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A Study to Assess the Use of Drugs in Patients of Influenza like Illness in Tertiary Health Centre in Pune

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ABSTRACT

To assess the use of drugs used in patients of influenza like illness. A Questionnaire was prepared and filled after accessing data from the medical records of patients suffering from influenza like illness including H1N1+ve cases. At the end an evaluation of questionnaires was done and an assessment form was filled. IEC approval was obtained. The H1N1 +ve patients, who received oseltamivir within 36 h, had complete recovery. A higher number of respiratory complications as well as deaths were observed in patients receiving oseltamivir >36h later. An increase in need for antibiotic usage was also observed in those patients who received oseltamivir 36h later. Commonest side effects seen were nausea, vomiting & loose motions. Among the total cases surveyed only 8% did not receive oseltamivir, while more than half the patients receiving oseltamivir turned out to be H1N1 –ve eventually. The benefits of early use of oseltamivir like rapid clinical recovery & less risk of complications were confirmed. However, more than 50% of these Influenza like illness (ILI) cases received oseltamivir unnecessarily, probably due to phobia of H1N1. The above factors could lead to an increased financial burden on the patient as well as on the already overstretched healthcare system. Early diagnosis of H1N1 infection might be useful to prevent inappropriate use of effective antiviral drugs like oseltamivir

Keywords: H1N1; Influenza like illness; Oseltamivir; (Note: +ve : positive; –ve: negative.)

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INTRODUCTION:

India is facing an epidemic of H1N1 since 2009**.** As on May 16, 2010, 3,866 laboratory confirmed cases have been reported in India; of which 1517 have been fatal[1]. In India the state of Maharashtra is the worst affected, followed by Karnataka[2]. H1N1 is a novel influenza A virus of swine origin that causes human infection and acute respiratory illness and detected first time in 2009[3]. It has been found that this new virus has gene segments from the swine, avian and human flu virus genes, hence named "swine flu". The scientists call this a 'quadruple reassortant' virus and christened "influenza-A H1N1 virus."[4] Most common presenting symptoms are fever, cough, sore throat, vomiting and diarrhea[5]. The clinical manifestations of 2009 H1N1 influenza are similar to seasonal influenza[6]. As a result, patients may be unnecessarily treated with oseltamivir in the event of pandemic. Hence, this study was undertaken to assess the use of these drugs. The pandemic H1N1 virus is currently susceptible to the neuraminidase inhibitors, such as oseltamivir.

WHO guidelines recommend treatment should be started as soon as possible; preferably within 48 hours of onset of symptoms.[7] Oseltamivir in the dose of 75 mg twice daily for 5 days in otherwise healthy adults with naturally acquired febrile influenza reduced the duration of the disease by up to 1.5 days and the severity of illness by up to 38% compared with placebo when initiated within 36 hours of symptom onset[8]. This recommendation was not tested against H1N1 virus as this infection arose recently and transformed itself into a worldwide pandemic. Previous experience from H1N1 virus infection and severe lower respiratory tract disease suggests that later initiation of treatment may also be effective[7], a theory not tested in H1N1. It is worthwhile to explore whether treatment benefits extend to those who are treated later than 36 h in the present epidemic of H1N1 infection. There is also a high probability of overuse and misuse of antimicrobial drugs in such patients. Hence, this study was undertaken to assess the use of anti-viral drugs, antibiotics and other drugs in patients suffering from influenza-like illness (ILI).

MATERIAL AND METHODS:

This was a retrospective study. Case records form of patients suffering from ILI, during the period June 2009 till October 2010 were accessed from Dr. D. Y. Patil Medical College and YCM Hospital, Pimpri. A Questionnaire was prepared and filled after accessing data from these medical records. At the end an evaluation of questionnaires was done and assessment form was filled. IEC approval was obtained from Institutional Ethics Committee of Pd. Dr. D. Y. Patil

Medical College, Pimpri, Pune. The cumulative data were then analyzed using chi-square test and p value < 0.05 was considered significant.

RESULTS AND DISCUSSION:

Case record forms of 416 patients were assessed. Of these 57% were males & 43 % females. Amongst them 166 were H1N1 positive and the rest were negative. The H1N1 +ve patients, who received oseltamivir within 36 h, had complete recovery ($p<0.001$). A higher number of respiratory complications as well as deaths were observed in patients receiving oseltamivir more than 36 h after the onset of symptoms. (Figure 1) These findings confirm the advantage of early institution of oseltamivir in such cases. Among H1N1 -ve patients 33 patients receiving oseltamivir > 36 h after onset of symptoms & 18 patients receiving oseltamivir < 36 h after onset of symptoms required more than 1 antibiotic. Whereas these figures in H1N1 +ve patients were 47 & 5 respectively (Figure 2). Thus an increase in need for antibiotic usage was also observed in those patients who received oseltamivir 36 h later; a finding that was independent of patient's H1N1 status. Delayed use of oseltamivir may lead to an increased financial burden on the patient as well as the healthcare system. Commonest side effects seen were nausea, vomiting & loose motions (Table1) – a finding consistent with the existing literature [9]. Among the total cases surveyed only 8% did not receive oseltamivir (Table1). Also more than half the patients receiving oseltamivir (217/416) turned out to be H1N1 –ve eventually. This is very obviously an example of overuse and misuse of an effective antiviral drug. Inappropriate use of oseltamivir has been reported to lead to development of resistant strains of H1N1[10]. This may be attributed to the lack of facilities for early diagnosis and partly to the state of panic created by unabashed and notorious "public awareness".

Table 1 Commonest side effect for oseltamivir

	H1N1 +ve	**H1N1 -ve**
Adults	27%	73%
Children	52%	48%
Received oseltamivir < 36 h*	29	137
Received oseltamivir > 36 h*	74	143
Side effects in patients receiving oseltamivir:		
Nausea & vomitting	29	39
Loose motions	5	9
Side effects in patients not receiving oseltamivir:		
Nausea & vomitting	N/A	2
Loose motions	N/A	0
*** - time as measured from the onset of symptoms**		

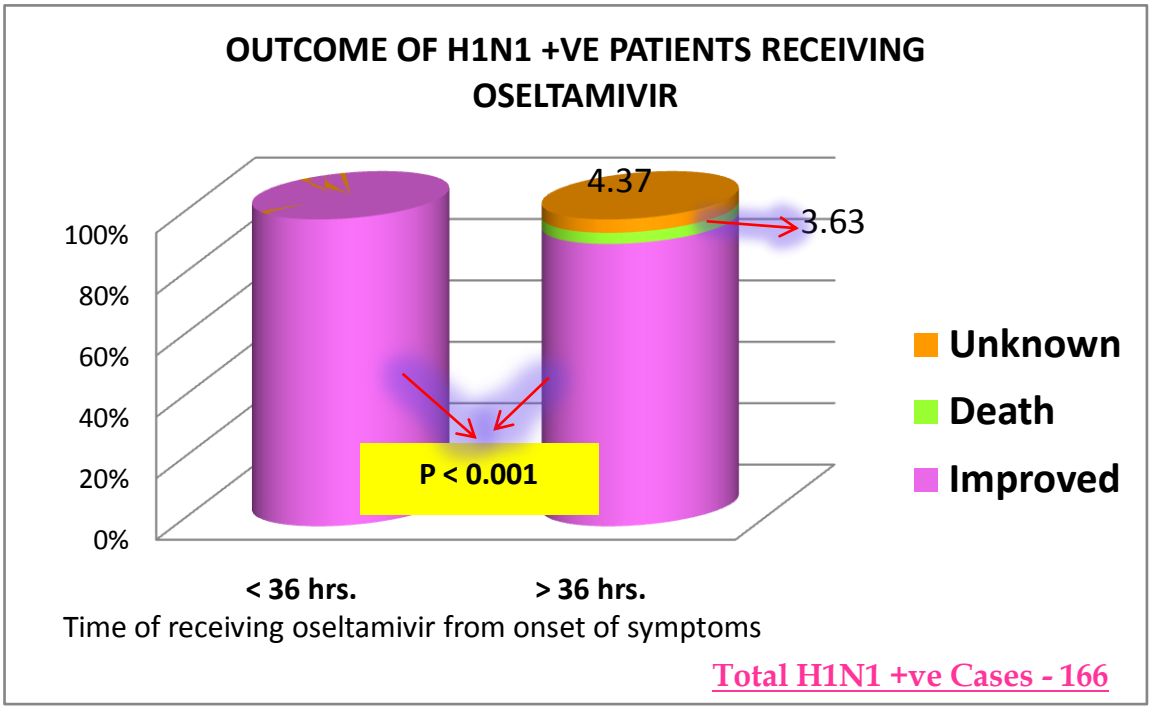

Figure 1 Outcome of H1N1 +ve patient receiving oseltamivir

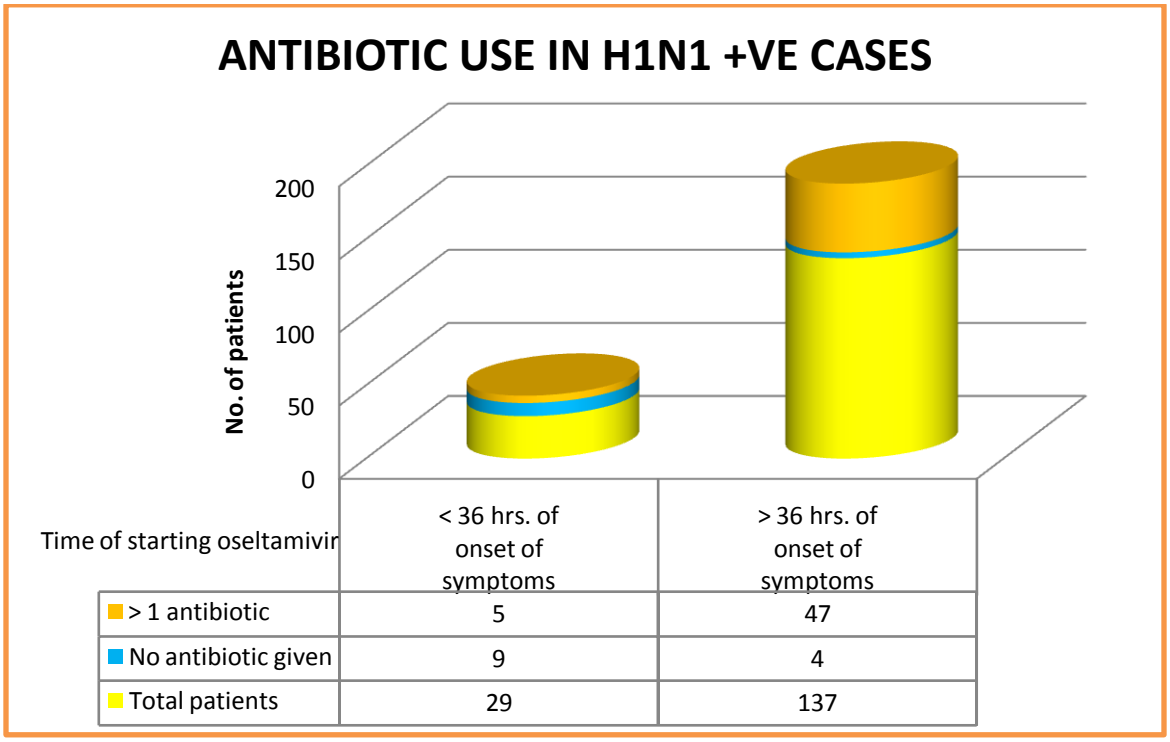

Figure 2 Antibiotic uses in H1N1 +ve cases

CONCLUSIONS:

The study has confirmed the advantages of early institution of oseltamivir treatment in H1N1 positive patients. Early institution of oseltamivir resulted in prompt recovery, decreased need of antibiotics, less complications, less mortality and thus decreased cost to the healthcare system

and patient. Whereas, late use of oseltamivir may lead to lesser chances of recovery, increased use of antibiotics and more complications. This will obviously increase the financial burden on patient as well as healthcare system. The early diagnosis of H1N1 is a challenge – financially as well as logistically. Early diagnosis will certainly minimize the overuse & misuse of effective antiviral drugs like oseltamivir; as found in present study. This may prevent development of resistance in the virus as well as reduce the incidence of adverse events.

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