Original Research Article

Knowledge about swine flu (H1N1) among pregnant women attending antenatal care clinic in a tertiary care hospital in central India

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Abstract

Background: In India the first positive case of pandemic H1N1 was reported in May 2009 and by end of the year 2010, 20604 cases with 1763 deaths were reported. Since 2010 Maharashtra has been reporting cases of Swine flu year after year. According to the state health department, 2010 saw 6,118 swine flu cases and 669 fatalities. For pregnant women influenza may have severe clinical course leading to complications and a risk to pregnancy. Effective prevention depends on knowledge of the community regarding the causative agent, modes of spread and remedial measures about swine flu.

Methodology: This cross sectional study was conducted among obstetrics out-patient attendees of a tertiary care hospital in central India, wherein 100 pregnant women were interviewed to assess their knowledge about swine flu.

Results: 42 % study participants correctly knew that the swine flu is caused by a virus. 44 % participants correctly knew that it is an airborne infection. Most common symptoms as told by participants were Cough 57%. Fever 42%, Shortness of breath (14 %). Other symptoms known to participants were joint pain, body ache, throat Pain.97% subjects weren’t aware of the correct method of diagnosis while knowledge about preventive measures was also deficient in majority of study subjects.

Conclusions: The knowledge regarding swine flu among study subjects was inadequate. There is need to orient the preventive programmes including information, education and counselling to educate the pregnant females about swine flu (H1N1).

Keywords: Health education, Knowledge, Human H1N1 influenza, Pregnant women, Swine flu.

Introduction

Despite significant medical gains, the danger posed by emerging infectious diseases in the form of epidemics or pandemics has become even greater. The most recent e.g., H1N1 influenza, and its dramatic spread also reminds us that we have
entered into a new age of global pandemics, largely because of the rapidity with which newly emergent pathogens are capable of being transmitted around the world.\(^{(1)}\) The pandemic strain of Novel H1N1 Influenza virus, generally referred as "Swine Flu", had spread immediately to almost all the continents, since it was first recognised in early 2009. Hence, World Health Organisation (WHO) had raised the pandemic alert to Phase 6 by June 2009.\(^{(2)}\) 2009 H1N1 strain has been identified as the cause of a widespread outbreak of febrile respiratory infection worldwide. 

In both seasonal influenza epidemics and previous pandemics, the mortality and morbidity rate from influenza infection was higher in pregnant women than in non-pregnant women.\(^{(3)}\) For pregnant women, certain infectious diseases, such as influenza and varicella, may have a more severe clinical course, increased complication rate, and higher case-fatality rate. Influenza infections cause more severe illness and higher mortality rates for pregnant women.\(^{(4)}\) Mechanical, immunologic, and hormonal changes in pregnancy contribute to this increased risk. More pregnant women than non-pregnant women are hospitalized due to acute respiratory diseases and cardiopulmonary cases.\(^{(3)}\) Women beyond the first trimester of pregnancy have increased numbers of acute cardiopulmonary hospitalizations during influenza season.\(^{(4)}\) Linda Dodds L et al conducted a 13-year (1990–2002) population based cohort study involving pregnant women in Nova Scotia. They compared rates of hospital admissions and physician office visits because of respiratory illness during the influenza season in each trimester of pregnancy with rates during the influenza season in the year before pregnancy and with rates in non-influenza seasons. Their study provides robust, population based data showing that all pregnant women are at increased risk of influenza-associated respiratory illness.\(^{(6)}\)

In India the first positive case of pandemic H1N1 was reported in May 2009 and by end of the year 2010, 20604 cases with 1763 deaths were reported. The country experienced three waves during the period of pandemic of 2009-2010, first one in 2009 September, followed by second wave in December, and the third peak in August 2010 when the end of pandemic was declared.\(^{(7)}\) While declaring the Pandemic to be over in August 2010, World Health Organization conveyed that Pandemic Influenza A (HINI) virus that caused Pandemic [2009-2010] would circulate as Seasonal Influenza virus and would continue to do so for years to come.\(^{(8)}\)

Since 2010 Maharashtra has been reporting cases of Swine flu year after year. According to the state health department, 2010 saw 6,118 swine flu cases and 669 fatalities. The first swine flu death in India—a 14-year-old girl—was recorded in Pune in 2009. 53 persons died of swine flu in Mumbai from January till August 2015, the second highest in Maharashtra after Nagpur city (70). Considering high incident cases in Nagpur, it becomes imperative to assess the knowledge of swine flu in general public and particularly pregnant women about swine flu to facilitate the changes in service provision.

Understanding the knowledge will help in designing appropriate public health education interventions to increase awareness and knowledge of the Swine flu among pregnant women.

With this background, a study was carried out to assess knowledge about swine flu among pregnant females.

**Materials & Methods**

The present cross sectional study was conducted in obstetrics outpatient clinic of a Government medical college and hospital in central India during July 2016 to December 2016. Study subjects were pregnant women receiving antenatal care, in these clinics, who were recruited in study after explaining purpose of study and taking written consent. For calculation of sample size, a pilot study was conducted on sample of study subjects. After analysing results from pilot study, Sample size of 98 was estimated. A total of 100 study subjects were finally included in the study.
Around 90 pregnant women daily came for antenatal care (ANC), we used simple random technique for selection of study subjects. We recruited first pregnant women who attended the ANC clinic every day. Next pregnant female was taken if first study subject did not consent for the study. Information regarding socio-demographic characteristics like age, occupation, marital status, and knowledge regarding Swine Flu disease, like cause, spread, body part involvement, symptoms, diagnosis, cure, preventive measures and source of information; was recorded in a pre-designed and pre-tested questionnaire. This knowledge was assessed by 10 factual statements that participants responded to with “yes” or “no.” A scoring system was applied to assess the level of knowledge of each subject: 1 point was given for each correct answer, and 0 point was given for each incorrect answer. The study was conducted via face to face interview using structured questionnaire in Hindi language. Data was entered and analyzed using statistical software Epi Info 7. Descriptive statistics (percentage, mean, standard deviation, range) were used to summarize baseline characteristics of the study subjects. Association between two categorical variables was analysed by using Chi-square test and p value < 0.05 was considered to be statistically significant. The study was approved by Institutional Ethics Committee, Government Medical College, Nagpur.

Results
Socio demographic characteristic of the study population and Knowledge about Swine flu are depicted in Table.1 and 2. The mean age of study subjects was Mean age: 24.79 yrs, range being 20-34 years. 42% and 58% of participants were in second and third Trimester of pregnancy respectively during the time of interview. Majority of study subjects (83%) had heard of swine flu. Mass media (television, newspaper, internet) was most common source of knowledge for the study subjects (84%), followed by healthcare provider. 42% study participants correctly knew that the swine flu is caused by a virus. 44% participants correctly knew that it is an airborne infection. Most common symptoms as told by participants were Cough 57%, Fever 42%, Shortness of breath (14%). Other symptoms known to participants were joint pain, body ache, throat Pain.

Table 1: Distribution of study subjects by socio demographic variables

| Variables                        | Study subjects (n = 100) |
|----------------------------------|-------------------------|
| 1. Age of study subject          |                         |
| 20 – 24                          | 47                      |
| 25 – 29                          | 40                      |
| ≥ 30                             | 13                      |
| Mean age: 24.79 yrs, range: 20 - 34 |                         |
| 2. Educational status of study subjects |                     |
| Professional Degree / PhD        | 2                       |
| Graduate or Postgraduate         | 15                      |
| Intermediate or Post High School Diploma | 50                  |
| High School Completion           | 30                      |
| Middle School Completion         | 2                       |
| Primary School or Functional Literate | 0                  |
| Illiterate                       | 1                       |
| 3. Occupational status of study subjects |                     |
| Profession                       | 0                       |
| Semi profession                  | 0                       |
| Clerk, shop owner, farm owner    | 0                       |
| Skilled worker                   | 0                       |
| Semi-skilled worker              | 0                       |
| Unskilled worker                 | 8                       |
| Homemaker                        | 92                      |

Table 2: Knowledge about Swine Flu

| Variables                        | Study subjects (n = 100) |
|----------------------------------|-------------------------|
| 1. Cause of Swine Flu            |                         |
| Yes                              | 44                      |
| No                               | 56                      |
| 2. Spread of Swine Flu           |                         |
| Yes                              | 44                      |
| No                               | 56                      |
| 3. Body part involved            |                         |
| Yes                              | 47                      |
| No                               | 53                      |
| 4. Symptoms                      |                         |
| Yes                              | 62                      |
| No                               | 38                      |
| 5. Diagnosis                     |                         |
| Yes                              | 42                      |
| No                               | 58                      |
| 6. Cure                          |                         |
| Yes                              | 44                      |
| No                               | 56                      |
| 7. Preventive measures           |                         |
| Yes                              | 46                      |
| No                               | 54                      |
| 8. Source of information         |                         |
| Yes                              | 44                      |
| No                               | 56                      |
4. Husband’s educational status

| Educational Status                        | Count | Percentage |
|------------------------------------------|-------|------------|
| Professional Degree / PhD                | 1     | 1.00       |
| Graduate or Postgraduate                 | 9     | 9.00       |
| Intermediate or Post High School Diploma | 46    | 46.00      |
| High School Completion                   | 27    | 27.00      |
| Middle School Completion                 | 17    | 17.00      |
| Primary School or Functional Literate    | 0     | 0.00       |
| Illiterate                               | 0     | 0.00       |

5. Husband’s Occupational status

| Occupational Status                      | Count | Percentage |
|------------------------------------------|-------|------------|
| Profession                               | 15    | 15.00      |
| Semi profession                          | 10    | 10.00      |
| Clerk, shop owner, farm owner            | 23    | 23.00      |
| Skilled worker                           | 16    | 16.00      |
| Semi-skilled worker                      | 13    | 13.00      |
| Unskilled worker                         | 21    | 21.00      |
| Unemployed/retired                       | 1     | 1.00       |

6. Socioeconomic status*

| Socioeconomic Status | Count | Percentage |
|----------------------|-------|------------|
| I                    | 2     | 0.89       |
| II                   | 2     | 0.89       |
| III                  | 13    | 5.78       |
| IV                   | 74    | 32.89      |
| V                    | 134   | 59.55      |

7. Type of family

| Type of Family | Count | Percentage |
|----------------|-------|------------|
| Nuclear        | 41    | 41.00      |
| Three generation | 1   | 1.00       |
| Joint          | 58    | 58.00      |

8. Source of knowledge (n=100)

| Source of Knowledge       | Count | Percentage |
|---------------------------|-------|------------|
| Television, Newspaper, Internet | 84 | 84.00      |
| Healthcare Provider       | 37    | 37.00      |
| Family member             | 3     | 3.00       |

9. Current trimester

| Trimester | Count | Percentage |
|-----------|-------|------------|
| Second    | 42    | 42.00      |
| Third     | 58    | 58.00      |

* - Modified Prasad’s Classification (Corrected as per current CPI, Sep 2016 = 809, Base year 1986-1987)

Table 2 Knowledge about swine flu disease

| Cause          | Correct Count | Percentage |
|----------------|---------------|------------|
| Cause          |               |            |
| Incorrect      | 58            | 58.00      |
| Spread         |               |            |
| Correct        | 44            | 44.00      |
| Incorrect      | 56            | 56.00      |
| Organ involved |               |            |
| Correct        | 33            | 33.00      |
| Incorrect      | 67            | 67.00      |
| Symptoms (n=100) |              |            |
| Fever          | 45            | 45.00      |
| Cough          | 57            | 57.00      |
| Joint pain     | 12            | 12.00      |
| Bodyache       | 4             | 4.00       |
| Throat pain    | 4             | 4.00       |
| Shortness of breath | 14 | 14.00       |
| Vulnerable Group (n=100) |        |            |
| Infants        | 69            | 69.00      |
| Old            | 23            | 23.00      |
| Pregnant       | 63            | 63.00      |
| Diagnosis      |               |            |
| Blood Investigations | 65 | 65.00      |
| Throat Swab    | 3             | 3.00       |
Don’t Know | 32 | 32.00
---|---|---
**Is swine flu Curable ?**
Yes | 70 | 70.00
No | 12 | 12.00
Don’t know | 18 | 18.00
**Free treatment Available**
Yes | 73 | 73.00
No | 2 | 2.00
Don’t know | 25 | 25.00
**Preventive measures (n=100)**
Regular hand washing with soap | 61 | 61.00
Use of face mask | 57 | 57.00
Avoiding infected persons | 14 | 14.00
Stop eating poultry | 17 | 17.00
Vaccination | 24 | 24.00
Use of handkerchief | 11 | 11.00

Discussion
Nagpur is winter capital of Maharashtra, with a population of 2,405,421. Nagpur has been reporting regular outbreaks of swine flu. Considering the regular outbreaks of Swine flu in the study area, continuous evaluation of knowledge of general population and pregnant women in particular assumes significance. Very few epidemiological studies on swine flu are available in India. This is the first of its kind study among pregnant women in India with the objective to assess knowledge of swine flu amongst them.

In present study, 83% of study subjects had heard of swine flu which is higher than the study by Damor R et al (71%) conducted on OPD patients in Surat, Gujarat,\(^{10}\) and lower than that conducted by Kawanpure H et al (85.2%) conducted on rural population in Kerala.\(^{11}\)

In the present study mass media (television, newspaper, internet) was most common source of knowledge for 84% of study subjects. This is similar to finding by Kawanpure H et al \(^{11}\) and Chaudhary V et al \(^{12}\)

48% of the respondents had knowledge about the causative agent of swine flu being virus. 44% subjects correctly responded that swine flu spreads through infected droplets when an infected person coughs or sneezes. This is less than the findings reported by Kawanpure H et al \(^{11}\) (56.33%), Chaudhary V et al \(^{12}\) (77.2%) and Rathi S et al \(^{13}\) (82%).

Most common symptoms as reported by respondents were cough (57%), fever (45%), joint Pain (12%), while study subjects in study by Kawanpure H et al reported fever (71.40%) as most common symptom, followed by cough (62.40%). In our study 61% study subjects mentioned hand washing as a mode of prevention of swine flu which is less that reported on telephonic survey by Rubin et al \(^{14}\) but higher than that reported by Kawanpure H et al \(^{11}\).

Knowledge about diagnosis of swine flu was very poor among respondents. Knowledge about preventive measures related to swine flu was not adequate among pregnant women.

Since pregnancy makes women vulnerable to infections, the preventive measures taken by pregnant women to protect themselves and prevent nosocomial spread to others will depend upon their level of knowledge on swine flu. It is essential to keep them informed about swine flu. Health care personnel and policy makers need to orient the preventive programmes to educate the pregnant females about swine flu (H1N1).

**Strength**
Major strength of the present study was targeted population group. These participants can be considered as representative of similar pregnant females utilizing antenatal services in majority of big cities of India.
Limitations
One of limitation of the present study is that it was performed in a short time during a single influenza season and in a single tertiary healthcare centre.

Conclusion
In conclusion, the present study gives a tertiary health care facility based data showing the knowledge of swine flu among pregnant females. This findings of this study imply need for introduction of information education and counselling for pregnant females.

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