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Research Article

**KNOW THE EFFECT OF ZINC SUPPLEMENT TAKEN ON REGULAR  
BASES IN CHILDREN SUDDEN RESPIRATORY INFECTIONS**<sup>1</sup>Dr Sadaf Ibrahim, <sup>2</sup>Rubab Zahra, <sup>3</sup>Fayzan Farooq<sup>1</sup>Major Shabbir Sharif Shaheed Hospital, Kunjah, Gujrat, <sup>2</sup>Mayo Hospital Lahore, <sup>3</sup>DHQ Teaching Hospital Sargodha.**Abstract:**

**Background:** In developing world, zinc deficiency is usual among children. Mucosa, immune system and cellular metabolism find important role of zinc in them.

**Objective:** This study aims to know the effect of zinc supplement taken on regular bases in children sudden respiratory infections.

**Design of study:** It was a Quasi experimental study.

**Place and duration:** This study was done in Services Hospital Lahore from Feb, 2018 to Jan 2019.

**Patients and Methods:** For study, 220 children ranging from 6 months up to year of age were selected. These children were with complain of cough and fever. For the period of one year, these children are followed up. Days and episodes number with critical lower respiratory infection as cough, and

1: increased respiratory rate

2: lower chest in drawing existence or temperature > 101F were calculated. There were two groups, A and B in which patients were divided. In each group, there were 110 patients. To groups A patient, zinc supplement was given for 3 months with 10mg/day dosage oral. Oral zinc supplements were not given to group B patients. For critical respiratory infections, children in both groups were given ordinary treatment in hospital. A child having medium infection was treated at home with anti-biotic and regular follow up for 3 days. In both groups, episodes number of severe respiratory tract infection in one year was calculated and then compared. Illness duration and death race was also determined.

**Result:** In group A, mean illness duration was 3.4+<sub>-0.113</sub> days. In group B, 5.1+<sub>-0.254</sub> days was mean illness duration. In group A, 34 were total number of episodes of respiratory tract infection. Severe respiratory infection had 78 episodes in group B. recovery rate of patients was 100%.

**Conclusion:** Number of episodes of respiratory tract infection were decreased in children taking oral zinc supplements on regular basis and it also showed decline in illness duration.

**Keywords:** Effect, zinc supplement, regular bases, children, sudden respiratory infections.

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**INTRODUCTION:**

Pneumonia is an infection that inflames the air sacs in one or both lungs. Mostly microorganisms are causative of pneumonia. In less than 5 year children, it is marked cause of medical problems and deaths. Estimation of 146-159 million per year new pneumonia episodes are reported in developing world [1,2] Insufficient food intake, high intake of animal food are usual causes of zinc deficiency in children of developing nations. Zinc has important role in immune system, mucosa and cellular metabolism [3]. Reduction in disease and illness duration was reported at the rate of 30% with use of zinc. In hospital stay, there was 25% reduction [4]. Studies in India have shown decrease in respiratory infections in children using zinc supplements [5]. In children's, adjunct therapy including 20mg zinc per day speeds up recovery from critical pneumonia. It was reported by an Indian study that 68% decrease in death rate was found to be occurred in SGA infants who were given zinc supplements 1-9 months of age [7].

Children suffering from pneumonia have shown lower blood zinc levels as compared to healthy ones [8,9,10]. In developing countries, it has been described that intake of zinc supplements for more than 3 months positively reduces respiratory tract infections duration in children [11-16]. Assessment of range of supplementation has also been done. It is evaluated that zinc supplementation should be from 15mg to 140

mg per week with upper range exceeding 2mg per days for less the year children and up to 7 mg/ per day for 1-3 years' age children [17,18].

**PATIENTS AND METHODS:**

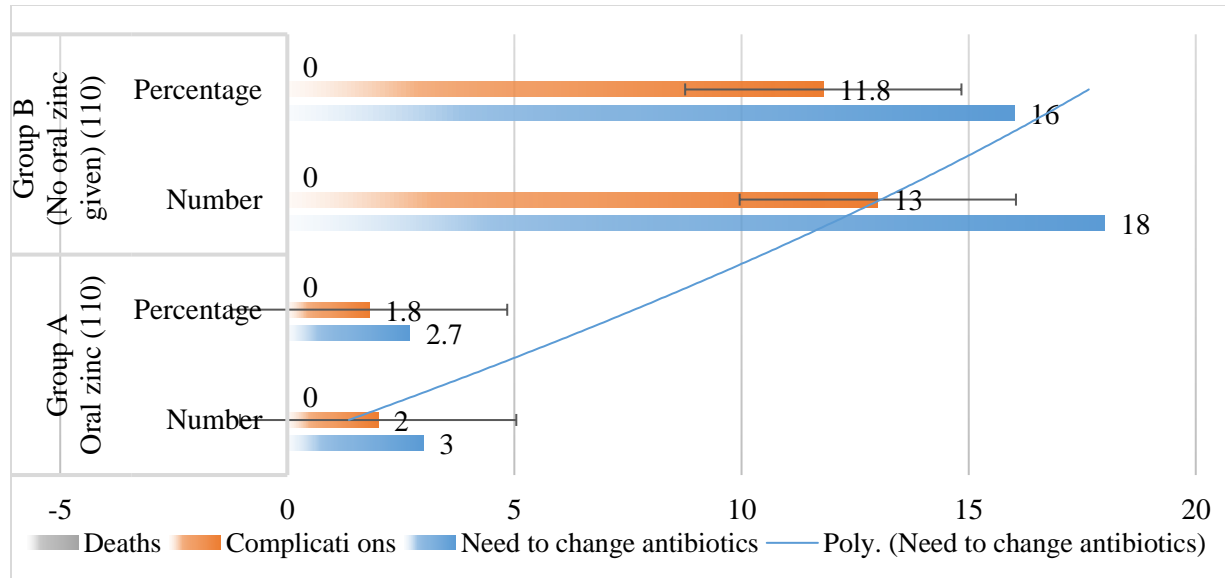
Total 220 children of 6 months up to 5 years of age were selected for study. There was complain of cough and fever in these children. These children were followed for one year. Days and episodes number with critical lower tract respiratory infection as cough and rise in respiration rate or 2 lower chests in drawing existence or temperature > 101F, were calculated. Group A and group B were made. There were 110 patients in each groups. To group A patient, zinc supplement was given for 3 months with 10mg/days dosage orally. In both groups, episodes number of severe respiratory infection in one year, were calculated and then comparison was done. Illness duration and death rate was also determined. Chi-square test was used for comparison of cat goral variables between the two groups. T test was used for the comparison of mean. A-P value of < 0.05 was taken important. Using SPSS 15 version, data was analyzed.

**RESULTS:**

In group A, mean illness duration was 3.4+\_0.113 days. In group B, 5.1+\_0.254 days was mean illness duration.

**Table No. I: Summary of effect of zinc in children with acute respiratory infection. (N = 220)**

	<b>Group A (Oral zinc given) (n=110)</b>	<b>Group B (no oral zinc given) (n=110)</b>	<b>P- Value</b>
<b>Duration of illness</b>	<b>3.4 days</b>	<b>5.1 days</b>	<b>0.001</b>
Need to change antibiotics	3 (2.7%)	18 (16%)	-
Complicati ons	2 (1.8%)	13 (11.8%)	-
Deaths	0%	0%	-



In group A, 34 were total number of episodes of respiratory tract infection. Critical respiratory infection had 78 episodes in group B. recovery rate of patient was 100%. Cough and fever was the common complain of all patients. From group A only 2 patients showed severe respiratory infection complication and serious condition after microbial presence in blood,

after 5 days' treatment. Only 13 patients from group B showed respiratory infection and serious conditions after microbial invasion in blood. This happened after four days of treatment. During every episodes of respiratory infection, Amikacin and Ceftriaxone were given to all patients included in both groups.

**Table II:** Effect of zinc on episodes of acute respiratory infection. (N=220)

	Group A (Oral zinc given) (n=110)	Group B (no oral zinc given) (n=110)	P- Value
Total no. of episodes of acute respiratory infection during one year.	34	78	0.02
Total no. of admissions in hospital during one year	6 (5.4%)	33 (30.9%)	-

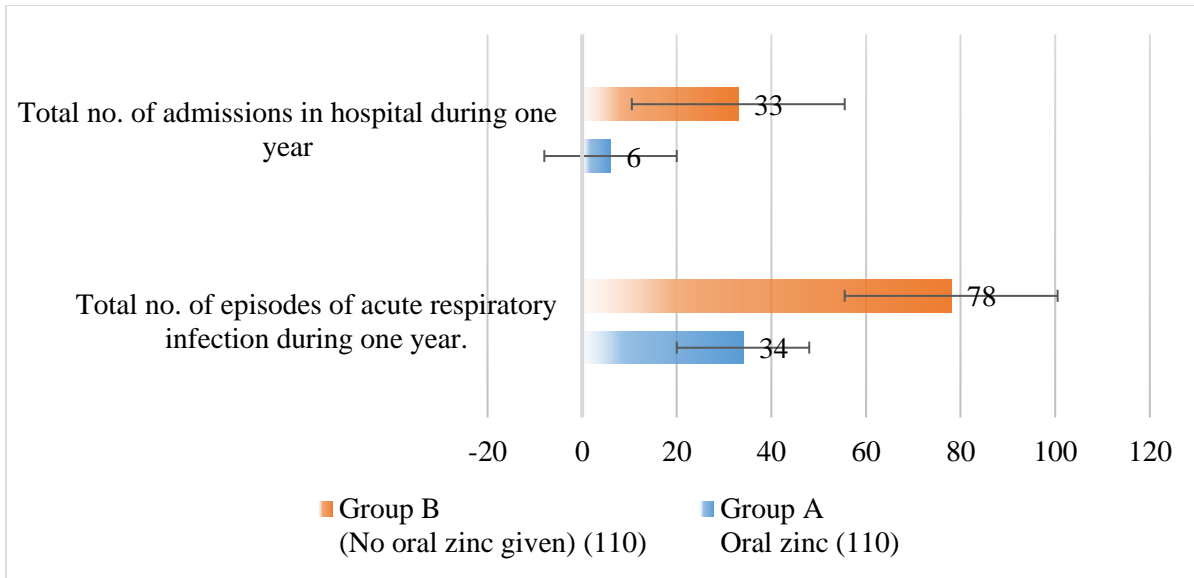
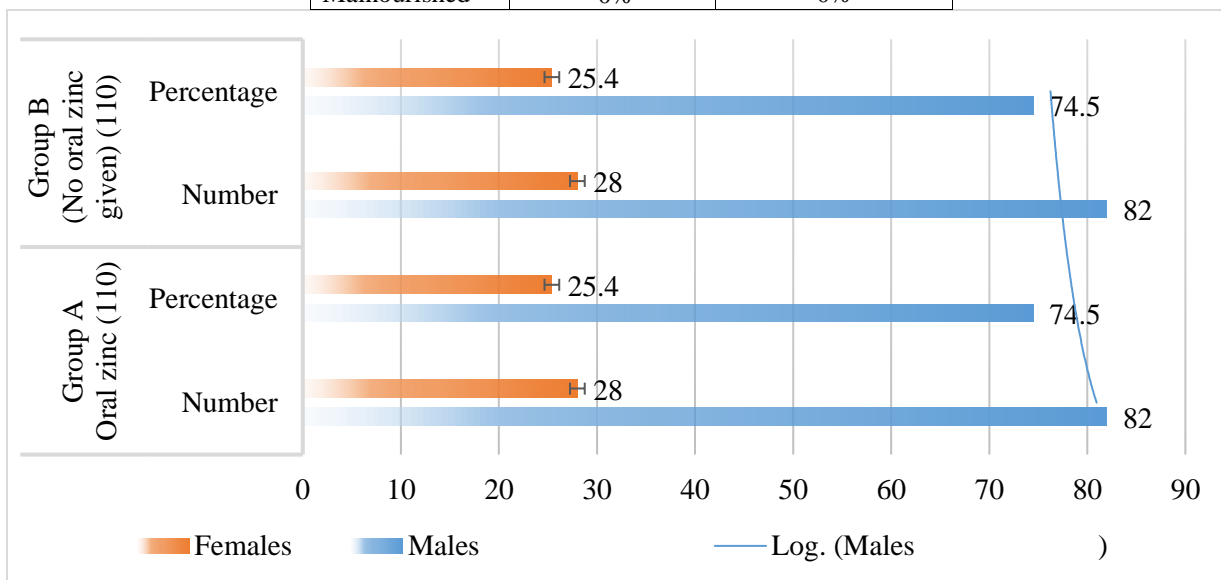


Table III: Comparison of both groups (N=220)

	Group A (Oral zinc given) (n=110)	Group B (no oral zinc given) (n=110)
Males	82(74.5%)	82(74.5%)
Females	28(25.4%)	28(25.4%)
Mean age	1.2 years	1.2 years
<b>Clinical features during episode of acute respiratory infection</b>		
Fast breathing	100%	100%
<b>Nutritional status</b>		
Cough	100%	100%
Malnourished	0%	0%



**DISCUSSION:**

The current study showed beneficial effect of zinc supplement in children suffering from severe respiratory infection. It decreased number of episodes and illness duration. Many studies in Bangladesh, India and European countries have demonstrated positive effect of use of zinc supplement during Pneumonia. In 2004, a study in India has shown decreased blood zinc level in children suffering from critical pneumonia [3]. Mahalanabis demonstrated decline in illness duration by the use of antibiotic along with oral zinc supplements. In hospital stay, 25% mean reduction was noted in children with pneumonia [4]. Theodore described that there was enhancement in patient's immunity against microbe's causative of pneumonia in children by the use of oral zinc supplements [1]. Brooks demonstrated the acceleration in recovery by the adjust therapy with 20mg zinc per day, in children with pneumonia [6]. Improved immunity, rise in growth, decrease and death rate decline has been displayed by black [7]. Bhavnagar has described that oral zinc supplements in addition to enhancement of immunity, prevent sound attack of pneumonia in children [9]. Sozawal exhibited that zinc supplements reduces prevalence of critical lower respiratory tract infections in preschool children and infants [10]. Khan F and colleagues had demonstrated that less antibiotics dose help in quick recovery of children with pneumonia [13]. It has been exhibited by some studies that complication chances are reduced with oral zinc supplements due to increased immunity in children against infections [11,12,19].

**CONCLUSION:**

Number of episode of respiratory infection were decreased in children taking zinc supplements on regular basis. It also exhibited reduction in illness duration and hospital stay.

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