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Study of Vaccination Status and Factors Affecting Health Seeking Behavior of Parents Regarding Immunization

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ABSTRACT

Introduction: Vaccine preventable diseases are the major causes of morbidity and mortality in children. The study was conducted to find out the proportion of children vaccinated in our hospital and to compare it with various patient variables and to find out the common reasons for incomplete vaccination or non-vaccination.

Method: It is a cross sectional study done by interviewing parents of children attending OPD according to preformed questionnaire.

Results: 476 (59.5%) children were fully immunized for age, 293 (36.62%) children were partially immunized for age and 31(3.8%) were unimmunized for their age in our study. Proportion of children with BGC vaccination was 94.12% in our study. Proportion of children with primary doses of DPT/Pentavalent with OPV was 82.00%, 72.26% and 63.56% respectively.

Conclusion: Non-immunization was inversely proportional to mother's education in our study. There was gradual decline in vaccination with age. The common reasons for not giving vaccines were lack of knowledge (34.56%) and forgetfulness (23.45%). Common sources for vaccination knowledge were vaccination card, advice by nurse or health worker and media. Almost all parents were using mobile phones and were having television.

Key words: Immunization, Children, UIP, factors affecting immunization, health seeking behavior.

INTRODUCTION

Vaccine preventable diseases were widespread and were major cause of childhood morbidity and lifelong physical and mental disabilities, prior to immunization programs [1]. Expanded program of immunization (EPI) was first introduced in India in 1978 and Universal Immunization Program (UIP) was introduced in 1985 and was expanded to entire country [2, 3]. Recently pentavalent vaccine, hepatitis-B birth dose & Measles 2nd dose have been added in the schedule[2,3,4]. We felt a need of this study in view of WHO approved Polio Eradication and Endgame strategic plan (PEESP) 2013-2018 which includes one dose of IPV (Injectable Polio Vaccine) at 14 weeks into routine immunization followed by withdrawal of type 2 vaccine virus from OPV[5].

Being an important service, immunization reflects health seeking behavior and suggests measures needed to improve. Majority of study focuses factors affecting primary immunization only but misses out all booster doses beyond 2 years. These booster doses have been there in the immunization schedule for almost 30 years.

There are very few studies on factors affecting immunization in booster doses beyond 2 years up to 16 years. Reliable data on coverage of 10 yr TT, 16

yr TT etc are hardly available. Availability of patients along with their vaccination record gives an opportunity to find out factors affecting immunization in later ages as well. Factors affecting these neglected doses need urgent attention. Hospital based study is the stepping stone to identify key factors affecting the vaccination.

It is important to note here that even unimmunized / partially immunized children are brought to the hospital for other medical ailments. Reliable information is available from these patients who are visiting hospitals for their medical ailments. It is still beneficial as it brings out key information regarding factors affecting their immunization (unimmunized / partially immunized for age) are identified from these patients, even if only few of such cases visit hospital.

OBJECTIVES

The objectives of the study was to find out the proportion of children vaccinated visiting the hospital; to compare it with various patient variables; and to find out the common reasons for incomplete vaccination or non-vaccination.

MATERIALS AND METHODS

It is a cross sectional study done during the 1st week of January 2016 in Pediatric OPD of a general hospital of Ahmadabad, Gujarat. Total 800 patients attending pediatric OPD up to 16 years of age were included irrespective of whether they need outdoor or indoor treatment. Parents or care taker of the children attending OPD were interviewed using preformed questionnaires by trained doctors. Permission of ethical committee was taken. Verbal informed consent of the caretakers was taken prior to interview. Confidentiality of the study subjects was maintained. Evaluation of vaccination status was done on the basis of examination of vaccination cards or parent's recall of age and site of vaccination. Other information collected includes age, religion, address, maternal education, knowledge about vaccination, h/o adverse effects of vaccination and reasons for not giving vaccines / missed doses. Children who had received all the vaccines for their age according to national immunization schedule were considered fully immunized. Similarly children who have one or more missing doses were considered as partially immunized for age.

RESULTS

The data was compiled and analyzed. Out of total 800 children included in the study, 496 (62%) were males and 304(38%) were females. Majority of children were Hindu (62.25%), followed by Muslims (35.37%) and 2.3% of children were of other religions (Sikhs, Christians etc.). Majority (93.12%) children were from urban areas while only 6.87% children were from rural areas. Majority of mothers were having primary-middle school education (45.25%). 11.87% mothers were having high-higher secondary education and only 4% mothers had completed their graduation. Remaining 38.80% mothers were illiterate.

Regarding immunization status, 476 (59.5%) children were fully immunized for their age. Remaining 293(36.62%) children were partially immunized for age and only 31(3.8%) were unimmunized. More numbers of males (61.08%) were fully immunized for age as compared to females (56.90%).

Table 1: Factors affecting immunization in children visiting hospital

Host factors	Fully immunized for age (%)	Partially immunized for age (%)	Non-immunized for age (%)	P value
Total children(n=800)	476(59.5)	293(36.62)	31(3.8)	
Gender				
Male(n=496)	303(61.08)	179(36.08)	14(2.82)	>0.05
Female(n=304)	173(56.90)	114(37.50)	17(5.59)	
Residential area				
Urban(n=745)	449(60.26)	273(36.64)	23(3.08)	>0.05
Rural(n=55)	27(49.09)	20(36.36)	8(14.54)	
Religion				
Hindu(n=498)	278(55.82)	208(41.76)	12(2.40)	<0.05*
Muslim(n=283)	185(65.37)	80(28.26)	18(6.36)	
Others(n=19)	13(68.42)	5(26.31)	1(5.26)	
Maternal education				
Illiterate(n=311)	128(41.15)	165(53.05)	18(5.78)	<0.01**
Primary-middle school (n=362)	231(63.81)	119(32.87)	12(3.31)	
Higher secondary school (n=95)	89(93.68)	5(5.26)	1(1.05)	
Graduate (n=32)	28(87.5)	4(12.5)	0(0.00)	

*Significant; **Highly Significant

Table 2: Proportion of children vaccinated for age

Vaccine	Eligible Children	Children Vaccinated (%)
BCG	800	753 (94.12)
OPV 0	800	753 (94.12)
OPV 1	778	638 (82.00)
OPV 2	750	542 (72.26)
OPV 3	719	457 (63.56)
DPT / Pentavalent 1	778	638 (82.00)
DPT / Pentavalent 2	750	542 (72.26)
DPT / Pentavalent 3	719	457 (63.56)
Hepatitis B1	800	748 (93.50)
Measles 1	620	394 (63.54)
Measles 2	584	296 (50.68)
DPT booster 1 with OPV	584	300 (51.36)
DPT booster 2 with OPV	402	182 (45.27)
TT / dT 10 years	162	32 (19.75)
TT / dT 16 years	10	0 (0.00)

Table 3: Reasons for not giving vaccines among partially immunized for age and non immunized children (N=324)

Reason for improper vaccination	Children partially immunized for age or non-immunized (%)
Lack of knowledge	112 (34.56)
Forgetfulness(negligence)	76 (23.45)
Illness of the child	40 (12.34)
Social problems	23 (7.09)
Taboo, myths	23 (7.09)
h / o side effects with previous dose	20 (6.17)
Fear of adverse effects	20 (6.17)
h / o side effects in siblings	6 (1.85)
Others*	4 (1.23)

* Includes (financial problems, unavailability, busy schedules)

More numbers of females (5.59%) were unimmunized compared to males (2.82%). There was no significant relationship of immunization status with gender (p value 0.27). Fully immunized for age was higher in children from urban area (60.26%) as compared to rural area (49.09%). Non immunized children were more from rural area (14.54%) as compared to urban area (3.08%). There was no significant relation of immunization status with residential area (p value 0.13).

Proportion of children fully immunized for age (65.3%) as well as unimmunized children (6.36%) were more in Muslims. Children partially immunized for age were more in Hindus (41.76%). The relationship of immunization status with religion was found to be significant (p=0.02). Number of unimmunized children were significantly more in Muslim as compared to other religions (p 0 .01).

Educational status of the mother was illiterate in majority of children with partial immunization or non immunization. Full immunization proportion was highest in mothers having high or higher secondary education (93.68%) or graduation (87.50%). No child with graduate mother was unimmunized. After applying chi square test it was found that there was highly significant relation of immunization status with maternal education (chi square value 102.6, p value 0.0001).

The proportion of children vaccinated for BCG and OPV 0 was highest (94.12%) followed by Hepatitis B birth dose (93.5%). Proportion of children vaccinated for Pentavalent 1, 2 &3 (as well as OPV1,2 & 3) were 82.00%, 72.26% and 63.56% respectively. It shows decreasing trend with increasing age. The dropout rate from first to third dose of Pentavalent was 28% which was high than acceptable dropout rate (10%). Proportion of children with first dose of measles vaccination was (63.54%). The proportion of children with first booster dose of DPT-OPV was 51.36% & for the 2nd booster dose of DPT-OPV it was 45.27%. Proportion of children vaccinated for dT / TT-10 years was 19.75%, while none were immunized for dT / TT-16 years.

Among partially immunized for age and non immunized children, the common reasons for not giving vaccines were lack of knowledge (34.56%), forgetfulness (negligence) (23.45%). Other causes like illness of the child (12.34%), social problems (7.09%), taboos (7.09%) and fear of adverse reactions (6.17%) were less common reasons. Other reasons like side effects in siblings, side effects with prior doses, financial problems, unavailability, busy schedule of parents etc were rare.

Table-4: Source of information for vaccination among parents of children fully immunized & partially immunized for age

Source of information	Parents of fully immunized & partially immunized for age children (%)
Vaccination card	482 (60.25)
Advice by nurse or health worker for next vaccination	638 (79.75)
Advice from television, radio or other media	
1.For pulse polio	602 (75.25)
2.For other vaccines	120 (15.00)
Internet and mobile apps.	2 (0.25)
Advice by doctor for next vaccination during visit for illness	246 (30.75)
By school & college education	0 (0)

Parents' lack of vaccination schedule knowledge and forgetfulness were the cause of partially or non immunization in 58.01% children. Parents who don't want to give vaccination to their children because of reasons like fear of adverse reaction, taboo, myths, and history of side effect with previous dose or side effect in sibling were only 21.28%.

The common sources of knowledge about vaccination were vaccination card (60.25%), advice by nurse or health worker for next vaccination (79.75%) and media. Media was the main source of information for pulse polio vaccination (75.25%) compared to other vaccination (15%).

Table 5: Side effects following immunization

Adverse effects	Children affected (%)
Fever	602 (75.25)
Local pain	495 (61.87)
Local swelling	443 (55.37)
Local redness	420 (52.50)
Crying, uneasiness	397 (49.62)
Malaise	320 (40.00)
Convulsions	1 (0.12)
Lymphadenopathy	1 (0.12)
Others	5 (0.62)

Table 6: Means of communication / Mass media used by parents

Communication media	Yes	No
Parents using mobile	792 (99%)	8 (1%)
Families having television	712(89%)	88(11%)
Parents reading news paper	456(57%)	344(43%)

Fever was the most common side effect (75.25%). Other common side effects were local pain (61.87%), local redness (52.50%) and local swelling (55.37%). Irritability (49.62%) and malaise (40%) were also common.

Parents using mobile phones were 99%. Even parents from lower economical class were using mobile phones. 89% families were having television at their homes. News papers were read by only 57% of parents.

DISCUSSION

Fully immunized children in India were 61% and for Gujarat it was 56.6% according to coverage evaluation survey (CES-2009)[3]. In our study, proportion of fully immunized children visiting hospital is 59.5%. In this study 36.62% were partially immunized for age and 3.8% were unimmunized. Padam Singh et al reported full immunization in 63% and non immunization in 10% children[6].

In our study, full immunization is more in males (61.08%) compared to females (56.90%) but this difference is statistically not significant (p> 0.05). In UNICEF survey 2009-10 also it was seen that full immunization was more in males (61.9%) as compared to females (59.9%)[7]. A.M. Kadri from Gujarat also noted full immunization coverage more in males (76%) compared to females (63.5%) [8].

Full immunization status was higher in children from urban area (60.26%) as compared to children from rural area (49.09%) but the difference was not statistically significant (p>0.05). Full immunization coverage in urban slums in Ahmadabad city in recent past has been found to be 70.3% and 74.5% [8,9]. The full immunization in rural area of Ahmedabad in 2011 was 74.1%[10]. Masand R. et al noted 33.3% full immunization in rural area of Jaipur district and 18.7% non immunization[11]. In our study, non immunization from rural area is 14.54%.

In our study, 38.8% mothers were illiterate, 45.25% mothers were having primary-middle education, 11.87% mothers were having high-higher secondary education and only 4% mothers were graduate. Padam Singh at el observed in his study that 38.6% were illiterate mother, 31.5% women were primary-middle educated, 18.1% higher secondary educated and 10.7% were graduate[6]. Rate of full immunization was significantly high($p < 0.05$) in mothers having higher education in our study. Non-immunization was inversely proportional to mother's education in our study. Joseph L. Mathew also noted that vaccination rates are lower among infants with mothers having no or low literacy[12].

Proportion of BGC vaccination was 94.12% in our study which was 83.3% in study of A M Kadri in urban slums Ahmadabad city[8]. It was 86.9% as per UNICEF report and 85.9 % in study by Padam Singh et al[3,6]. The proportion of children vaccinated with OPV 0 is same as BCG while for Hepatitis B 1 (at birth) it is lower (93.50%). Proportion of children vaccinated for Pentavalent 1, 2 & 3 along with primary doses of OPV was 82.00%, 72.26% and 63.56% respectively. The dropout rate (based on percentage vaccinated) from dose 1 to 3 of Pentavalent was 28% which is more than acceptable limit of up to 10%. Higher difference in percentages (dropout) reflects gradual decline in vaccination with age. Satish Chandra Agarwal also noted an inverse correlation between the age of child and the vaccine coverage- lesser the age, better the coverage[13]. Proportion of children vaccinated for 1st dose of measles is 63.54% which was 71.7% in study by A M Kadri and 74.1% as per UNICEF CES[8,3]. Similarly the proportion of children vaccinated for 2nd dose of measles is also low (50.68%).

The main reasons for partial immunization or non vaccination were lack of knowledge and forgetfulness. Bhuvan Sharma noted illness of child

(29.52%) and unawareness of the need of immunization (8.1%) as the common reasons for non immunization[14]. Masand R noted forgetfulness of the schedule by parents and adverse effects observed as the common cause for non immunization[11]. Lack of knowledge and fear of injection were also the common reasons in his study[11]. Advice given by health personal for next vaccination and vaccination card was the main source of knowledge for parents. In pulse polio immunization media was the important source of information (75.25%).

The common sources of knowledge about vaccination were vaccination card, advice by nurse or health worker for next vaccination and media. Almost all parents were using mobile phones (99%). Majority of families were having television in their homes.

CONCLUSION

In spite of efforts of government the proportion of children with full immunization is still low. Maternal education was the important factor affecting child's vaccination. Proportion of vaccinated children was inversely proportionate to the age of the child. Lack of knowledge and forgetfulness were the main reasons for not giving vaccines. Role of media was important for IEC.

RECOMMENDATIONS

We can increase full vaccination coverage by media advertisement stressing for at least five visits for vaccination in first year of age rather than targeting only one vaccine (as in pulse polio).We can also introduce newborn tracking and give reminder of vaccination by mobile SMS as most of the parents were using mobile phones nowadays which will be very cost effective way of increasing vaccine coverage. All the WHO strategies to eradicate different vaccine preventable diseases will only be successful if we can increase routine immunization coverage.

REFERENCES

1. J Kishor, National health programme of India -Reproductive and Child Health Program- Universal Immunization Program. 5th edition, New Delhi: Century publication; 2011. P 155
2. Rabindranath Roy, Indranil Saha, textbook of Preventive and Social Medicine; 4th edition, New Delhi: Jaypee brother's medical publishers' pvt.ltd; 2012. P 595.
3. Coverage Evaluation Survey (CES) 2009 Universal Immunization Programme-National health portal, India. Available at www.nhp.gov.in/sites/default/files/pdf immunization_uip.pdf accessed on 08-01-2016.
4. Vipin M Vashishtha, Panna Chaudhary et.al. Indian academy of pediatrics recommended immunization schedule for children aged 0 to 18 years- India, 2014 and update on immunization. Indian pediatrics. 2014; 51(10): 785-800.
5. WHO, Rotary International, the US center for disease control and prevention and UNICEF. Polio Eradication and End game strategic Plan 2013-2018 Available at http://www.polioeradication.org/resourcelibrary/strategy and work.aspx. accessed on 08-01-2016.
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