Missed Opportunities for Immunization in Hospitalized Children in the 1-5 Year Age Group

Smilu Mohanlal¹, JaneJackie.E.David², Radha Gulati Ghildiyal³

ABSTRACT

INTRODUCTION

Immunization is the most cost effective method to reduce childhood mortality and morbidity. At the global and regional levels, actions are taken regularly like vaccination campaigns, training workshops and round table discussions to improve the overall coverage of immunization. It has been recently estimated that more than 98% of the incompletely immunized children are from developing countries.¹ The coverage of vaccination in India is far from complete despite the commitment for universal coverage and one of the barriers for the same is Missed Opportunities for Immunization (MOI). Thus, there is a need to evaluate the factors for MOI and remedies to improve the same.

MATERIAL AND METHODS

A cross sectional observational study was conducted at a tertiary care hospital on 585 hospitalized children in the 1-5 year age group to determine the magnitude and causes for MOI. The qualitative data was represented in the form of frequency and percentage tables with the help of SPSS 17.

RESULTS:
In our study, the magnitude of MOI was found to be 29.9%. MOI was found more among males (57.3%) than females (42.7%). Of the 585 subjects enrolled, 48.7% were Hindus, 46% were Muslims and 5.3% belonged to other religions. 91.1% of the study subjects hailing from an Urban area were completely immunized versus 8.9% from Rural areas. Higher percentage of MOI was found in children who were home delivered versus institutional deliveries. BCG vaccine had a 100% coverage. Despite having contact with a health care facility, 19.5% of the subjects weren’t immunized and the most common reason for this was presence of minor illnesses like at that contact time. The average lag period of MOI in our study was 67.3 weeks. Measles vaccine had the highest lag period of 85.2 weeks. A statistically significant association (p<0.05) with MOI were seen with gender, area of residence, place of delivery and antenatal immunization status.

CONCLUSION:
In our setting, MOI were lower in girl children, institutional deliveries and children residing in an urban area. Multi-centric data, health education and recommendations would help improve the overall immunization coverage in the Indian subcontinent.

KEYWORDS: Immunization, Missed Opportunities for Immunization.

STATISTICAL ANALYSIS

SPSS Version 17 was used for analysis. Predictiveness for MOI during visits for immunization wherein the health worker does not use appropriate contraindications to immunizations (Table-1) or when they do not routinely screen children for their immunization status and offer the recommended vaccines.² Minimizing the missed opportunities for immunization is the easiest and best measure to improve vaccine coverage, thereby protecting the child against contracting an infectious disease. Thus this study was undertaken to determine the magnitude and factors responsible for missed opportunities of immunization at our institution and remedies to improve the same.

³Resident, ¹Assistant Professor, ²Professor, Department of pediatrics, T.N.M.C and B.Y.L, Nair hospital, Mumbai-400008, Maharashtra, India

Corresponding author: Smilu Mohanlal, 1 Floor, Department of Pediatrics, College Building, T.N.M.C and B.Y.L Nair ch. Hospital, Mumbai Central, Mumbai-400008, Maharashtra, India

RESULTS

There were 1,384 patients admitted in the pediatric ward during the 18 months study period. Of the 750 children who were in the age group of 1-5 years, 585 children who fulfilled the inclusion criteria were enrolled in the study. 166 (28.4%) children were in the age group of 1 to 2 yrs, 158 children (27%) were between 2 to 3 yrs, 109 children (18.6%) between 3 to 4 yrs and 152 children (26%) were between 4 to 5 yrs. There were 218 boys and 192 girls enrolled in our study.

410 children (70.1%) were completely immunized and 175 children (29.9%) had MOI. 285 children were Hindus, 269 were Muslims and 31 belonged to other religions. MOI in Hindu children was 34.7%, in Muslims was 27.1% and in other religions was 9.7%.

52 (8.9%) children were from rural areas as compared to 533 (91.1%) children who were from an urban area. 25 of the 52 children (48.1%) from rural areas had MOI as compared to 150 of the 533 children (28.1%) from the urban areas.

The mother was the primary care taker in 62.9% children and MOI was 33.4% where the mother was the primary care taker, (22.5%) when the father was the primary care taker and (30.8%) when other relatives were the primary care takers.

The percentage of MOI in our study was seen in 34.9% in boys when compared to 23.2% in girls. 61.4% of Children who were delivered at home had MOI versus 27.4% who had institutional deliveries.

A 100% BCG vaccine coverage was noticed. The least coverage was for the Measles vaccine (78.8%). Vaccine coverage in our study is depicted in (Table-4). Under immunization in siblings was observed in 58.5% of the MOI patients. 19.5% of the MOI subjects had contact with a health care facility either in the private or public sector. Despite this the most common reason for MOI was a minor illness at the time of contact (false contraindication for immunization). 46 primary care takers believed that the vaccines had side effects.

Of the 175 MOI children 40 primary care takers were illiterate (22.5%) when the father was the primary care taker and (30.8%) when other relatives were the primary care takers.

DISCUSSION

The study was conducted to determine the contribution of MOI which was one of the hindrances to achieve 100% immunization coverage. The incidence of MOI in our study was 29.9%. Our predictor variables for MOI in our study contributing to lesser chances of MOI were female gender, children born at an institution and hailing from urban areas.

<table>
<thead>
<tr>
<th>Factors</th>
<th>Completely immunized</th>
<th>Missed opportunity</th>
<th>Percentage of MOI</th>
<th>chi-square tests</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male (335)</td>
<td>215</td>
<td>117</td>
<td>34.9%</td>
<td>9.338</td>
</tr>
<tr>
<td></td>
<td>Female (250)</td>
<td>192</td>
<td>58</td>
<td>23.2%</td>
<td>22.45</td>
</tr>
<tr>
<td>Place of delivery</td>
<td>Institutional (541)</td>
<td>393</td>
<td>148</td>
<td>27%</td>
<td>8.940</td>
</tr>
<tr>
<td></td>
<td>Home (44)</td>
<td>17</td>
<td>27</td>
<td>61.4%</td>
<td></td>
</tr>
<tr>
<td>Antenatal Immunization status</td>
<td>Immunized (565)</td>
<td>402</td>
<td>163</td>
<td>28.7%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unimmunized (20)</td>
<td>8</td>
<td>12</td>
<td>60%</td>
<td></td>
</tr>
<tr>
<td>Area of residence</td>
<td>Urban (333)</td>
<td>383</td>
<td>150</td>
<td>34.6%</td>
<td>9.890</td>
</tr>
<tr>
<td></td>
<td>Rural (52)</td>
<td>27</td>
<td>25</td>
<td>48.1%</td>
<td></td>
</tr>
</tbody>
</table>

Table-5: Association of the factors and MOI status of the study group (N=585) and (MOI=175).
study documented a lower MOI compared to other studies.\(^4 \text{--} 6\) This can be attributed to the fact that our study was conducted in hospitalized sick patients receiving curative care versus other studies which included patients who received preventive and curative care.

Our study also focused on the factors which contributed to MOI. Girls were found to have lesser MOI than boys in our study. This can be explained on the basis that our study was conducted at a tertiary care center in a metropolis draining urban locality where there is minimal gender discrimination. However, study by Wadgave et al found males to be more completely immunized than females.\(^7\) No gender bias was observed by Jagrati et al.\(^8\)

Other observations from our study were a lower incidence of MOI when parents were the primary caretaker. 61.4% of children who were home delivered had MOI versus 27.4% who were institutional deliveries. This could be attributed due to lack of sensitization and contact with health care workers in non-institutional deliveries.\(^8\) Hutchins et al also had a similar experience in their study.\(^9\)

In our study the highest lag period was found for Measles vaccine, a finding similar to that observed by Desphande et al.\(^11\) This could be attributed not only to the lack of awareness as well as the long duration between the 3rd dose of DPT/OPV/ HepB and the Measles vaccine.

In our study 62.2% of the children were taken to a public sector institution for immunization. It was found that though the children with MOI had contact with a health care system many of them weren’t immunized at the time of contact and the reasons for not immunizing at the time of contact with the health care system were minor illnesses (like fever, cough, cold, diarrhea) (66.7%), serious illness (25.4%) and non-availability of vaccines (7.9%). However in the earlier studies, the reasons for MOI despite having a contact with the health care system were found to be having minor illnesses at the time of contact, vaccine shortage, failure to administer multiple immunizations simultaneously, ineffective communication by health care providers and misconceptions associated with immunization.\(^2,4,5,9,10,12\)

Our study pointed out the factors contributing to MOI at our institution, which were home deliveries, lack of antenatal care and children from rural areas. Thus the MOI can be tackled by taking a detailed immunization history which can reduce its incidence. Appropriate policies should not only be formulated but also be implemented to ensure dissipation of basic health education to all citizens ensuring availability and affordability.

Further research needs to be carried out to determine the specific age groups, geographic areas and immunization services which needs to be targeted to decrease the overall incidence of missed opportunities for immunization. The gaps in the knowledge, attitude and practices of health workers across all sectors of societies should be assessed and addressed because at some public sectors practice of not immunizing the children during minor illness is still prevalent.

Existing immunization programs need to be strengthened using the media and other channels of communication like door to door vaccination campaigns, role plays, propaganda by famous personalities using social media in a positive way etc. Inservice education and training is essential and immunization updates should be provided on a regular basis to all health workers.

CONCLUSION

Thus a combined effort from the clinicians and the community is required to decrease MOI and improve the vaccination coverage to reduce the child mortality and morbidity.

REFERENCES


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