD was taken from the medical records. Data was collected from 2006 to 2010 and the age group selected was 1-8 years. Microsoft excel was used to tabulate the results and preparing graphs.

Results

The hospital provides vaccination free of cost to the children born in the hospital or not. On a pilot evaluation of six months, 84 children were found to be fully immunized, including one

Table 1: WHO Vaccine preventable disease							
VPD	1980	1985	1990	1995	2000	2005	2010
Diphtheria	39,231	15,685	8,425	2,123	5,125	10,231	6,081
Measles	114,036	161,216	89,612	37,494	38,835	52,454	48,181
Pertussis	320,109	184,368	112,416	4,073	31,431	13,955	44,180
Polio	18,975	22,570	10,408	3,263	265	66	559
Tetanus(neonatal)	-	-	9,313	1,783	3,287	891	811
Tetanus(total)	45,948	37,647	23,356	-	8,997	3,543	3,714

Courtesy: WHO vaccine-preventable diseases: monitoring system 2010 global summary.

Quality of record keeping is very important for effective implementation of immunization schedule.⁷ The failure in immunization of rural areas was mainly due to unawareness of need for immunization, mother too busy, place and time not known, place for immunization too far, each for unaware of need to return for subsequent dose.⁸ Proper maintenance of immunization cards and ensuring the availability of them with mothers for inspection are recommended for obtaining accurate estimation of vaccine coverages.⁹ Strengthening of health education activities can definitely improve the awareness and thereby improve the immunization coverage.¹⁰

Main aim of the study is to collect information on the vaccination, adherence and adverse events if any. The objectives include;

- To assess occurrence of vaccine preventable infections reported to the hospital.
- To check the adherence to vaccination schedule.

METHODOLOGY

Study settings: The samples for the study were children born in a rural secondary level care referral hospital in Anantapur district, A.P. There were mothers from various places of Anantapur district. The hospital is serving the health care

dose of BCG vaccine, 4 doses of oral polio vaccine, two doses of DPT and Hepatitis B vaccines. Among the children who got immunization completely for six months were 44 male children and 40 female children. Table 2 & 3 are giving the details of vaccinations given in the hospital for the first six months.

Table 2: Total number of BCG vaccines given from January2011- June 2011				
MONTH	BCG	OPV	GENEVAC	TOTAL
JANUARY	424	423	420	1267
FEBRUARY	334	336	328	998
MARCH	454	454	448	1356
APRIL	490	491	490	1471
MAY	530	531	532	1593
JUNE	530	530	532	1592

Table 3: Total number of Non BCG vaccines given from January 2011- June 2011

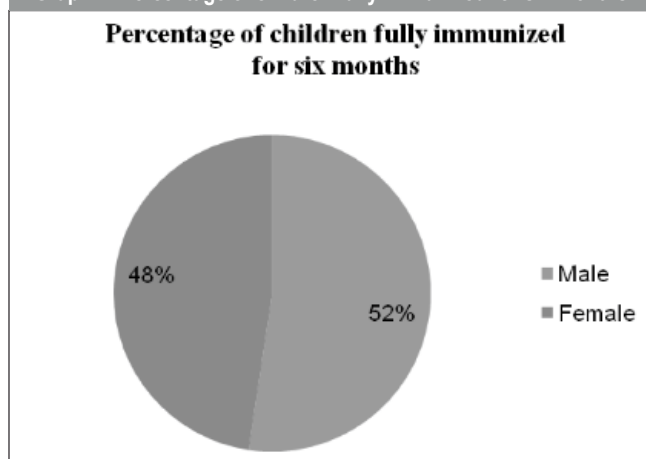
MONTH	OPV	DPT	MEASLES	MMR	GENEVAC	Q.VAC	TOTAL
JANUARY	523	242	64	67	52	182	1130
FEBRUARY	478	228	53	54	49	153	1015
MARCH	540	371	66	79	189	40	1285
APRIL	484	384	52	82	251	-	1263
MAY	527	384	56	62	254	02	1285
JUNE	616	481	70	66	289	01	1523

Table : 4. List of total vaccine preventable disease occurred from 2006-2010.

VPD	2006	2007	2008	2009	2010	Total
Diphtheria	00	00	00	00	00	00
Measles	07	20	07	12	10	56
Pertussis	00	00	01	00	00	01
Polio	00	00	00	00	00	00
Tetanus	00	00	00	00	00	00
Tuberculosis	01	01	00	02	01	05
Hepatitis*	-	-	-	-	-	-
Mumps	00	02	01	01	00	04

*Few cases of viral hepatitis were reported in the hospital, but as it was not classified as A, B, C or D (due to lack of this information, it was excluded from the results)

Graph 1: Percentage of children fully immunized for six months



The most commonly observed VPD was measles which accounts for 56. Male children are affected more in number with measles with a P -value of 0.05.

DISCUSSION

In this present study the immunization coverage given to the children born in the hospital was found to be 100%. It was also observed that nearly 450-500 children were who were born in the hospital per month are immunized completely with BCG, OPV and Hepatitis B. Immunization from the second round of schedule were found to be less. Reason for decrease in the

immunization coverage is generally mothers will be delivered in their mother house and later they will be vaccinating their child in their place of original residence. The study was carried out in rural place at Anantapur where many of the parents and the other care takers of the children were illiterate. Coverage of immunization in the hospital was less due to the reason that GOI also provides immunization at free of cost at every primary health care centre. Other factors could be place for immunization is too far, unaware of need to return for subsequent dose, negligence, busy in their work, lazy, forgetfulness.

For measuring the better outcome of immunization coverage in large countries like India a centralized database should be maintained in which all the data should be entered regarding the vaccines administered as per the schedule. This will prevent the fractionation in immunizing children of India. Many of the developed countries have such system. After completion of the immunization schedule for an individual child the immunization card should be maintained in the hospital and a medical certificate should be given that the child has completed the whole immunization schedule.

CONCLUSION

There was 100% adherence for BCG vaccine, OPV and hepatitis B vaccine in the first vaccination schedule of all children born in the hospital. All vaccinations are given for

free of cost for complete schedule. But the adherence rate observed from the second round of vaccination schedule was found to be less. The major reason shall be unawareness of parents or use of different health care facility for continuation of immunization. Measles was the most common VPD observed in the Anantapur region. Male children were affected more in number with measles with a *P*-value of 0.05. There were no cases of polio, diphtheria and tetanus reported in the period of 2006-2010. The limitations of the study include not identifying the occurrence of hepatitis B infection due to lack of information about type of hepatitis. It was also not sure that the patients with VPDs were properly vaccinated or not due to unavailability of their vaccination cards. Further long term field studies are needed to evaluate the reasons of occurrence of VPDs in the region.

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