Swine Flu 2009, Morbidity and Mortality in a Sample of patients Admitted in Al-kindy Teaching Hospital

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Abstract

Objective; swine flu is known to be caused by influenza A subtypes H1N1,H1N2, H2N3, H3N1, and H3N2, was first proposed to be a disease related to human flu during the 1918 flu pandemic, Iraq face the epidemic of 2009, many patients admitted to the medical word of alkindy teaching hospital, the clinical features were observed and managed according to WHO protocols.

The aim of the study; is to asses some features of morbidity and mortality of swine flu epidemic admitted patients in 2009 in alkindy teaching hospital.

Methods; A total 131 patients with suspected influenza admitted to Alkindy Teaching Hospital all complain of fever more than 38c, sore throat with or without cough. The admitted patients are of two main groups;a)seventeen secondary school pupils on their return from US,b)one hundred fourteen patients admitted from October till end of December 2009. History ,clinical examination and routine investigations for all patient in addition to blood samples and swabs from nose and throat were taken and sent to the central lab to test for H1N1 by PCR(real time).

Results; fifty three (42%) of our patients found to have swine flu by positive test (real time PCR). It show that there is no relation of age whether young or old to being infected with swine flu or non swine flu ($p>0.05$). Table 2 also show that gender had no relation to possibility of infection with both non swine flu and swine flu influenza ($P <0.05$). We found that there was no difference of mortality between swine flu and non swine flu types ($p>0.05$) and pneumonia are more commonly associate influenza of negative test for swine flu virus ($p<0.001$). headache is more common in swine flu while chill is more common in non swine flu ($p<0.05$) in addition diabetes is more commonly associate swine flu than other types of influenza ($p<0.05$).

Conclusion; This study concluded that mortality in swine flu influenza is not different from mortality in non swine flu influenza. Also age and gender had no relation to possibility of having swine flu infection . Pneumonia found to be more in non swine flu, headache associate swine flu more than non swine flu and chills associate swine flu. Diabetes associate swine flu more than non swine flu but smoking had no relation.

Key words; swineflu, alkindy, mortality

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Introduction

Influenza A viruses are characterized by the *subtype* of their surface glycoproteins, the hemagglutinin (HA) and the neuraminidase (NA). While many genetically distinct subtypes – 16 for HA and 9 for NA – have been found in circulating influenza A viruses, only three HA (H1, H2, and H3) and two NA (N1 and N2) subtypes have caused human epidemics, as defined by sustained, widespread, person-to-person transmission.(1) Swine influenza is known to be caused by influenza A subtypes H1N1,H1N2, H2N3, H3N1, and H3N2. In pigs, three influenza A virus subtypes (H1N1, H1N2, and H3N2) are the most common strains world wide(2. There was a triple re-assortment event in a pig host. the re-assortment of North American H1N1 swine virus, the human H3N2 virus and avian H1N1 generated the swine H1N2 strain. The last step history, was in 2009 when the virus H1N2 co-infected a human host at the same time as the H1N1 swine strain. This led to the emergence of a new human H1N1 strain which caused the 2009 pandemic (3).

In humans the symptoms of the 2009 "swine flu" H1N1 virus are similar to those of influenza and of influenza-like illness in general. Symptoms include fever, cough, sore throat, body aches, headache, chills and fatigue. The 2009 outbreak has shown an increased percentage of patients reporting diarrhea and vomiting(4). The most common cause of death is respiratory failure. Other causes of death are pneumonia (leading to sepsis), high fever (leading to neurological problems), dehydration (from excessive vomiting and diarrhea), electrolyte imbalance and kidney failure. Fatalities are more likely in young children and the elderly(5).The clinical presentation of influenza in the immune-compromised host may be more subtle and manifest only as coryza; similarly, the classic fever symptom may be absent in the older patient, who may present only with lethargy confusion, anorexia, and cough(7). Pneumonia and the acute respiratory distress

syndrome(ARDS) account for the majority of severe morbidity and mortality that accompany pandemic influenza infection [6].Pneumonia may occur as a continuum of the acute influenza syndrome when caused by the virus alone (primary pneumonia) or as a mixed viral and bacterial infection after a delay of a few days (secondary pneumonia) The CDC recommends real time RT-PCR as the method of choice for diagnosing H1N1[7].

Influenza is an important source of mortality and morbidity, and an important public health priority. Some authors argue that influenza is directly or indirectly responsible for the majority of seasonal excess deaths in temperate countries [8], while others argue that they trigger only a small minority [9] .Retrospective cohort studies have shown a surprisingly large protective effect of influenza vaccination against deaths from any cause [10].

Methods;

During the pandemic of influenza of 2009 ,A total 131 patients with suspected influenza admitted to Alkindy Teaching Hospital (an isolated word), according to ministry of health (Iraq) criteria of management of swine flu, all complain of fever more than 38c, sore throat with or without cough. The admitted patients are of two main groups;

a-seventeen secondary school pupils on their return from USA at end of July 2009.

b-one hundred fourteen patients admitted from October till end of December 2009.

History,clinical examination and routine investigations for all patient in addition to blood samples and swabs from nose and throat were taken and sent to the central lab to test for H1N1 by PCR(real time). During admission oseltamivire 75mg bd were given with or without antipyretics and antibiotics (as needed). 53 (40%) of the admitted patients found to have positive test for swine flu , the other 78 (60%) considered non swine flue influenza.

Information was tabulated and analyzed using p value of less than 0.05 as significant results.

Results

Table 1 show the relation of age of those admitted with positive and negative test, this table show that both of them are in young age (less than 40 years age) with no significant difference in age of presentation of both groups.

Table (1) Relation of age to patients with positive swine flu test

PCR-test	< 40 Years	≥ 40 years	Total
Positive	44(83%)	9(17%)	53(40%)
Negative	58(74%)	20(26%)	78(60%)
Total	102(78%)	29(22%)	131(100%)

$P > 0.05$

Table 2 show that gender had no effect on being infected with swine flu whether the patients are male or female where p value show insignificant difference.

Table (2) Relation of gender to patients with positive test to swine flue

PCR-test	Male	Female	Total
Positive	33 (62%)	20(38%)	53(40%)
Negative	48(61%)	30(39%)	78(60%)
Total	81(62%)	50(38%)	131(100%)

$P > 0.05$

Table 3 show that mortality is low in both types (swine flu and non swine flu) with no significant difference between them.

Table (3) Relation of swine flu to mortality

PCR-test	Mortality	Total
Positive	4(8%)	53
Negative	5(6%)	78
Total	9(7%)	131

$P > 0.05$

Table 4 show that non swine flu patients had more chest x ray findings of pneumonia and more leucocytosis than swine flu significantly.

Table (4) Relation of positive test for swine flu to pneumonia

PCR-test	CXR findings of pneumonia	Leucocytosis	Total
Positive	18(34%)	2(4%)	53
Negative	41(53%)	27(35%)	78
Total	59(45%)	29(22%)	131
P Value	0.001	0.001	

Table 5 show that swine flu patient complain of more headache and less chill significantly than non swine flu but both complain of myalgia and stiff nose with no significant difference.

Table (5) Relation of positive test to presence of symptoms of influenza

PCR-test	Headache	Myalagia	Chill	Stiff nose	Total
Positive	43(82%)	32(60%)	9(17%)	16(31%)	53
Negative	14(18%)	31(40%)	65(83%)	54(69%)	78
Total	57(44%)	63(48%)	74(56%)	70(53%)	131
P value	0.001	0.155	0.001	0.19	

Table 6 show relation of swine flu and non swine flu to smoking habit which is of no significant difference statistically while diabetes associate swine flu more than non swine flu significantly although it was small number.

Table (6) Relation of positive swine test to smoking and diabetes

PCR-test	Smokers	Diabetes	Total
Positive	29(55%)	4(8%)	53
Negative	23(29%)	2(3%)	78
Total	52(40%)	6(5%)	131
P Value	0.33	0.02	

Discussion

Between August 30th, 2009 and January 9th,

The mortality rate of 41% for 2009 influenza A(H1N1)–associated critical illness is not dissimilar to that for acute respiratory distress syndrome resulting from other influenza(12). The considerable similarity in mortality seen in pandemic and nonpandemic influenza seasons challenges common beliefs about the severity of pandemic influenza(13). The same results where seen in this study and there was no difference of mortality between swine flu and other influenza types mortality($p>0.05$).

The World Health Organization reports that the clinical picture in severe cases of swine flu is strikingly different from the disease pattern seen during epidemics of seasonal influenza. While people with certain underlying medical conditions are known to be at increased risk, many severe cases occur in previously healthy people. Deterioration is rapid, with many patients progressing to respiratory failure within 24 hours,

requiring immediate admission to an intensive care unit (14). Primary influenza pneumonia occurs most commonly in adults and may progress rapidly to acute lung injury requiring mechanical ventilation. Staphylococcus aureus, including methicillin-resistant strains, is an important cause of secondary bacterial pneumonia with a high mortality rate. Neuromuscular and cardiac complications are unusual but may occur (15). In spite of that our results show that pneumonia are more commonly associate negative test than swine flu virus ($p<0.001$).

The clinical features of uncomplicated influenza are virtually indistinguishable from those of other respiratory viral infections. Influenza is classically characterized by an abrupt onset of headache, high-grade fever, chills, dry cough, pharyngeal irritation, myalgia, malaise, and anorexia. The fever lasts an average of 3 days (range of 2 to 8 days). The cough, initially nonproductive and nonpurulent, may persist for weeks. In the presence of asthma or structural lung disease, wheezing may be a prominent manifestation (16). In our study headache is more common in swine flu while chill is more common in non swine flu infection ($p<0.05$) ,where as myalgia and stiff nose had no significant relation ($p<0.05$).

Groups at high risk for severe disease and

Conclusion

This study concluded that mortality in swine flu influenza is not different from mortality in seasonal influenza. Also age and gender had no relation to possibility of having swine flu infection .

Pneumonia found to be more in seasonal influenza , headache associate swine flu more than seasonal influenza and chills associate seasonal one. Diabetes associate swine flu more than seasonal influenza but smoking had no relation.

Reference

1. Palese P, Shaw ML. Orthomyxoviridae: The Viruses and their Replication. In: Knipe DM, Howley
2. PM, editors. *Fields Virology*. Philadelphia: Lippincott Williams & Wilkins; 2007.
3. Kothalawala H, Toussaint MJ, Gruys E (June 2006). "An overview of swine influenza". Vet Q 28 (2): 46–53. PMID 16841566
4. Origins and evolutionary genomics of the 2009 swine-origin H1N1 influenza A epidemic :Article".Nature. http://www.nature.com/ nature/ journal/v459/n7250/full/ nature08182 .html. Retrieved 2011-08-17.
5. Swine Flu and You". CDC. 2009-04-26.http: //www .cdc.gov /swineflu /swineflu _you.htm. Retrieved 2009-04-26.
6. Swine flu can damage kidneys, doctors find". Reuters. April 14, 2010. http://www.reuters. com/ article/ idUSN14118931. Retrieved April 17, 2010
7. Rothberg MB, Haessler SD, Brown RB: Complications of viralinfluenza. Am J Med 2008, 121:258-264.
8. CDC H1N1 Flu | Interim Guidance on Specimen Collection, Processing, and Testing for Patients with Suspected Novel Influenza A (H1N1) (Swine Flu) Virus Infection". Cdc.gov. 2009-05-13. http: //www .cdc.gov/h1n1flu/ specimen collection .htm. Retrieved 2011-05-22.
9. Reichert TA, Simonsen L, Sharma A, Pardo SA, Fedson DS, Miller MA: Influenza and the winter increase in mortality in the United States, 1959–1999.Am J Epidemiol 2004, 160:492-502.
10. Donaldson GC, Keatinge WR: Excess winter mortality: influenza or cold stress? Observational study.B M J 2002, 324:89-90
11.

12. Nichol KL, Goodman M: The health and economic benefits of influenza vaccination for healthy and at-risk persons aged 65 to 74 years. Pharmacoeconomics 1999, 16:63-71.
13. Centers for Disease Control and Prevention. Update: Influenza Activity-United States, August 30, 2009 – January 1, 2010. Morbidity and Mortality Weekly Report. January 22, 2010; 59(02):38-43.
14. Oliveira EC, Lee B, Colice GL. Influenza in the intensive care unit. J Intensive Care Med. 2003;18(2):80-91.
15. Peter Doshi, AM Trends in Recorded Influenza Mortality: United States, 1900–2004; Am J Public Health. 2008;98:939–945.
16. Clinical features of severe cases of pandemic influenza". Pandemic (H1N1) 2009 briefing note 13 (Geneva, Switzerland: World Health Organization (WHO)). 16 October 2009.
17. Rothberg, MB; Haessler, SD (2010). "Complications of seasonal and pandemic influenza" . Critical care medicine 38 (4 Suppl): e91–7.
18. Treanor JJ: Influenza virus. In Principles and Practice of Infectious Disease. Vol. 2. Edited by
19. Mandell G, Bennett JE, Dolin R.Philadelphia, PA: Churchill Livingstone; 2005:2060.
20. Hospitalized patients with novel influenza A (H1N1) virus infection - California, April-May, 2009. MMWR Morb Mortal Wkly Rep 2009, 58:536-541.

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