Influenza is a highly contagious, usually self-limiting, acute respiratory disease caused by influenza viruses. Influenza A is the only subtype which can trigger a pandemic because of the ability to change their genetic compositions at unpredictable intervals. During hajj, millions of hajjis from across the globe intermingle with each other, creating an opportunity for transmission of any such new strain of influenza, and later spread it to all parts of the world within a short time. Two years back, Influenza Surveillance System was initiated in Saudi Arabia in Makkah region during Hajj 1426 Hijra, and has been gradually expanded.

Although main rituals of hajj are performed in Makkah city and around it, most international hajjis also visit AlMadina AlMunawarrah city during their pilgrimage. Further, in distinction from the virus strains circulating among hajjis in Makkah, it is important to identify the strains which are imported into the country by international pilgrims, which necessitated the expansion of surveillance system to the airports where international pilgrims land in Saudi Arabia.

As part of this surveillance activity, during the Hajj of 1426 H (2005 G), a cross-sectional study was conducted by the Field Epidemiology Training Program to identify the serotypes of influenza viruses among hajjis staying in Makkah and Madina; and among international pilgrims coming through airports of Jeddah and Madina for improved understanding of the epidemiology of influenza in Hajj.

Data for the study was collected in Ajiad hospital in Makkah, Al-Ansar hospital in Madinah, King AbdulAziz airport in Jeddah and Prince Mohammed bin AbdulAziz airport in Madinah from 16 Dhul Qaida to 6th Dhul Hajja 1425 (17/12/2005 to 6/1/2006). For the purpose of study, a case of suspected influenza was defined as any patient who is suffering from fever of at least 38°C, in combination with either cough or sore throat, and time of onset of fever within last 72 hours. All the cases presenting with a case definition of suspected influenza at one of the four

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Distribution of Influenza virus during Hajj season 1426 H, cont...

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participating sites were included in the study. All participants were interviewed using a structured questionnaire and a throat swab was collected for viral isolation using Dacron swab. The swabs were later analyzed at King Abdul Aziz University virology laboratory in Jeddah.

A total of 483 suspected influenza cases were recruited in the study, 43 (7.5%) from Ajiyad Hospital Makkah, 6 (1.2%) from AlAnsar Hospital Madinah, 165 (34.2%) from King AbdulAziz Airport Jeddah and 276 (57.1%) from Prince Mohammad bin AbdulAziz Airport Madinah.

The ages of the suspected cases ranged between 13 and 96 years with a mean of 51.6 years (SD 13.3 years). All the recruited suspected cases were international Hajjis. The suspected cases belonged to 15 nationalities, including 70 (14.8%) each from Iran and Turkey, followed by 59 (12.4%) from Senegal, 58 (12.2%) from Sudan and 49 (10.3%) from Egypt. Regarding the clinical features, fever was reported by all the suspected cases, as it was essential part of case definition. Other symptoms reported were cough (72.3%), myalgia (30.5%), sore throat (26.1%), runny nose (22.2%), headache (19.1%), sputum (17.6%) and blocked nose (16%). Among others, sore throat was reported by 83.0%, myalgia 70.2%, cough 66.0%, headache 61.7%, runny nose 38.3%, sputum 55.3%, and blocked nose 34.0%, of confirmed influenza cases.

14.9% of confirmed cases were vaccinated against influenza, 76.6% were not vaccinated and 8.5% were of unknown status. In the airports 42.9% of confirmed cases were vaccinated against influenza while in the hospitals 10.0% of confirmed cases were vaccinated against influenza. 25.5% of confirmed cases have used antibiotics before the sample was taken for virological examination, while 57.4% have not used antibiotics and another 17.0% did not know about antibiotic use. In the airports 14.3% of confirmed cases have used antibiotics while in the hospitals 27.5% of confirmed cases had used antibiotics.

Influenza type A was more common (76.6%) than influenza type B (23.4%), and the most predominant influenza serotype among the isolates was A/H1N1, followed by FLU A not typed (29.8%), B/SICHUAN (17.0%), then A/H3N2 (12.8%), and B/HONG KONG (6.4%).

Regarding the distribution of influenza serotypes according to the place where specimen was collected in (airports or hospitals), it was observed that influenza A/H1N1 serotype was the predominant strain from the airports confirmed cases (71.4%). Where in hospitals, FLU A not typed was the predominant strain (35.0%) (Table 1). Regarding the distribution of influenza serotypes according to nationality, it was observed that influenza A/H1N1 serotype was the predominant strain from Syria (50.0%), India (50.0%), Egypt (41.7%), and turkey (100%). Whereas in Pakistanis Influenza, FLU A not typed was the predominant strain (61.5%).

-Reported by: Dr. Faisel AI Anzi, Dr. Mohammed Almazroz, Dr. Abdul Jamil Choudhry, Dr. Nasser A1 Humdan (Field Epidemiology Training Program), Dr. Essam Azhur (King AbdulAziz University)

Editorial notes: The results of this study are comparable to the findings (Continued on page 15)

Table 1: Frequency of virus subtypes of confirmed influenza cases recruited in Hajj, 1426H

<table>
<thead>
<tr>
<th>Place of recruitment</th>
<th>Type of virus</th>
<th></th>
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<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Flu A</td>
<td>Flu B</td>
<td>Total</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>H1N</td>
<td>H3N2</td>
<td>Not typed</td>
<td>B/Hong Kong</td>
<td>Flu B Sichuan</td>
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<td></td>
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<tr>
<td>Airports</td>
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<td>0</td>
<td>0</td>
<td>1</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Hospitals</td>
<td>11</td>
<td>5</td>
<td>14</td>
<td>3</td>
<td>7</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>16</td>
<td>6</td>
<td>14</td>
<td>3</td>
<td>8</td>
<td>47</td>
<td></td>
</tr>
</tbody>
</table>

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Distribution of Influenza virus during Hajj season, cont...

(Continued from page 10)

elsewhere in the world, and are Influenza virus subtypes circulating in Hajj are similar to the strains circulating already part of the influenza vaccines recommended for the forthcoming seasons.

As the number of confirmed cases recruited at airports were only 7, so non-isolation of Influenza A not-typed or only 1 case of Type B can not be stressed strongly, but this variation indicates some variation in the viral subtypes which are imported with these hajjis and the one circulating locally. In addition, around one third of the total viruses fall in the group “non-typed” indicates the need for strengthening of the virology laboratory involved.

An earlier study, reported on data collected only from health care facilities (both PHC and hospitals), while this study recruited most of the patients at airports. The case definition used for identification of suspected cases has not proved to be specific enough, as only 9.7% of the suspected cases who fulfilled the symptom-based case definition resulted in isolation of influenza virus; but the yield was not uniform across the places of case recruitment.

Although the total number of suspected cases recruited in Aijd hospital (only facility reported in both studies) from 185 to 43, the proportion of confirmed cases among suspected cases has improved tremendously. However, the proportion of confirmed cases is still low among suspected cases recruited at airports, which indicates using either a different case definition or a different way of applying the same case definition. The issue needs a careful revision of the strategy for recruitment of suspected cases, thus decreasing variation between the sites, maybe by improved training of the staff.

Keeping in view the usefulness of the surveillance information, it is recommended to expand it to other entry ports of the country dealing with pilgrims and preferably continue the activity around the year. Also, sample preservation in hospitals is recommended.

References

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