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Original Research Article

To study the immunization status of children aged 1-5 years admitted to department of pediatrics, Lala Lajpat Rai & Associated Hospitals, GSVM Medical College, Kanpur

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ABSTRACT

Background & Methods : The Present study was conducted in the Department of Pediatrics of Lala Lajpat Rai & Associated Hospital GSVM Medical College, Kanpur. All the children aged between 1-5 years, admitted in Department of Pediatrics were asked to participate in this study. Information regarding vaccination, socio-demographic factors was collected from their parents and care takers. Accuracy and validity of information were confirmed by immunization card in possible situation and inspection for BCG scar.

Study Designed: Hospital based descriptive cross-sectional study.

Results: In upper class, 100% of children were completely immunized. In upper middle class, 80.8% children had complete and 19.1% partial immunization status. No one remained unimmunized in upper middle class. In lower middle class, 33.9% of children were completely immunized, 59.6% partially immunized and 6.4% remained unimmunized. Children who were 1st in birth order, had maximum immunization coverage (44.8%). Minimum immunization coverage was in birth order >4 (3.2%). P value is <0.001, indicates the significant relation between birth order and immunization status. As birth order increased, immunization coverage decreased.

Conclusion: In this present hospital based descriptive cross-sectional study, we found that 51.2% children were fully immunized, 45.6% were partially immunized and 3.2% children were unimmunized as per National immunization schedule. Children belonging to upper class were 100% completely immunized. In upper middle class 80.8% children in lower middle class 33.9%, in upper lower class 55.7% and in lower class 50.9% children were completely immunized respectively. In lower class immunization coverage was higher than lower middle class. Dropout rate for BCG to pentavalent 1 was 10.64%, similarly dropout from BCG to measles was 12.7%. Dropout rate of pentavalent 1 to pentavalent 2 was 1.4%, pentavalent 2 to pentavalent 3 was 2.6%. It indicates that system is not able to hold the child once registered. Steps for improvement should focus on reducing the drop rate from BCG to pentavalent and measles.

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1. Introduction

Immunization is the process of inducing immunity against a specific disease. It can be done by the vaccines, immunoglobulins, and antisera. Immunity is of two types, active immunity and passive immunity. Active immunity is induced by administering a vaccine or toxoid. It stimulates

the immune system to produce a prolonged humoral or cellular immune response.¹

Immunization plays an important role in reducing morbidity and mortality. Last week of April (24th to 30th) is celebrated as world immunization week.² Vaccination is one of the most powerful and cost-effective weapon of modern medicine to control infectious disease. Some infectious diseases whose control is solely based on immunization are polio, diphtheria, tetanus, measles etc.

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Unfortunately, we do not have a vaccine for every infectious disease like malaria and diarrheal diseases.³

Vaccines are defined as a whole or parts of micro-organism administered to prevent an infectious disease. History of vaccine did not begin with Edward Jenner inventing a vaccine for smallpox. Evidence exists that Chinese used smallpox inoculation as early as 1000 BC⁴. After smallpox, many other vaccines like Rabies, plague, cholera, typhoid, tuberculosis came in existence. A good vaccine is easy to administer, induces permanent immunity, free from toxic substances with minimal side effect and stable for a prolonged use.⁵

Immunization is primary focus of child health and many programs have been launched by government of India for better coverage as immunization is a primary level prevention.⁶

When immunization coverage reaches the figure of 80% or more, disease transmission pattern is severely disrupted and provides degree of protection even for remaining children who have not been immunized. This protection is because of "Herd Immunity".⁷ Every country has its own immunization schedule. A well thought immunization schedule must be epidemiologically relevant, immunologically effective, operationally feasible and socially acceptable. Choice of vaccines in National immunization schedule is based on consideration of disease burden, vaccine availability and cost effectiveness.⁸ In May 1974 WHO launched first global immunization initiative EPI (expanded programme of immunization) aim to protect all children of world against 6 vaccine preventable diseases (VPDs) and was adopted by India in 1978. EPI chiefly covered urban areas.⁹

2. Materials and Methods

The Present study was conducted in the Department of Pediatrics of Lala Lajpat Rai & Associated Hospital GSVM Medical College, Kanpur from Feb. 2017 to Oct. 2018. A total of 500 children were studied.

All the children aged between 1-5 years, admitted in Department of Pediatrics were asked to participate in this study. Information regarding vaccination, socio-demographic factors was collected from their parents and care takers. Accuracy and validity of information were confirmed by immunization card in possible situation and inspection for BCG scar.

2.1. Data collection

1. Informed oral written consent was taken from parents of the child.
2. All children aged 1-5 years admitted in the ward of our Hospital were studied using National immunization schedule and their parents were interviewed regarding awareness of immunization. The information was

collected on pre-designed proforma and all the information was tabulated and interpreted through standard statistical methods and causes for partial and un-immunization were studied.

2.2. Inclusion criteria

All children aged 1-5 years admitted to Pediatrics ward

2.3. Exclusion criteria

1. Children <1 year and >5 years.
2. Children following IAP Schedule of immunization.
3. Children whose parents did not give consent for the study.
4. Children on long term steroid therapy.

3. Results

In our study, 500 children were included for assessment of immunization status. Subjects were distributed according to age group. Maximum subjects belonged to 1-2 years 274 (54.8%) and maximum immunization was found among children between 1 to 2 years of age (58.7%). Table 1

Value <0.001 indicates a significant association between age and immunization status

Among 500 subjects studied, 256 (51.2%) were completely immunized, 228 (45.6%) were partially immunized and 16 (3.2%) were unimmunized. Table 2

Among 500 study subjects, 423 (84.6%) had vaccination card and 77 (15.4%) had no vaccination card. Table 3

In upper class, 100% of children were completely immunized. Table 4

In upper middle class, 80.8% children had complete and 19.1% partial immunization status.

No one remained unimmunized in upper middle class.

In lower middle class, 33.9% of children were completely immunized, 59.6% partially immunized and 6.4% remained unimmunized.

In upper lower class, 55.7% children were completely immunized 42% partially immunized, and 2.2 % were unimmunized.

In lower class, 50.9% were completely immunized, 49% partially immunized and no one was unimmunized.

Value <0.001, indicates significant relation between socio-economic status and immunization status

Children who were 1st in birth order, had maximum immunization coverage (44.8%). Minimum immunization coverage was in birth order >4 (3.2%). P value is <0.001, indicates the significant relation between birth order and immunization status. As birth order increased, immunization coverage decreased. Table 5

Table 1: Age distribution of the study subjects

Age group	N=500	Percentage	Complete	%
1-2 year	274	54.8%	161	58.7
2-3 year	78	15.6%	33	42.3
3-4 year	49	9.8%	15	30.6
4-5 year	99	19.8%	47	47.4

Table 2: Immunization status in study subjects

	N=500	Percent
Completely immunized	256	51.2%
Partially immunized	228	45.6%
Unimmunized	16	3.2%

Table 3: Distribution of vaccination card among study subjects.

Vaccination Card	N=500	Percent
Available	423	84.6
Not available	77	15.4

Table 4: Distribution of immunization status according to socio-economic status.

Class	Complete	%	Partial	%	Unimmunized	%
Upper	12	100	0	0	0	0
Upper Middle	38	80.8	9	19.1	0	0
Lower Middle	58	33.9	102	59.6	11	6.4
Upper Lower	122	55.7	92	42	5	2.2
Lower	26	50.9	25	49	0	0

Table 5: Distribution of immunization status according to birth order.

Birth Order	Complete	%	Partial	%	Unimmunized	%	Total	%
1 st	123	54.9	96	42.8	5	2.2	224	44.8
2 nd	91	54.8	70	42.1	5	3	166	33.2
3 rd	31	43.6	40	56.3	0	0	71	14.2
4 th	11	47.8	12	52.1	0	0	23	4.6
>4th	0	0	10	62.5	6	37.5	16	3.2

4. Discussion

The Present study was conducted in tertiary care center of Kanpur from Feb. 2017 to Oct. 2018 with study population of 500 children belonging to 1-5 years age group.

Among them, 256 (51.2%) Children were fully immunized. Similar findings were noted in studies of Ashish Awasthi et al. (57.03%).¹⁰

Suresh Kumar Verma et al. (48.5%),¹¹ Anil B. Kurane et al. (65.2%),¹² and While Mathew et al. (25%). Nirupam et al (34.5%)¹³ noted very low percentage of immunization.

The NFHS - 4 data showed that the percentage of fully immunized children in Kanpur Nagar was 50.9% and for UP (51.1%). Our result for fully immunized children was similar to NFHS 4 survey.

45.6% Children were partially immunized in the study population. Similar findings were seen in study conducted by Kumar et al. (48%),¹⁴ Jain et al. (44.5%), Anil B. Kurane et al. (34%).¹² In present study, 3.2% children were un-

immunized which was similar to Prabhakaran Nair et al.¹⁵ (4.2%)

In this study, 303 (60.6%) children were males and 197 (39.4%) were females whereas in the study of Kumar et al. (58.6%)¹⁴ children were male and 41.6% were female. Similar results were shown in study of Deshmukh PR et al.⁷ (52% Male and 48% Female).

5. Conclusion

In this present hospital based descriptive cross –sectional study, we found that 51.2% children were fully immunized, 45.6% were partially immunized and 3.2% children were unimmunized as per National immunization schedule.

Children belonging to upper class were 100% completely immunized. In upper middle class 80.8% children in lower middle class 33.9%, in upper lower class 55.7% and in lower class 50.9% children were completely immunized respectively. In lower class immunization coverage was

higher than lower middle class.

Drop rate for BCG to pentavalent 1 was 10.64%, similarly dropout from BCG to measles was 12.7%. Dropout rate of pentavalent 1 to pentavalent 2 was 1.4%, pentavalent 2 to pentavalent 3 was 2.6%. It indicates that system is not able to hold the child once registered. Steps for improvement should focus on reducing the drop rate from BCG to pentavalent and measles.

6. Conflict of Interest

The authors declare that there are no conflicts of interest in this paper.

7. Source of Funding

None.

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