

A study of comparison between the H1N1 positive and negative community acquired pneumonia in GMC ,Nagpur

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ABSTRACT

Background: The differences between H1N1 Community Acquired Pneumonia (CAP) & H1N1 negative CAP is less known and even less publicised. The population group which is more predisposed is not yet explained.

Aim: To describe the clinical and epidemiologic characteristics of patients hospitalized for pneumonia with H1N1 positive & H1N1 Negative at GMCH Nagpur.

Methods: Patients of pneumonia admitted in GMC Nagpur from January 2010 to October 2010 were included in this study. Throat swabs of patients' were sent for RT-PCR H1N1 and information regarding their presenting complaints, duration of illness, radiological findings and mode of treatment were recorded for analysis.

Results: Total 120 pts of pneumonia were included in the study. Out of those, 76 patients were RT-PCR positive for H1N1 and 44 patients were RT-PCR negative. Compared to H1N1-negative CAP group, H1N1-positive CAP patients were younger(mean age group 30.1yrs Vs 39.3yrs) and more likely to present with sore throat, dyspnea, gastrointestinal complaints, body ache and bilateral lung involvement. 30% of the H1N1 patients had co-morbid conditions; and pregnancy alone contributed to 24%. However, no significant difference was found between the groups regarding the length of hospital stay and mortality.

Conclusion: Prodromal symptoms like sore throat, dyspnea, body ache should arouse suspicion of H1N1 pneumonia. H1N1 pneumonia affects the co morbid population (mainly pregnancy) more than the general population.

Key words: H1N1 positive CAP, H1N1 negative CAP, RT-PCR positive H1N1

INTRODUCTION

In March 2009 the first case of a novel strain of influenza A virus of swine origin were reported in Mexico¹ and, within 3 months, global spread led to declaration of a pandemic by the World Health Organization (WHO). While most cases of pandemic influenza H1N1 infection have been mild or subclinical,^{2,4} some patients experienced severe illness from H1N1 influenza infection and others severe influenza-related complications.^{5,6} Pneumonia is one of the commonest and most important complications of influenza infection. During the same time India experienced the outbreak of swine flu. Very little information is available about the differences between H1N1 pneumonia and H1N1 negative pneumonia.

This study intends to explore the clinical and epidemiologic characteristics of patients hospitalized for pneumonia with H1N1 positive and H1N1 negative and also to compare the outcomes of the both groups in relation to mortality and hospital stay.

MATERIALS AND METHODS

All patients of pneumonia admitted in GMC Nagpur from January' 2010 to October' 2010 were included in this study. The criteria for labelling a case as a case of community-acquired pneumonia was fixed if the patient had not been hospitalized within the preceding 3 months and had either symptoms and/or signs of lower respiratory tract infection together with pulmonary consolidation or infiltrates on imaging. The participants underwent a structured interview and examination. Throat swab of all the patients was sent for H1N1 PCR. Depending on PCR results patients are divided into H1N1 Pneumonia and Non H1N1 Pneumonia group.

Data were analysed using SPSS Version 19.0. Continuously distributed variables were compared between H1N1 Pneumonia and Non H1N1 Pneumonia groups using the Student's t test if data were normally distributed and the Manne Whitney U test if non-normally distributed. Categorical data were compared using Pearson Chi square test.

Results are displayed as mean values with standard deviation or percentages. Results were considered statistically significant when a two tailed P value was <0.05.

RESULTS

Out of total 120 patients 76 patients were RT-PCR positive CAP & 44 patients were RT-PCR negative CAP. The H1N1 patients were younger ($p=0.004$) and had shorter duration of illness (3.6 days vs. 6.5 days, $p=0.000$) as compared to Non H1N1 CAP patients. 30% of the patients in H1N1 group were associated with co morbidities as compared to 11% patients in non H1N1 group and pregnancy related conditions were more common in H1N1 group.

H1N1 patients suffered more with dyspnoea, sore throat, GI symptoms and body ache than non H1N1 but chest pain was more common in non H1N1 group. Bilateral lung involvement was strongly associated with H1N1 as compared to non H1N1 Pneumonia patients ($p=0.000$) and also the PaO₂/FiO₂ was low in patients with H1N1 CAP (Table 1).

Table 1. Comparison of Clinical features between H1N1 and non H1N1 CAP

Characteristics	H1N1	Non H1N1	Odds Ratio	P value
Cough	64 (84%)	36 (81%)	0.115	0.735
Chest pain	11 (14%)	14 (31%)	5.517	0.063
Dyspnoea	74 (97%)	35 (79%)	10.631	0.001
Sore throat	62 (81%)	06 (13%)	52.386	0.000
GI Symptoms	18 (23%)	02 (4.5%)	7.349	0.007
Body ache	64 (84%)	09 (20%)	47.541	0.000
Altered sensorium	15 (19%)	03 (7%)	3.648	0.056
RR	35.5±5.2	30.2±4.3		0.004
SPO ₂ >90	29 (38%)	24 (54%)	3.035	0.081
SPO ₂ <90	45 (59%)	18 (40%)	3.743	0.053
PaO ₂ /FiO ₂	281.2±79.7	331.4±91		0.003
B/L involvement	69 (90%)	23 (52%)	23.110	0.000
U/L involvement	06 (7%)	18 (40%)	18.983	0.000

There was no statistical significant difference between length of hospital stay and ventilator support requirement between patients of H1N1 and non H1N1 Pneumonia patients ($p=0.276$). Also there was no significant difference in mortality between patients of H1N1 Pneumonia and non H1N1 pneumonia ($p=0.301$).

DISCUSSION

Patients with H1N1 CAP were significantly younger than patients with non H1N1 CAP, reflecting the epidemiology of H1N1 influenza infection globally.^{2,7} This may relate to previous exposure of older persons to pre-2009 H1N1 influenza viruses conferring some immunity.⁸ The clinical presentation of H1N1 CAP remained similar to those from other countries worldwide.⁹ In present study, about one-third of the patients (30%) had co morbidities like DM, IHD, RHD, sickle cell disease and COPD. The association with co morbidities well correlated with other studies.¹⁰ 24% of the patients with H1N1 CAP were associated with pregnancy which was well correlated with other study.¹¹

The radiological presentations in H1N1 pneumonia were bilateral in majority patients (90%) involvement ranging from ground glass appearance to confluent or patchy opacities, reticular pattern and multi-zonal involvement. Pleural effusion was observed in 14% of the cases. These findings are consistent and comparable with other authors¹² but in non H1N1 group 40% of the patients were presented with unilateral lung involvement in the form of lobar consolidation.

CONCLUSION

H1N1 associated CAP should be suspected in patients presenting with shorter duration of illness with sore throat, body ache, GI symptoms, altered sensorium and bilateral lung involvement in association with other symptoms of CAP like cough, dyspnoea and fever.

AUTHOR NOTE

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