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Effect ofEducational Interventionon Knowledge aboutSwine Flu amongIndian Medical Undergraduate Studentsof North India

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Abstract:***Introduction:*** *India is extremely susceptible for swine origin Influenza (Swine Flu) outbreak being second largest populated country,having very little knowledge about Swine flu transmission, so the sudden onset of influenza transmission could lead to catastrophic outcomes. Since Indian Medical Undergraduate Students (IMUGS) comes in direct contact with the patients, sothis study was conducted among IMUGS to assess theirbaseline knowledge about swine flu followed by assessment of effect of aneducational intervention on their pre-existing knowledge.****Aims &Objective****To document the baseline knowledge about swine flu among IMUGS &assess the effects of an educational intervention on theirknowledge.****Methodology:****-Cross sectional study conducted among IMUGS of 1st& 2nd Professional in Govt. Medical College of North India involved Baseline assessment of their knowledge about Swine flu, followed by educational intervention and then assessment was done again to measure the effect of intervention.****Results****: The study finding showed statistical significant improvement in knowledge about swine flu after educational intervention among IMUGS. Knowledge about swine flu causative agent improved from 43% to 95%, Route of transmission improved from 37% to 92%, Symptoms of swine flu improved from 20% to 82%, Drug of choice for treatment of Swine flu improved from 33% to 79%, swine flu personal preventive measures improved from 38% to 77%respectively.****Conclusion:*** *There was significant increase in knowledge about swine flu among the medical students after educationalintervention.*

Keyword: *Educational Intervention, swine origin Influenza, Knowledge, Indian Medical Undergraduate Students*

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I. Introduction

Influenzais ahighly infectious disease which affects millions of people globally every year.The Influenza A (H1N1) viral strain mainly infects humans, birds, pigs and other animals such as ferrets.Influenza occurs in all countries and is responsible for spread of disease across country borders (Pandemic).[(1)]The Influenza A (H1N1) viral strain responsible for 2009 Spanish flu pandemic in humans was earlier referred to as 'swine flu' because laboratory testing showed similarity in many of the genes in the virus to influenza viruses which normally affects North American swine.[(2,3).]Spanish flu pandemic in 2009 was of such a great transmissibility potential that On 11th June 2009, World Health Organization (WHO) declared phase 6 response againstSwine Flu pandemic to stop the spread of influenza A (H1N1) virus.[(4)]Centre for Disease Control and Prevention (CDC) confirmed that the pandemic was responsible for death of more than 284,000, which was approximately 15 times higher than the laboratory confirmed swine flu cases.[(5,6)] Up to 20th January 2010, 208 countries worldwide reported 1,458,544 laboratory confirmed cases of influenza A (H1N1), including 14,378 deaths and out of these total cases, 28,401 cases and 1,152 deaths occurred in India which clearly indicates the catastrophic spread of disease in India..The most important factors behind frequent occurrence of swine flu is due to the reason that a minor point mutations in genetic material of virus leads to production of a different strains ofviruses.[(7)] Multiple outbreaksin different parts of the India have been reported every year. Even with robust vaccinationefforts being made, it was not surprising to find doctors contracting the disease,[(8)]There are several factors making India extremely susceptible to a future pandemic,most obvious one corresponds to India sharing significant borders with China,having world largest populations, high pig densities and a large number of reported cases. The three of the most swine flu affected Indian provinces are Rajasthan, Gujarat, and Punjab.[(9)]Given India condition as a developing country, its lack of health care facilities in rural areasand people's ignorance regarding public health matters, it is worthwhile to suspect that the actualnumber of the cases must have been higher than those reported in India. Indian Medical Undergraduate Students (IMUGS)come into direct contact with the affected population and should be aware of the risk factorsand the signs and symptoms

pertaining to Swine Flu. Keeping this in mind the study was conducted to create knowledge about swine flu among IMUGS.

II. Aims & Objectives

1. To document the baseline knowledge regarding swine flu among Indian Medical Undergraduate Students
2. To assess effect of an educational intervention on their pre-existing knowledge regarding swine flu.

III. Material And Method

3.1.Study Design and Setting: A descriptive, cross-sectional study was conducted among Indian Medical Undergraduate Students of MBBS 1st and 2nd Professionalof a Government Medical College of North India. Total Study participants were 150.Informed Consent was taken before enrolment of participants. Study was carried in 2 parts, firstly baseline knowledge of students was assessed using a validated and pre-tested questionnaire designed to measure knowledge regarding swine flu, followed by an educational intervention in form of a power point presentation of 1 hour duration on swine flu and again the same questionnaire was given to them to assess their improvement in pre-existing knowledge.

3.2. Study Tool: Validated and pre-tested questionnaire was designed in multiple choice questions format. Questionnaire mainly focused on the assessment of knowledge about swine flu related to its mode of transmission, signs & symptoms, incubation period, drug of choice, Personal protective measures, swine flu vaccines and prognosis etc.

3.3.Data Analysis: The data was entered and interpreted using the SPSS software version 23. The frequencies and percentages were calculated for the categoricalresponses. The Chi-squared test with 95% confidence interval was applied to see whetherthere was any statistical difference between the knowledge of the IMUGS before and after educational intervention, for all the tests p-value < 0.05 was considered significant.

IV. Result

4.1. Impact on knowledge about epidemiology of swine flu

Students were assessed based on their knowledge about causative agent for swine flu,only 43.3% were able to mention it correctly as a viral disease while rest mention it as bacterial (28.7%), pig borne (15.3%) or fungal infection (12.7%) but after educational intervention about 95.3% were able to answer correct causative agent. baseline knowledge regarding routes of transmission of swine flu as a droplet and fomite borne infectionwas only 37.3% but after intervention it increased to 92%. Baseline knowledge about the incubation period of swine flu (2-5 days) also increased from 10.66% to 72.66% after intervention. There was a statistically significant increase in knowledge among IMUGS as mentioned in Table 1.

4.2.Impact on knowledge about clinical presentation of swine flu

Knowledge about symptoms of swine flu was restricted to 20.6% as Students use to believe that swine flu is all about Fever, Cough and Running nose and were unaware of other symptoms of swine flu. After intervention 82.6% students were able to elicit the correct and complete symptoms of swine flu. There was very little baseline knowledge (8%) about period of infectiousness of swine flu among students which improved and67.3% students were able to elicit that the swine is infectious only during symptomatic period. Therewas statistically significant increment in knowledge about clinical presentation of swine flu among students as shown in Table 2.

4.3.Impact on knowledge about treatment of swine flu

Diagnostic method has important role to play in management of a case of swine flu. 34.6% Students had baseline knowledge that Elisa &PCR are methods of diagnosis of Swine flu which improved to 73.3% after educational intervention. Knowledge about treatment of swine flu is very essential to improve prognosis related to swine flu. 33% students knew that Temiflu and Relenza are drug of choice for swine flu, after educational intervention this knowledge significantly increased to 79%.Swine flu is highly communicable disease and for that it is very essential that health care providers should have proper knowledge about precaution required while attending a patient of swine flu. Knowledge about precautions required was restricted to only among 38% of students and ,afterwards it significantly increased to 77% .Vaccination against swine flu is available in the Govt. and Private health sector which is very effective in providing immunity against swine flu disease, only 32% of students were aware about vaccine against swine flu which increased to 87% afterwards. There statistically significant increment in the knowledge about management and approach towards a patients of swine as shown in Table 3.

4.4. Impact on Knowledge about Prognosis of Swine Flu

Case fatality rate (CFR) is the measure of how many patient of swine flu died out of those who are suffering from swine flu. There was little baseline knowledge about CFR of swine flu as only 24% students were correctly knowing that CFR of Swine flu is approximately 1%,But after educational intervention

knowledge increased in 75% of students. Pneumonia is the most common underlying cause of death in swine flu which was known to only 21% of students, but knowledge about this improved from 21% students to 75% after educational intervention. There was statistically significant increment in knowledge about prognosis of swine flu after educational intervention as shown in Table 4.

V. Discussion

During this study baseline date on knowledge related to swine flu was collected initially among medical students and after education intervention date was again collected and the effect of educational intervention was analysed which was found to be statistically significant in all domains of knowledge related to swine flu. Although this study did not compared gender based difference in baseline as well as post intervention knowledge but if compared to study done byKaipa et al.[10] which reported significantly higher knowledge regarding swine flu was reported among males as compared to females. This difference could be attributed to more social interactions of males as compared to females. This holds particularly true for a country like India where gender based discrimination is still prevalent especially in rural areas [11] contrast to this, a study done by Bholanath et al[12] documented that girls (70.3%) were more aware than boys (57.7%) that Influenza A (H1N1) is transmitted via the respiratory route.

In this Study 71.33% of students mentioned that coughing sneezing and fever are main symptoms present during the transmissibility of infection which is comparable to study by Farihahasan et al [13]which also documented that 75.3% of students were able to correctlyidentify coughing, sneezing and talking as the major modes of transmission of the virus. Two studies [10,14] also documented that only 51% of subjects had correct knowledge regarding transmission of swine flu. These study finding should be taken seriously as little baseline knowledge among medical students about swine flu will adversely affect the management of swine flu patients during outbreaks.[15].

Regarding the symptoms of swine flu infection although 71.33% of students mentioned that coughing, sneezing and fever are main symptoms but none of the student mentioned vomiting and diarrhea, which are specific to swine flu however even after educational intervention only 2.6% documented them as symptoms these study findingare similar to study done by Hussain et al.[16]Baseline knowledge about personal protection measure related to swine was restricted to only 38% students and knowledge regarding use of face mask while attending patients was restricted to 46% before intervention but post intervention 77% were able to correctly document all the protective measure when compared with the study[13], which showed that the majority of the students had knowledge about agreed the use of a facemask as an effective preventative measure, but only few students agreed to use facemask when they got sick. These findings are not encouraging and are contrasts with the results of study by Hussain et al[16], which showed the appropriateuse of a facemask by students. These findings also shows that gap exists between the policy and their implementation.

It is concerning to note that only 67.8% of the respondents agreed to wear a facemask when around the infected individuals.[13] The medical students are in constant contact with affected patients as part of their clinical postings, and can transmit the virus to immunocompromised patients in the hospital. Here lies the responsibility of hospital administrator to ensure that the affected medical students be given leaves during their sickness period. The baseline level of knowledge about swine flu among the medical students of 1st& 2nd year was significantly increased after imparting educational intervention as already discussed in result section these finding are supported by a study[17] which documented Influence of education was also seen on knowledge as subjects belonging to clinical categories had more knowledge scores as compared to their pre-clinical counterparts.

Diagnostic method has important role to play in management of a case of swine flu. Students had previous knowledge that Elisa & PCR 34% are methods of diagnosis of Swine flu. After intervention 73.3% of students were able to document that Elisa & PCR are the best method for diagnosis of swine flu.Diagnostic and treatment facilities are provided by Government of India at selected hospitals in the endemic states following pandemic alert by WHO.[18]but still awareness gap among people still persist regarding knowledge about nearby existing health facility for diagnosis and testing of swine flu, these finding were supported by a study by Kaipa et al.[10]which showed that very few people were aware of such a facility in their neighborhood area.

Table No. 1: Impact on Knowledge about epidemiological aspect of Swine Flu

Sr.No	Variables	Pre-session (n=150)	Post-session (n=150)
1	**Causative agent**		
	Bacteria	43 (28.67%)	2 (1.33%)
	Virus	65 (43.33%)	143 (95.33%)
	Fungus	19(12.67%)	1 (0.67%)
	Pigs	23(15.33%)	4 (2.67%)
2	**Routes of transmission of Swine Flu**		
	Sexual route	24 (16%)	1 (0.67%)
	Blood transfusion	48 (32%)	3 (2%)
	Droplets and Fomite borne	56 (37.33%)	138 (92%)
	Personal contact	22 (14.67%)	8 (5.33%)
3	**Incubation Period**		
	2-5 hours	100 (66.67%)	7 (4.66%)
	2-5 days	16 (10.67%)	109 (72.67%)
	2-5 weeks	32 (21.33%)	21 (14%)
	2-5 months	2 (1.33%)	13 (8.67%)

Table No.2: Impact on Knowledge about clinical presentation of Swine Flu

Sr.No	Variables	Pre-session (n=150)	Post session (n=150)
1	**Symptoms**		
	Fever, cough and running nose	107(71.33%)	14(9.33%)
	High fever and body ache	12(8%)	8(5.33%)
	Diarrhea and vomiting	0(0%)	4(2.67%)
	All of the above	31(20.67%)	124(82.67%)
2	**Infectious period of Swine Flu**		
	During incubation period	19(12.67%)	10(6.67%)
	During symptomatic period	12(8%)	98(67.33%)
	During recovery period	1(0.67%)	1(0.67%)
	Throughout the infection	118(78.66%)	41(27.33%)

Table No. 3: Impact on knowledge about management against swine flu

Sr.No	Options	Pre-session (n=150)	Post session (n=150)
1	**Diagnostic method of choice for Swine Flu**		
	Blood culture	65(43.33%)	13(8.67%)
	Sputum examination	28(18.67%)	20(13.33%)
	Lung biopsy	5(3.33%)	7(4.67%)
	Elisa & PCR	52(34.67%)	110(73.33%)
2	**Drug of choice for Swine Flu**		
	Azithromycin and Paracetamol	89(59.33%)	15(10%)
	Ofloxacin and Aspirin	9(6%)	15(10%)
	Tamiflu and Relenza	50(33.33%)	119(79.33%)
	No effective treatment	2(1.33%)	1(0.66%)
3	**Prevention about Swine Flu**		
	By wearing mask	69(46%)	14(9.33%)
	By maintaining personal hygiene	19(12.67%)	4(2.67%)
	By avoiding contact with patient	5(3.33%)	16(10.67%)
	All of the above	57(38%)	116(77.33%)
4	**Knowledge about vaccine**		
	Yes	58(32%)	131(87.33%)
	No	92(68%)	19(12.67%)

Table No .4: Impact on knowledge about Prognosis of swine flu

Sr.No	Variables	Pre-session (n=150)	Post session (n=150)
1	**Case fatality rate of swine flue**		
	Approx. 1%	36(24%)	113(75.33%)
	Approx. 10%	89(59.33%)	16(10.67%)
	Approx. 50%	18(12%)	5(3.33%)
	All cases of swine flu dies	7(4.67%)	16(10.67%)
2	**Underlying cause of death of Swine Flu**		
	Due to pneumonia	32(21.33%)	113(75.33%)
	Due to heart failure	14(9.33%)	16(10.67%)
	Due to brain disease	101(67.33%)	9(6%)
	Due to fear	3(2.1%)	12(8%)

VI. Conclusion

There was statistical significant increase in knowledge about swine flu among the Indian Medical Undergraduate Students aftereducationalintervention. Similar interventions are needed to increase the awareness among health professionals & other non-medical groups.

VII. Limitation Of The Study

Since this study was conducted on a Small sample size and purposive samplingwas done to enrol study participants so broadly generalization of study finding should be done with caution.

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