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Letter to Editor

Paediatrics Section

Bronchiolitis: Comparative Study between Respiratory Synctial Virus (RSV) and Non RSV Aetiology

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Dear Editor,

We read with great interest the original article by Ramagopal G et al., in the August, 2016 issue of your journal [1]. At first, we would like to commend the authors for their endeavor but at the same time would like to make the following comments which would benefit the general readers of JCDR.

Under the heading sample size, the authors states that "The present study sample was based on the number of cases that were admitted in the PICU, with features of bronchiolitis and who gave consent for the study, during study period of one year". But that is not an acceptable method of sample size calculation for epidemiological studies. They also do not state the primary objective and outcome measure which would determine the required sample size for a given power and precision [2].

The criteria used for defining bronchiolitis refer to the American Academy of Paediatrics (AAP) guidelines [3], but this definition is of little clinical usefulness. Another definition used in many clinical studies, states bronchiolitis as: the first episode of wheezing in a child younger than 12 to 24 months who has physical findings of a viral respiratory infection and has no other explanation for the wheezing, such as pneumonia or atopy [4]. Other important aspects to be highlighted in this context are the patient's age and excluding other similar illness which may manifest in the similar manner. Though, there has been much controversy regarding the age group in whom the diagnosis of bronchiolitis is to be considered [5], it is widely accepted to restrict the definition in children till two years of age. But interestingly, authors here chose to include children up to three years of age. Second, though the authors have stated to have excluded "Children with congenital heart disease, chronic lung disease, family history of asthma and other chronic diseases", it is not clear whether these children had previous history of wheezing or atopy which is expected to influence their treatment response and subsequent outcome.

It is mentioned that if the children did not respond to oxygen and hypertonic saline then a trial of bronchodilator and steroids was given. But the current guidelines mention not to use either of these medications in bronchiolitis [3]. Therefore, the finding of them being more commonly used in the non-RSV group serves little clinical purpose. Similarly, use of antibiotics when there was "features of leucocytosis, or if X-ray showed opacities" is also not justifiable [3,4]. Therefore, their differential use, though statistically significantly more in non-RSV group is of little clinical use.

Another important point observed is 15% children in both groups having a positive blood culture for Coagulase negative *Staphylococcus aureus* (CONS). First of all, the methodology states drawing blood sample only for complete blood count and not blood culture; second the utility of such cultures is really questionable as they are rarely of any benefit and mostly grow contaminants [6], which also seems to be the case in this study, and has been shown to unnecessarily increase the use of antibiotics and probably duration of hospital stay also.

[Table/Fig-2] [1] show data for socioeconomic status and smoking exposure but the definition/ classification used are not stated. It is not clear why the authors have compared different modes of oxygen delivery (e.g., face mask, nasal prongs, etc.,) in the two groups as oxygen is given in most "non-frightening' mode to the children with bronchiolitis unless they have respiratory failure.

It is not clear as to what prompted the authors to conclude that "Bronchiolitis due to RSV was found to affect more commonly children of age < one year, with male preponderance", because children below one year comprised only 32.5% of all cases of RSV bronchiolitis compared to 27.5% in non-RSV group and 60% of those with RSV were males compared to 50% with non-RSV causes, both of them being not significantly different.

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AUTHOR'S REPLY

In the study, no sampling was done as all the cases admitted to the PICU who fulfilled the inclusion criteria and gave the consent were enrolled in the study.

Criteria for diagnosing bronchiolitis were based on clinical presentation as per AAP guidelines [1].

Time of three years was chosen as cut off as the possible number of cases expected were as such low for the study and also it is very difficult to distinguish bronchiolitis from viral induced wheezing in a early onset wheezer who present within three years [2].

No case had past history of wheezing or nebulisation. As no single standard treatment for bronchiolitis is recommended, large trials are still required, from existing treatment options. Supplemental oxygen and hypertonic saline nebulisation was started if they did not respond or clinical they worsen thinking of possibility of viral induced wheezing. Bronchodilator and corticosteroids were given with additionally antibiotics for those who did not respond after 48 hours and showed infiltrates and leucocytosis [3].

Along with other investigation, blood culture was also sent so as to see if there was any influence of bacteraemia on the clinical outcome of the cases, as there are not many studies. For socioeconomic status modified kuppuswamy scale was used [4].

Smoking exposure: History of exposure to second hand smoking was taken.

Oxygen was delivered by using masks and nasal prongs as supplemental oxygen is also one of the proposed treatments, and just it is an observation in two groups. Mainly table 6 in the article shows the requirement of invasive ventilation and non invasive ventilation among the two groups.

Conclusion is just the observation from the study, as already stated In the limitations of the study, the sample size is very small, no significant results were found among two groups.

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