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Original Research Article

Study of acute respiratory infections in breastfeeding babies up to 2 years

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ABSTRACT

Background: Acute Respiratory Infection (ARI) is a major cause of morbidity and mortality in less than two years of age. The frequent episodes of ARI need hospitalization of babies which becomes more equivocal to paediatrician /clinician.

Materials and Methods: 94 babies upto 2 years with ARI were studied and compared with the same number of healthy babies (controlled group). Routine blood examination included CBC, ESR, PS, AEC, chest x-ray, and PFT was done only if necessary.

Results: The comparison of social-demographic students in both groups included gestational weeks, premature birth, birth weight, cesarean birth, employment of mother, siblings, habits of parents were found to be significant ($p<0.001$). In breastfeeding comparison 60 (± 3.8) ARI cases, 74 (± 5.3) controlled group and $p<0.00$. In the comparison of never, breastfed cases 26 (± 32) in RI cases, 14 (± 2.8) in a controlled group, and $p<0.00$

Conclusion: This pragmatic study has confirmed that malnourished babies are more prone to ARI and needs to be correlated with breastfed babies and nutrition supplementation must be recommended along with treatment.

1. Introduction

Respiratory disease is the leading cause of hospitalization among young children. For decades severe infantile respiratory illness has been recognized to be an antecedent to childhood asthma[1] prior reviews of respiratory disease and breastfeeding from developed countries have equivocal results.

Whereas breastfeeding is widely acknowledged to protect infants in the developing stage from acute infectious illness, such as gastroenteritis or respiratory disease, the magnitude of its benefits for healthy infants with high standards of living is not well delineated. It is advised to every woman to breastfeed exclusively that is without formula supplementation, through age 6 months,[2] however only a few women follow this medical advice.[3] In addition to this smoking or chewing tobacco, socio-economic status, women's employment will also play contribution role to keep the babies away from breastfeeding. Moreover nutritional status and medical surveillance during pregnancy are also equally responsible for nutritious breastfeeding. Hence an attempt was made to evaluate the socio-demographic and breastfeeding profile in babies with acute respiratory infections.

2. Materials and Methods

94 babies with ARI admitted at paediatrics department of Khaja Banda Nawaz Hospital Kalaburgi-585105, Karnataka were studied.

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2.1. Inclusive criteria

The babies up to 2 years of age with ARI are included in the study.

2.2. Exclusion criteria

Babies with chronic respiratory ailments, any congenital defects in the lung, pulmonary tuberculosis were excluded from the study.

2.3. Ethical approval

This research paper was approved by the Ethical committee of KBN university faculty of medical sciences, Kalaburgi-585105.

2.4. Method

The babies with ARI were admitted for further evaluation and treatment. The routine blood examinations were complete blood counts (CBC) included Hb% differential counts, platelet counts, hematocritvalues. Absolute Eosinophilia (AEC) was done. In relevant cases, chest x-ray, pulmonary function tests were done if it is necessary. The diagnostic criteria included a history of nasal discharge, cough, and fever, hurried breathing, chest in drawing; the refusal of feeds was used to assess an episode of ARI. Respiratory rate >60 /minute (among <2months, infants), >50 (2-12 months), and > 40 (1-5 years) in a child with cough, cold, or fever, singly or in combination are the criteria for recognition of pneumonia, history of ARI episodes, history of ARI in the family members. The immunization status and diet history were also noted. Nutritional status was assessed with parameters like weight, height, and mid-arm circumference was also recorded.

The duration of the study was from June-2019 to July-2021.

2.5. Statistical analysis

Various findings of ARI and controlled groups were compared with the z test and significant results were noted. The statistical analysis was carried out in SPSS software. The ratio of male and female babies was 2:1.

3. Observation and Results

Table 1 Socio-demographic study in acute respiratory infections (RI) breastfeeding babies.

1. Gestation age (weeks) 37.5 (± 2.5) in respiratory infected (RI), 38.7 (± 1.8) in controlled, t-test was 6.92 and p<0.00
2. Premature birth mean value 29 (± 5.2) in RI group, 15 (± 3.3) in controlled, t-test was 22.09 and p<0.00
3. Birth weight (kg) 3.0 (± 0.5) in RI group, 3.3 (± 0.6) in controlled group, t test was -3.72and p<0.002
4. Cesarean Birth – Mean number 62 (± 5.6) in RI group, 48 (±3.9) is controlled, t-test was 19.4 and p<0.001
5. Employed mother mean number 68 (± 9.3) in RI group, 42 (± 5.2) in a controlled group, t-test was 23.6 and p<0.001.
6. One or more brothers were 72 (±2.5) in the RI group, 49 (± 1) in the controlled group, t-test was 72.3 and p<0.001.
7. Smoking, tobacco chewer mother 46 (± 4.8) in RI group, 32 (± 1.8) in controlled group, t-test 26.4 and p<0.001

Table 2 Study of breastfeeding in a patient with acute respiratory infection patients with excessive breastfeeding before the onset of symptoms 62 (± 3.8) in RI group, 74 (± 5.3) in a controlled group, t-test was 17.8 and p<0.00

Babies never breastfed – 26 (± 3.2) in RI, 14 (± 2.8) in a controlled group, t-test was 27.3 and p<0.001

4. Discussion

The present study of acute respiratory infections (ARI) in breastfeeding babies up to 2 years in north Karnataka. The socio-demographic study in ARI and the controlled group were compared. Gestational age (weeks) 37.5 (± 2.5) in ARI, 38.7 (± 1.8) in a controlled group, t-test 6.92 and p<0.00. Premature birth in ARI, 29 (5+2), 15 (3.3) in controlled group t-test, 22.09 and p<0.00. Birth weight in ARI 3.0 (± 0.5), 3.3 (± 0.6) in controlled t-test -3.7 and p<0.002. Cesarean birth in ARI 62 (± 5.8), 48 (± 3.9) in controlled, t-test was 19.4 and p<0.001. Employment of mother was 68 (± 9.3), 42 (± 5.2) in controlled, t -test 23.6 and p<0.001. Siblings 72 (± 2.6) in ARI, 49 (± 1.8) in the controlled group, t-test was 72.3 and p<0.001. Smoking or chewing tobacco mothers 19 (± 5.7) in AFI, 11 (± 3.2) in a controlled group, t-test 11.8 and p<0.001. Smoking or chewing tobacco father 46 (± 4.8) in ARI group, 32 (± 1.8) in a controlled group, t-test was 26.4 and p<0.001 (Table 1).

In the comparative study of breastfeeding exclusively breastfeeding before the onset of symptoms, 62 (± 3.8) in the ARI group, 74 (± 5.3) in the controlled group, t-test was 17.8 and p<0.00. Never breastfed patients 26 (± 3.2) in ARI group, 14 (± 2.8) in a controlled group, t-test was 27.3 and p<0.001 (Table 2). These findings are more or less in agreement with previous studies.[4–6]

It is reported that breastfeeding measures are consistent with a biological phenomenon. Since maternal milk transmits both immune cells and antibodies to infants, immune modulation could explain the breastfeeding effects that are noted to extend beyond the actual period of exposure.[7] It has been found that lymphocyte profiles differ at breast babies and those who are not breastfed, moreover, T. lymphocyte profiles differ in children who are prone to asthma in infancy from those not so pre-disposed.[8] It is also suggested that maternal smoking may account for apparent

Table 1: Socio-demographic study in acute respiratory infections in breastfeeding babies up to 2 years

S. No.	Particular	Respiratory infected (94)Mean value (±SD)	Health controlled(94) Mean value (±SD)	t-test	p-value
1	Gestational age (weeks)	37.5(± 2.5)	38.7(± 1.8)	6.92	P<0.00
2	Premature birth	29(± 5.2)	15(± 3.3)	22.09	P<0.00
3	Birth weight (Kg)	3.0(± 0.5)	3.3(± 0.6)	-3.72	P<0.002
4	Caesarean Birth	62(± 5.8)	48(± 3.9)	19.4	P<0.001
5	Employed Mother	68(± 9.3)	42(± 5.2)	23.6	P<0.001
6	One or more brother	72(± 2.6)	49(± 1.8)	72.3	P<0.001
7	Smoker or chewing tobacco mother	19(± 5.7)	11(± 3.2)	11.8	P<0.001
8	Smoking or tobacco chewing father	46(± 4.8)	32(± 1.8)	26.4	P<0.001

Table 2: Comparative study of breastfeeding in patients with an acute respiratory infection

Details	Respiratory infection (94)	Controlled (94)	t-test	p-value
Patients with exclusive breastfeeding before the onset of symptoms	62(± 3.8)	74(± 5.3)	17.8	P<0.00
Never breastfed patients	26(± 3.2)	14(± 2.8)	27.3	P<0.001

breastfeeding effects because women who smoke are less likely to breastfeed and children of smoking mothers or fathers have an increased risk of morbidity, mortality, and hospitalization for ARI.[9]

Some studies have reported that breastfeeding does not provide substantial protection against common infections illness during the first year of life other studies concluded that, a shorter period of breastfeeding might increase the risk of illness of acute respiratory diseases. It is also hypothesized that breastfed babies are less prone to any infections include respiratory or viral diseases.[10] In addition to this, healthy mother's milk feed plays a vital role in immunity for babies.

5. Conclusion

In the present, ARI in breastfeeding babies up to 2 years was observed that breastfed babies by healthy mothers were less prone for infection and least babies were hospitalized. Hence nutritional status during pregnancy and lactation also play contributory vital roles to keep the babies defend themselves from any infections. This study demands social awareness regarding the importance of breastfeeding to minimize the hospitalization of babies.

6. Limitation of the study

Owing to lack of advanced technology to rule out mother milk, limited patients, and the remote location of our hospital we have limited findings.

7. Conflict of Interest

None.

8. Source of Funding

None.

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