

ORIGINAL ARTICLE

Determinants of ARI among infants in relation to Feeding Practice in slum area of Meerut

Arun Kumar#, S. K Garg,** H.Chopra,* Tanveer Bano,* Seema Jain*

#Associate Professor, Department of Community Medicine LLRM Medical College Meerut.

*Professor Department of Community Medicine LLRM Medical College Meerut.

**Principal S.N Medical College, Agra

Corresponding Author's Email: drarunmrt@gmail.com

ABSTRACT

The disease burden for Acute Respiratory Infections (ARI) is estimated at 94037000 DALYs and 3.9 million deaths ARI are among the leading cause of death in children under 5 years but diagnosis and attribution are difficult and uncertain. The link between urbanization, a degraded environment, inaccessibility to healthcare and a deteriorating quality of life is significant and particularly evident in sharp inequities in IMR if one looks at urban specific. To find out feeding practice profile of ARI in Infants. Cross sectional study. The overall fortnightly ARI incidence in Infants was 55.0%. Majority of the ARI incidence were more in top/mixed feeding 62.0% as caparison to exclusive breast feeding 49.0% and more in >1:1 milk dilution 80.0% , and ARI Incidence more in where complimentary feeding stated in between 9-12 months of age 79.2%. Incidence of ARI showed a significant association with modes of infant feeding being maximum in mixed feeders and minimum in infants on exclusive breast feedings. Higher in infants who were given > 1:1 diluted milk. And also in whom age of complimentary feeding was delayed.

Key words: ARI, fortnightly Incidence, complimentary feeding, exclusive breast feeding

Received 11/06/2016 Accepted 30/07/2016

©2016 Society of Education, India

How to cite this article:

A Kumar, S. K Garg, H.Chopra, T Bano, S Jain. Determinants of ARI among infants in relation to Feeding Practice in slum area of Meerut. Adv. Biores. Vol 7 [5] September 2016: 111-114. DOI: 10.15515/abr.0976-4585.7.5.111114

INTRODUCTION

Every year 12 million children in developing countries die in first year of life. Acute Respiratory Infection (ARI) are responsible for 19% these deaths [1]. In India Urban population with concomitant growth of population residing in slum has resulted over stemming of infrastructure and deterioration in public health [2]. In India acute respiratory infection occur more frequently than any other illness including diarrhea. Majority of ARI episode are self limiting infections of viral origin such as cough or cold.

As we planning to achieve "Millennium Development Goals by 2015 A.D to reduced under- five mortality by two – thirds" a control of ARI has assumed a greater importance. At present most of the research in to child health problems is concentrated on rural area and more work is needed in urban slums if the health problems of the future are to be successfully confronted [3]. Keeping in the view in the above factors the present study was carried out with the aims to study the Determinants of ARI in infants in relation to feeding practice in slum area in Meerut slums

MATERIAL AND METHODS

the present cross-sectional study was conducted among the under five children belonging to the slum population of Meerut city through WHO's standard 30 cluster sampling technique. Sample size for estimating the incidence was obtained from WHO's sampling size determination ready Reckoner⁴. Taking the confidence level of 95% with relative precision of 5%, the sample size came to be 1537 children. Taking 5% non response a minimum of 1651 children were covered in the study. 30 clusters were drawn out of 96 slums areas in probability proportion to size. 55 children 0-59 months of age will be covered in each of the cluster, final sample consist of 1650 children in 30 clusters.

Data was collected on predesigned and pretested schedule through house to house visit starting from random house by interviewing mother/other responsible member of the household for ARI morbidity (by two week recall period) and supplemented with anthropometric measurement and general examination of the children.

RESULTS

Out of 1526 families covered through house to house visits, during the survey, 1063 (69.6%) families were having 1651 under-five children's. A total of 1651 under five children were included in the present study constituting 18.9% of the total population. Infant constituted (n=282) 3.2% while 1-4 years children were (n=1396) 15.7% of the population as shown in table-1.

Table 1: Age and sex wise distribution of population

| Age Groups (Years) | Male | | Female | | Total | |
|--------------------|-------------|-------------|-------------|-------------|-------------|--------------|
| | No. | % | No. | % | No. | % |
| 0-1 | 156 | 3.4 | 126 | 3.1 | 282 | 3.2 |
| 1-4 | 721 | 15.8 | 648 | 15.7 | 1369 | 15.7 |
| 5-14 | 1153 | 25.2 | 1024 | 24.8 | 2177 | 25.1 |
| 15-59 | 2394 | 52.4 | 2155 | 52.2 | 4549 | 52.3 |
| 60+ | 148 | 3.2 | 171 | 4.2 | 319 | 3.7 |
| Total | 4572 | 52.6 | 4124 | 47.4 | 8696 | 100.0 |

The table-2 shows the distribution of infants according to their mode of feeding. Exclusive breast feeding was practiced in (n=153) 54.3% and top feeding /mixed feeding was practiced in (n=129) 45.7% of infants. It may also be seen from the table that a significantly higher ($p < 0.05$) ARI incidence was found among infant who were on top feeding /mixed feeding (62.0%) as compared to infants having exclusive breast feeding (49.0%).

Table 2: Distribution of infants and ARI Cases according to mode of feeding

| Mode of feeding | Total Infants | | ARI Cases | |
|-----------------------------|---------------|--------------|------------|---------------|
| | No. | % | No. | Incidence (%) |
| Exclusive breast feeding | 153 | 54.3 | 75 | 49.0 |
| Top feeding / Mixed feeding | 129 | 46.7 | 80 | 62.0 |
| Total | 282 | 100.0 | 155 | 55.0 |

$$\chi^2_{(1)} = 4.77 \text{ (} p < 0.05 \text{)}$$

Table-3 gives the distribution of the infants according to the ratio of dilution of milk. Undiluted milk was given to 24.8 % infants while diluted milk in the ratio of 1:1 and > 1:1 was given to 33.3% and 41.9% infants respectively. It is evident that the ARI incidence was more (80.0%) in infants given milk in > 1:1 dilution as compared to ARI incidence in infants given 1:1 diluted (44.1%) and undiluted milk (56.2%). This difference in ARI incidence in infants consuming different ratios of dilution of milk was found to be statistically significant ($p < 0.001$).

Table 3: Distribution of infants and ARI cases according to dilution of milk

| Dilution of milk | Total Infants | | ARI Cases | |
|------------------|---------------|--------------|-----------|---------------|
| | No. | % | No. | Incidence (%) |
| 1:1 dilution | 43 | 33.3 | 19 | 44.1 |
| > 1:1 dilution | 54 | 41.9 | 43 | 80.0 |
| No dilution | 32 | 24.8 | 18 | 56.2 |
| Total | 129 | 100.0 | 80 | 62.0 |

$$\chi^2_{(2)} = 13.36 \text{ (} p < 0.001 \text{)}$$

Table-4 provides the distribution of infants according to age at complimentary feeding. In 44.7% infants complimentary feeding was not started at the time of study being less than 4 months old while in 24.5%, 22.3% and 8.5% infants complimentary feeding was started between 4 to 6 months, 6 to 9 months, and 9 to 12 months respectively. No child was found complimentary feeding started up to 12 months in the study period. ARI incidence among infant's complimentary feeding. It is also evident from table-4 that ARI incidence was minimum (39.7%) before 4 months of age when no complimentary feeding was started and then incidence of ARI increased with starting and delaying within starting of complimentary feeding

being 55.1%, 76.2% and 79.2% when complimentary feeding was started at 4-6 months, 6 to 9 months and 9 to 12 months respectively. This difference in ARI incidence in relation to age at complimentary feeding was found to be statistically significant ($p < 0.001$).

Table 4: Distribution of infants and ARI Cases according to age at complimentary feeding

| Age at complimentary feeding | Total Infants | | ARI Cases | |
|------------------------------|---------------|--------------|------------|---------------|
| | No. | % | No. | Incidence (%) |
| Not started * | 126 | 44.7 | 50 | 39.7 |
| 4-6 Months | 69 | 24.5 | 38 | 55.1 |
| 6-9 Months | 63 | 22.3 | 48 | 76.2 |
| 9-12 Months | 24 | 8.5 | 19 | 79.2 |
| Total | 282 | 100.0 | 155 | 55.0 |

* Aged < 4 months; $\chi^2_{(3)} = 29.1$ ($p < 0.001$)

DISCUSSION

The recent cross-sectional study was conducted in the population of slum area of Meerut city. A total of 1526 families, comprising of 8696 individuals were surveyed. There were 4572 males and 4124 females giving sex ratio 902/1000 males which was comparable to sex ratio of 830/1000 males in rural area of Meerut Garg [5] 905/1000 males as reported by Parasher [6] in different communities of Meerut city.

The incidence of ARI in the present study was higher among infants who were on mixed feeding/top feeding (62.0%) than those on exclusive breast feeding (49.0%). Kumar *et al* [7] and Kaushik [8] also reported a lower ARI incidence in breast fed babies than artificial and partially breast fed babies. Bano [9] revealed the incidence of ARI much higher (64.2%) in bottle fed than breast fed (36.4%).

The ARI incidence was observed much higher in the infants who were given diluted milk in the ratio of more than 1:1 (80.0%) as compared to ARI incidence in infants given diluted milk in 1:1 dilution (44.1%) and no dilution (56.2%) Bano [9] also reported that the ARI incidence was maximum in those infants who were fed dilution Milk (ratio of 1:2) (80.0%) and minimum in infants who were fed on non diluted milk (47.8%). In the present study the ARI incidence was found to be more (79.2%) in infants who were weaned at 9-12 months and 55.1% and 76.2% in infants weaned at 4-6 months and 6-9 months respectively. Reason for higher incidence of ARI in infants who were complimentary feed later may be that delayed complimentary feeding lead to nutritional deficiency which made the child more susceptible to infection. Shah *et al* [10] also found in their study that delayed complimentary feeding is a significant probable risk factor in causation of acute respiratory infections and according to Bano [9] infants after 6 months had maximum (76.5%), ARI incidence than those infant complimentary feed within 6 months of age (46.3%).

CONCLUSION

Incidence of ARI showed a significant association with modes of infant feeding being maximum (62.0%) in mixed feeders and minimum (49.0%) in infants on exclusive breast feedings. A higher incidence of ARI (80.0%) was observed in infants who were given > 1:1 diluted milk. A higher incidence of ARI was found in infants in whom age of complimentary feeding was delayed.

CONFLICT OF INTEREST: nil

REFERENCES

1. WHO & UNICEF (2000). Management of childhood illness in developing countries: Rationale for an integrated strategy WHO/CHS/CAH/98.1A.
2. Awasthi S, Agarwal S, (2003). Journal Indian pediatrics. Environment health project special article series vol. (40) Dec. 17.
3. Dharavi Project, (1985). An investigation into patterns of infant feeding and malnutrition in the urban slum of Dharavi in Bombay, journal of tropical pediatrics vol. (33) supplement 2. 1985.
4. Lwanga S.K and Lemeshow S. (1991). Sample size determination in health studies, a practical manual WHO Geneva.
5. Garg, S.K (1981). A general health survey of rural population around primary health centre, Machara, Meerut. Thesis submitted for M.D (S.P.M), Meerut University, Meerut.
6. Parashar, P. (1995). An epidemiological study of hypertension in an urban population of Meerut. Thesis submitted for M.D (S.P.M), University of Meerut.
7. Kumar, V., Kumar, L. Dwivedi, P. (1981). Morbidity related to feeding pattern in privileged urban and under-privileged rural infants. Indian Paediatr., 18 : 743-749.

8. Kaushik, P.V. (1993).A socio-clinical study of acute respiratory infections among under-five children in rural area of district Meerut. Thesis submitted to Meerut university to MD(SPM).
9. Bano Tanveer; (1996).An epidemiological study of acute respiratory infection among under-five children in an urban population Meerut. Thesis submitted to C.C.S University, Meerut for MD (SPM).
10. Shah N, Ramankuty V, Premila PG,Sathy N. (1994).Risk factors for severe pneumonia in children in south Kerala : a hospital- based case-control study. J Trop Pediatr. 40 (4) 201-206.

Copyright: © 2016 Society of Education. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.