



SEVERE PNEUMONIA; FREQUENCY OF CORRECTLY DIAGNOSED CASES BY IMNCI CLASSIFICATION IN CHILDREN BETWEEN 2 – 59 MONTHS OF AGE

Asim Amjad¹, Ubaidullah², Iqbal Ahmad Azhar³

1. MBBS, FPCS (Pediatrics)
Post-Graduate Resident,
Department of Pediatrics
King Edward Medical University/
Mayo Hospital, Lahore.
2. MBBS, FCPS (Pediatrics)
Assistant Professor,
Department of Pediatrics
King Edward Medical University/
Mayo Hospital, Lahore.
3. MBBS, DCH (Pediatrics),
MCPS (Pediatric), FCPS (Pediatrics)
Associate Professor,
Department of Pediatrics,
King Edward Medical University/
Mayo Hospital, Lahore.

Correspondence Address:

Dr. Asim Amjad
Post-Graduate Resident,
Department of Paediatrics
King Edward Medical University/
Mayo Hospital, Lahore.
asim_hussain96@yahoo.com

Article received on:

21/08/2017

Accepted for publication:

20/12/2017

Received after proof reading:

28/02/2018

ABSTRACT... Background: The signs and symptoms of pneumonia are often nonspecific and widely vary based on the patient's age and the infectious organisms involved. IMNCI has improved case improved diagnose of pneumonia. This study was conducted to study the frequency of correctly diagnosed cases of severe pneumonia by IMNCI classification in children between 2 – 59 months of age. **Study Design:** Cross sectional study. **Setting:** Department of Pediatrics, Mayo Hospital, Lahore. **Period:** January to June 2013. **Methodology:** Total 155 cases were included through Non probability purposive sampling. Chest radiographs were taken within the first 6 hours from Radiology Department and reports were obtained for evidence of pneumonia. Data was entered and analyzed in SPSS version 16. Age, weight, height were presented as mean \pm standard deviation. Sex and radiological findings of severe pneumonia were presented as frequency tables and percentages. **Results:** The mean age of patients was 12.76 ± 11.54 months. There were 47.1% females and 52.9% males. Out of 155 patients 134(86.5%) had pneumonia on CXR where as only 21(13.5%) appeared with normal status which were already positive on IMNCI. Only 21 (13.5%) appeared with bilateral patch of consolidation, 62 (40%) appeared with Unilateral patch of consolidation, 11 (7.1%) were appeared with Bronchopneumonia, 30 (19.4%) were appeared with lung collapse condition and (12.9%) were appeared with Pleural Effusion. **Conclusion:** Clinical assessment of pneumonia in children on IMNCI is equivalent to the assessment on chest X-ray.

Key words: Acute Severe Pneumonia, Integrated Management of Neonatal Childhood Illnesses (IMNCI), Chest Radiographs.

Article Citation: Amjad A, Ubaidullah, Azhar IA. Severe pneumonia; frequency of correctly diagnosed cases by imnci classification in children between 2 – 59 months of age. Professional Med J 2018; 25(3):396-399.
DOI:10.29309/TPMJ/18.4267

INTRODUCTION

Pneumonia is an inflammation of parenchyma of lungs especially affecting the alveoli, associated with fever, respiratory symptoms and radiological findings on a chest X-ray.¹ It is one of the leading causes of morbidity and mortality in children younger than 5 years in developing countries. Low socioeconomic status, overcrowding, lack of breast feeding are common risk factors. Globally incidence of pneumonia in developed countries is 0.05 episode/child/year and in developing countries this is 0.28 episode/child/year.²⁻⁴

WHO/UNICEF has developed an approach called the Integrated Management of neonatal childhood illnesses (IMNCI), to tackle the major diseases of early childhood including pneumonia. IMNCI classifies severe pneumonia as having cough,

difficulty in breathing for < 3weeks, increase in respiratory rate for the age of the patient (2 to 12 months > 50/min and for 12 to 59 months > 40/min) and lower chest indrawing.⁵

Bacteria (Staphylococcus, Pneumococcus, Chlamydia and Mycoplasma pneumoniae) and viruses (Respiratory syncytial virus, Influenza and para-influenza virus and adenovirus) are the most common causative organisms.¹ The definitive diagnosis of pneumonia requires isolation of an organism from the blood, pleural fluid, or lung. But blood culture is not acceptable way to identify pneumonia and specimens from interstitial tissue is technically difficult, need experience personnel and it is risky procedure.⁶ The chest X-ray is typically used to confirm the diagnosis of pneumonia in hospitals as it can give useful

information about the presence of pneumonia. In WHO defined severe pneumonia chest X-RAY findings were present in 83% of pediatric cases. Lobar consolidation (51.8%) was the most common radiological abnormality. While 31.3% had interstitial abnormalities and 16.9% had normal chest radiographs.⁷

IMNCI guideline is used for diagnosis, initial treatment of cases of severe pneumonia in our Primary Health Care Centers and for their referral to tertiary care hospitals. If number of correctly diagnosed cases of severe pneumonia has percentage equal or near to WHO defined pneumonia on chest x-ray, it would prove the validity & usefulness of IMNCI classification practically & would also generate local data for this study in our population. Therefore, this study was conducted to study the frequency of correctly diagnosed cases of severe pneumonia by IMNCI classification in children between 2 – 59 months of age.

MATERIAL & METHODS

This Cross sectional study was conducted in department of Pediatrics, Mayo Hospital, Lahore from January to June 2013. Total 155 cases were included through Non probability purposive sampling. Chest radiographs were taken within the first 6 hours from Radiology Department and reports were obtained for evidence of pneumonia. IMNCI clinical case definition of Severe Pneumonia was taken as history of fever, cough and difficulty in breathing; for less than 3 weeks in presence of tachypnea according to (2-<12 months - > 50 breaths/min, 12-59 months-> 40 breaths/min), chest indrawing (all these clinical findings must be present to label a case of severe pneumonia). Correctly diagnosed case was the case if unilateral or bilateral patch of lobar consolidation, bronchopneumonia, pleural effusion, and lung collapse (any one of the above mentioned radiological findings must be present). Data was entered and analyzed in SPSS version 16. Age, weight, height were presented as mean \pm standard deviation. Sex and radiological findings of severe pneumonia were presented as frequency tables and percentages.

RESULTS

The mean age of patients was 12.76 ± 11.54 months. There were 47.1% females and 52.9% males. Out of 155 patients 134(86.5%) had pneumonia on CXR where as only 21(13.5%) appeared with normal status which were already positive on IMNCI. Only 21 (13.5%) appeared with bilateral patch of consolidation, 62 (40%) appeared with Unilateral patch of consolidation, 11 (7.1%) were appeared with Bronchopneumonia, 30 (19.4%) were appeared with lung collapse condition and (12.9%) were appeared with Pleural Effusion. (Figure-1 to 4, Table-I to IV)

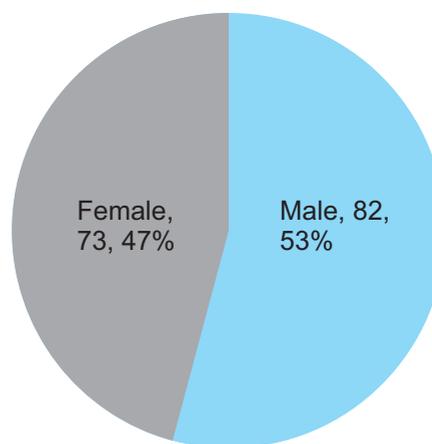


Figure-1. Distribution of sex of the patients

Pneumonia Status	Frequency		Percent	
	Yes	134	86.5%	
No	21	13.5%		
Total	155	100.0%		

Table-I. Distribution of pneumonia status of the patients

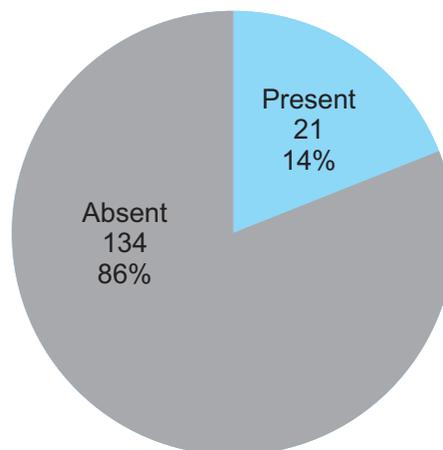


Figure-2. Distribution of bilateral patch of consolidation

		Frequency	Percent
Unilateral patch of consolidation	Yes	62	40.0%
	No	93	60.0%
	Total	155	100.0%

Table-II. Distribution of unilateral patch of consolidation

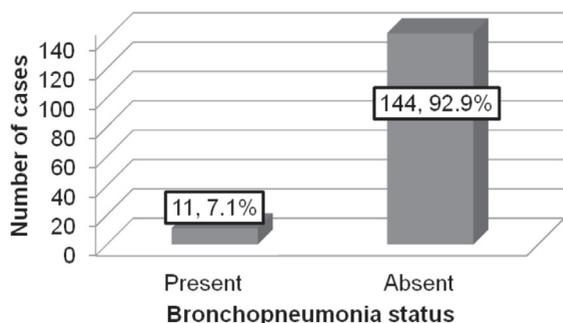


Figure-3. Distribution of bronchopneumonia of the patients

		Frequency	Percent
Lung Collapse	Yes	30	19.4%
	No	125	80.6%
	Total	155	100.0%

Table-III. Distribution of lung collapse of the patients

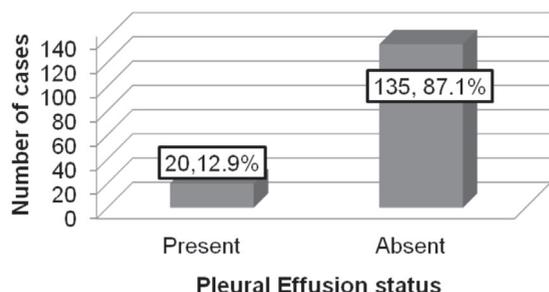


Figure-4. Distribution of pleural effusion of the patients

DISCUSSION

This study was conducted on correctly diagnosed cases of severe pneumonia by IMNCI classification in children between 2 – 59 months of age. Total 155 patients were enrolled in this study. Mark I et al., concluded the following results in their study that 16% of patients had radiographic pneumonia.⁸ Karalanglin Tiewsoh et al., proposed his study that, All the 200 had mean age (SD) 11.74 months (12.44) children were enrolled in the study. 143 (71.5%) were infants less than 12 months of age, 127 (63.5%) were boys, 136 (68%) came from overcrowded families.³ In our

study, out of 155 patients 134(86.5%) appeared with pneumonia disease where as only 21(13.5%) appeared with normal status which were already positive on IMNCI. These results matched with results of an Indian study, conducted in 2008, reported that 69 (83.1%) had pneumonia and 14 (16.9%) had normal chest radiographs.⁷

Atikun Limsukon et al., concluded in their study that Pleural effusions are a common finding in patients with pneumonia. Powell concluded in his study about pleural effusion that in Between 1962 and 1980, 50 children admitted to Strong Memorial Hospital had a pleural effusion or an empyema associated with pneumonia.⁹

While our study shows that the mean age of patients were recorded as 12.76±11.54months, the patients appeared with pneumonia disease were 134(86.5%) where as only 21(13.5%) appeared with normal status. Patients appeared with lung collapse condition were 19.4%, patients appeared with bronchopneumonia were 7% and 12.90% patients appeared with pleural effusion condition. Results of our study regarding pleural effusion and lung collapse deviated from the other studies.¹⁰

CONCLUSION

Clinical assessment of pneumonia in children on IMNCI is equivalent to the assessment on chest X-ray. It has been proved that IMNCI is valid & useful practically.

RECOMMENDATIONS

We are now able to implement the use of IMNCI instead of CXR, particularly in peripheries where CXR are not available. And we can prevent children from harmful radiations of CXR. We have also get local magnitude to implement the use of IMNCI in our population. Now there will be a decrease in the wastage of resources, wrong diagnosis, inappropriate initial treatment of patients with severe pneumonia at Primary Health Centre & their wrong referral to Tertiary Care Hospital.

Copyright© 20 Dec, 2017.

REFERENCES

1. Sectish Tc PCPKR, Janson HB, Behrman RE, Santon

- BF. **Nelson text book of pediatrics: New delhi elesveir**; 2008.
- Iqbal SMJ, Afzal MF, Sultan MA. **Acute bronchiolitis: Epidemiological and clinical study.** Annals of King Edward Medical University. 2010; 15(4).
 - Tiewsoh K, Lodha R, Pandey RM, Broor S, Kalaivani M, Kabra SK. **Factors determining the outcome of children hospitalized with severe pneumonia.** BMC pediatrics. 2009; 9(1):15.
 - Theodoratou E, Al-Jilaihawi S, Woodward F, Ferguson J, Jhass A, Balliet M, et al. **The effect of case management on childhood pneumonia mortality in developing countries.** International journal of epidemiology. 2010; 39(suppl 1):i155-i71.
 - Puumalainen T, Quiambao B, Abucejo-Ladesma E, Lupisan S, Heiskanen-Kosma T, Ruutu P, et al. **Clinical case review: A method to improve identification of true clinical and radiographic pneumonia in children meeting the World Health Organization definition for pneumonia.** BMC infectious diseases. 2008; 8(1):95.
 - Levine OS LG, Garman RL, Dowell SF, Yu S, et al. **Haemophilus influenzae type b and Streptococcus pneumoniae as causes of pneumonia among children in Beijing, China.** Emerg Infect Dis. 1998; 6:782-6.
 - Bharti B KL, Bharti S. **Role of chest X-Ray in predicting outcome of acute severe pneumonia,.** Indian Pediatrics 2008; 45(11):889-90.
 - Mark I. Neuman M, MPH, Michael C. Monuteaux, ScDa,b, Kevin J. Scully, BSa, Richard G. Bachur, MDA. **Prediction of pneumonia in a pediatric emergency department.** Pediatrics. 2011; 128.
 - Chonmaitree T, Powell KR. **Parapneumonic pleural effusion and empyema in children review of a 19-year experience, 1962-1980.** Clinical pediatrics. 1983; 22(6):414-9.
 - Virkki R, Juven T, Rikalainen H, Svedström E, Mertsola J, Ruuskanen O. **Differentiation of bacterial and viral pneumonia in children.** Thorax. 2002; 57(5):438-41.

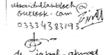
“

*Your beliefs don't make you a better person,
your behavior does.*

– Unknown –

”

AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
1	Asim Amjad	First AAuthor	
2	Ubaidullah	Supervision	
3	Iqbal Ahmad Azhar	Supervision	