A Study on Swine Flu Epidemic in the State of Gujarat in 2015

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ABSTRACT   *Introduction: Influenza is a common human pathogen causing pandemics when there is an antigenic drift. In humans three subtypes of Influenza A viruses viz., H1N1, H2N2, and H3N2.Influenza A H1N1 referred as "SWINE FLU" cases.*

Objective: The study was conducted to create awareness on Swine flu at times of epidemic outbreak.

Material and Methods:

The study was done on suspected and confirmed cases of Swine flu admitted to Civil Hospital Ahmedabad and outside samples from January 2015 to February 2015. Throat swabs and nasal swabs were confirmed by rtPCR method at the Virology lab, BJMC, Ahmedabad and from Nodal surveillance centre, Gandhinagar as per the US Centers for Disease Control and Prevention recommended by WHO. Outside positive cases were also included in the study.

Result: Age group of 15-55 years were the most affected. N/L (Neutrophil/ Lymphocyte) ratio was found to be less than 2 in swine flu positive patients.

Discussion: N/L ratio as a screening tool was found to be sensitive and specific for swine influenza virus infection and may serve as a rapid screening test. Patients presenting with influenza like symptoms, low N/L ratio and low WBC count together can be used as a screening tool for swine influenza.

Conclusion: N/L ratio and preventive measures like hand hygiene, use of protective mask and vaccines for emergency personnel will go a long way in averting the epidemic.

INTRODUCTION:

•   Influenza is a common human pathogen causing potential pandemics whenever there is an antigenic drift.

•   In April 2009, a novel influenza A (H1N1) virus was determined to be the cause of influenza like illness in two children in the United States during March and April 2009 and the cause of respiratory illness in Mexico. The virus quickly spread worldwide through human to human transmission. The first case in India was detected in May 2009 in a 23 yr old man who flew from New York to Hyderabad.

•   In humans three subtypes of influenza A viruses viz., H1N1, H2N2, and H3N2, resulting from genomic re-assortment have been detected

•   Influenza A H1N1,commonly referred as "SWINE FLU" started spreading in most parts of India.

•   Many cases were observed from January 2015 in the state of Gujarat.

•   H1N1 infection may present with symptoms like cough, rhinorrhoea, sore throat, fever, malaise, headache, shortness of breath and chills and results in various degrees of infection classified into mild to severe to fatal.
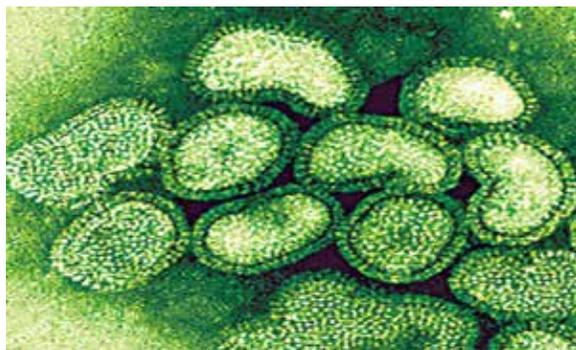
PATHOPHYSIOLOGY:

•   One of the mechanisms is believed to be the inhibition of adrenocorticotropic hormone (ACTH) resulting in lowered cortisol levels.

•   The process that allows influenza viruses to invade cells is the cleavage of the viral hemagglutinin protein by any one of several human proteases. In mild and avirulent viruses, the structure of the hemagglutinin means that it can only be cleaved by proteases found in the throat and lungs, so these viruses cannot infect other tissues. However, in highly virulent strains, such as H5N1, the hemagglutinin can be cleaved by a wide variety of proteases, allowing the virus to spread throughout the body.

AIM:

The study was conducted to create awareness on Swine flu at times of epidemic outbreak.

MATERIALS AND METHODS:

•   The study was done on suspected and confirmed cases of Swine flu admitted to Swine flu ward and Isolation ward of Civil

Hospital Ahmedabad and outside samples from January 2015 to February 2015.

• Tests were confirmed by rtPCR method at the Virology lab, BJMC, Ahmedabad and from Nodal surveillance centre, Gandhinagar as per the US Centers for Disease Control and Prevention recommended by WHO.

• Outside positive cases were also included in the study.

EXCLUSION CRITERIA:
• All other patients who had productive cough indicating a bacterial infection or any symptoms other than those mentioned above or a positive chest X-ray indicating a lower respiratory tract infection were excluded.

• Patients who did not have a rtPCR report were also excluded from the study.

SITES OF SAMPLE COLLECTION
Samples are collected from:
• Nasopharynx

• Posterior wall of oropharynx

DATA COLLECTION:
The following details are collected from the suspected Swine flu patients:
• Name

• Demographic details and Residence

• Date of onset of illness

• History of travel within or outside the country

• History of contact with positive cases

DIAGNOSTIC CRITERIA:
CDC criteria for suspected H1N1 influenza are as follows:
• Onset of acute febrile respiratory illness within 7 days of close contact with a person who has a confirmed case of H1N1 influenza A virus infection, or

• Onset of acute febrile respiratory illness within 7 days of travel to a community (within the United States or internationally) where one or more H1N1 influenza A cases have been confirmed, or

• Acute febrile respiratory illness in a person who resides in a community where at least one H1N1 influenza case has been confirmed.

COMPARATIVE CHART SHOWING POSITIVES IN VARIOUS PLACES IN GUJARAT IN A SINGLE DAY
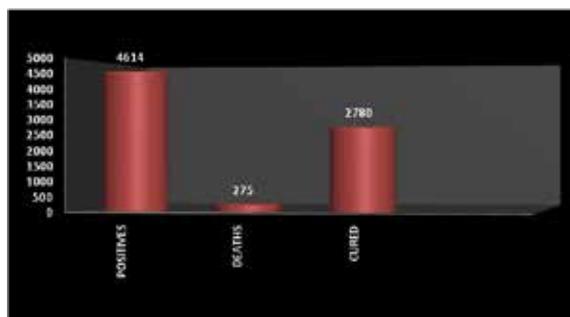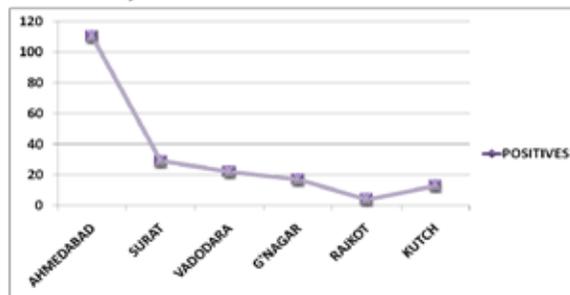
DISCUSSION:
• N/L ratio as a screening tool was found to be sensitive and specific for swine influenza virus infection and may serves as a rapid screening test.

• It is suggested that in patients presenting with influenza like symptoms N/L ratio and low WBC count together can be used as a screening tool for swine influenza.

• The three parameters i.e., influenza like symptoms, low WBC count and N/L ratio less than two are taken into consideration, these are highly indicative of H1N1 infection.

TREATMENT:
• Bed rest

• Isolation

• Broad spectrum antibiotics to cover co infections/secondary bacterial infections

• Oseltamivir 75 mg(Tamiflu) BD, as per WHO criteria

• Cough suppressants, and antipyretics and analgesics for fever and myalgia.

• Intravenous hydration and other supportive measures.

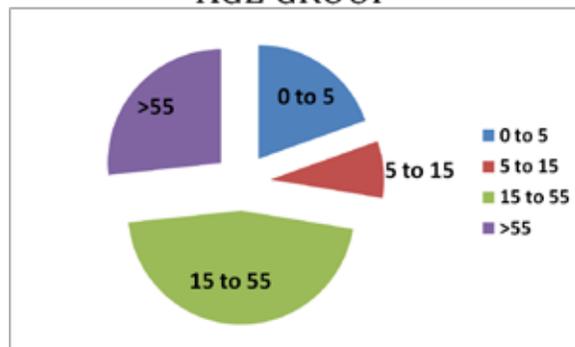• Inotrophic support in cases of shock and patients who need ventilatory support

VACCINES
VAXIGRIP:
• It is a split virion inactivated Influenza virus. It works by introducing very small amounts of viral components (parts) into the body. These components are enough to stimulate the production of antibodies

• Provides protection against H1N1 and H3N2.

AGE GROUP

CONCLUSION:

• N/L ratio less than two may serve an excellent screening tool for isolation, it is time saving and cost-effective procedure.

• Age – 15-55 years were the most affected

• Preventive measures like hand hygiene, use of protective mask and vaccines for emergency personnel will go a long way in averting the epidemic.

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