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MANAGEMENT OF RESPIRATORY COMPLICATIONS FOLLOWING AH1N1 INFLUENZA IN INTENSIVE CARE UNIT

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Abstract

Objective: To show clinical and therapeutic data of subjects with respiratory complications after AH1N1 swine influenza hospitalized in the Intensive Care Unit (ICU) of Infectious Disease Department.
Material and methods: In this survey are included 30 subjects with influenza syndrome complications hospitalized in ICU during period November 2009-February 2010.
Results: Subjects were male 13/30 (43.3%), female 17/30 (56.7%). Mean age (± SD) was 37.8 (± 18.03) years old. Clinical symptoms showed: fever 38.5-40°C, dyspnea in 100% of cases, takipnea 93.3%, cyanosis in 86.7%, dry cough in 66.7%, productive cough in 20% of cases, headache in 80%, myalgia in 93.3%, arthralgia in 83.3%, and gastro-enteric symptoms in 10% of hospitalized subjects. Regarding diagnostic entities patients represented with: respiratory failure in 60% of cases, acute respiratory distress syndrome (ARDS) in 36.7% of cases, and pleuro-pneumonia in 3.3% (1 case). Patients were treated with non-invasive O_2-therapy in 86.7% of cases (26 subjects). Among them 36.7% (11 cases) were treated with CPAP on PSV, whereas with mechanical ventilation were treated 13.3% of patients. Mortality reached 10% of hospitalized subjects.
Key Words: AH1N1, complication, CPAP.

Introduction

Influenza is viral respiratory infection. The virus is contagious and can cause severe illness especially in patients who are very young or old or have some other medical condition as well. Severe illnesses and deaths have occurred as a result of illness associated with this virus.
The patients, most of them previously healthy, had an influenza-like illness that progressed during a period of 4 to 7 days, had pneumonia, and had findings during the first day of hospital admission that fulfilled the criteria of acute lung injury or the acute respiratory distress syndrome (1,2,3).
One contributing factor for death in our patients may have been delayed presentation to seek medical care and the subsequent delayed admission to hospital.
Albania has also reported a large number of persons with mild disease, through the national surveillance system for influenza, but the full spectrum of clinical illness has not been determined.
Mortality among the patients requiring orotracheal intubation was 80%, and the lung damage was most likely due to the primary effect of infection with influenza virus (5,6,7).
In our study, 11 patients had comorbidities and two patient were pregnant. There was no difference according to comorbidities between survived and died patients. A history of lung diseases, obesity, diabetes, hypertension, psychiatric and heart diseases were the most common comorbidities in our study (35%). In our study, 61% of patients required ventilator support for profound hypoxemic respiratory failure, requiring high levels of inspired oxygen and PEEP. The survival rate was higher in NIV than invasive ventilation. Noninvasive ventilation has been used to avoid the intubation and mechanical ventilation. It rapidly improved vital signs, oxygenation and tachypnoea. None of the patients who received O_2 via nasal sound and mask and NIV required invasive ventilation (8,9).
Ventilator support indications were based upon evaluation of clinical condition of the patients, and measurement of arterial gas. Also, evaluation of the fluid status was performed regularly to avoid hypovolemia hemodynamic instability.
Several studies have shown that non-invasive ventilatory support may decrease mortality obviating the need for endotracheal intubation. Patients who respond to NIV will usually do so within 24 hours, non-responders who will eventually need endotracheal intubation can thus be identified early. Our findings are consistent with these reports that NIV is effective and safe in the context of H1N1 infection. Complex therapy with non-invasive O_2 was one of the effective tools in the management of patients with pandemic influenza A(H1N1). The early administration of treatment with oxygen yielded excellent results in the prevention of respiratory complications from the pandemic A(H1N1) influenza (10,11).

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Our experience with this technique provides strong evidence that non-invasive ventilation can have a role in treating acute respiratory failure patients, reducing the need of ICU beds and improving outcomes.

Pandemic A (H1N1) influenza is associated with severe hypoxemic respiratory failure, often requiring prolonged mechanical ventilation. The reason for the severe hypoxemia seen in H1N1 patients is still issue of debate but NIV could be used with good results in 2009 influenza A(H1N1) infection-related hypoxemic respiratory failure by decreasing atelectatic alveoli, improving pulmonary compliance, and reducing work of breathing.

Early diagnosis by the consistent symptoms of fever and a respiratory illness during times of outbreak, with prompt treatment with neuraminidase inhibitors and aggressive support of oxygenation failure and subsequent organ dysfunction, may provide opportunities to mitigate the progression of illness and mortality observed in Albania.

A limitation of this study is the relatively small sample size and from a single centre. Due to small number of patients with fatal outcome, thus the use of multivariate analysis was not attempted.

Conclusion

Complex therapy with non-invasive administration of O_2 is an efficient tool in the management of patients with influenza syndrome. The immediate admission of patient under O_2-therapy is an efficient strategy in the prevention and management of influenza-related respiratory complications.

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