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COMPARATIVE ANALYSIS OF SUSPECTED CASES OF H1N1 IN LESS A MORE THAN 60 YEARS OF PATIENTS ADMITTED IN THE SWINE FLU ISOLATION WARD OF TERTIARY CARE CENTRE AT S.M.S. MEDICAL COLLEGE & ATTACHED HOSPITALS, JAIPUR, INDIA

Medicine

Rajveer Bainiwal Registrar, Department of Medicine, S.M.S. Medical College & Attached Hospitals, Jaipur.

Krishan KumarMeena* Registrar, Department of Medicine, S.M.S. Medical College & Attached Hospitals, Jaipur. *Corresponding Author

Ajay Mathur Medical Superintend and Senior Professor, Department of Medicine, S.M.S. Medical College & Attached Hospitals, Jaipur.

Mayank Shrivastav Assistant Professor Department of Medicine S.M.S. Medical College & Attached Hospitals, jaipur.

Suryalata Kookna Senior Resident, Department of Paediatrics Fortis Escorts Hospitals, Jaipur ,Rajasthan.

Mahendra kumar verma Post Graduate Resident of Department Community Medicine S.M.S. Medical College and Attached Hospital Jaipur,Rajasthan

ABSTRACT

BACKGROUND: Influenza is truly an international disease. It occurs in all countries and affects millions of people every year. The Influenza A H1N1 in humans can be a mild illness or in some people it may result in serious, even life-threatening complications such as pneumonia, acute bronchitis, worsening of chronic conditions, respiratory failure and death.

OBJECTIVE:- [1]To study profile of suspected cases of H1N1 in less a more than 60 years of patients admitted in the swine flu isolation ward of tertiary care centre at S.M.S. Medical College & Attached Hospitals, jaipur, [2]To study the variation in clinical presentation if any

METHODOLOGY: This was a cross sectional observational study carried out in jaipur district of Rajasthan state, India. All suspected H1N1 virus infected 150 cases admitted in the swine flu isolation ward of tertiary care centre at S.M.S. Medical College & Attached Hospitals, jaipur during the period of 1st January to 31th December,2015 after taking verbal and written consent of the patients were enrolled in study. Before conducting the study approval was obtained from institutional ethical committee for human research.Data safety and confidentiality was also given due consideration. A predesigned semi-structured Performa was used. Detailed demographic and clinical data were recorded.Data was statistically analyzed using SPSS 24 software

RESULTS: Out of total 150 cases, 88(58.67%) were >60 years of age groups as compared to 62 cases (41.33%) were <60 years of age. No significant difference was observed according to gender among the groups. Males were more 1.526 times in >60 years of age group as compared to females, 1.526 (0.794 to 2.933).Slightly higher in rural area as compared to urban as Odds ratio (95% Cl)1.260(0.650 to 2.443). According to clinical features fever cough coryza, headache diarrhea were observed more in >60 years of age groups as compared to <60 years of age group. Shortness of breath was less in >60 years of age groups as compared to <60 years of age group (P=0.016S) TLC <4000, <1.4 PLT was less in >60 years of age groups as compared to <60 years of age group (14.29 % vs 85.71%) (P<0.001S). RT PCR (1=positive) was 17.33% in >60 years as compared to 82.67% in <60% years. (P<0.001S).The Wald criteria demonstrated that TLC<4000 and platelet count <1lakh
The difference was statistically significant (P<0.05)

CONCLUSIONS: Influenza H1N1 infection was more common in older age group, more common in rural areas as compared to urban areas. During this epidemic almost 50% of H1N1 positive cases were in severe category and required ICU care and mechanical ventilation and they all had significant respiratory involvement in form of pneumonia, acute respiratory distress syndrome (ARDS) and respiratory failure with high mortality rate even at tertiary care hospital

KEYWORDS

Influenza, H1N1, Profile, Swine flu, Tertiary care

INTRODUCTION

Influenza has a major impact on public health. Important clinical features of swine influenza include fever and upper respiratory symptoms such as cough, runny nose, and sore throat. Headache, body aches, fatigue, diarrhea, and vomiting also have been observed. There is insufficient information to date about clinical complications of the current pandemic influenza A (H1N1) virus infection.[1] Swine flu, which is caused by novel H1N1 virus, lead to the major pandemic in 2009 which shook the world. After the 1st description of the virus which caused the pandemic in 2009, it created a global havoc[2].

Such outbreaks result in significant morbidity rates in the general population and increased mortality rates among certain high-risk patients, mainly as a result of pulmonary complications.[3]

Global pandemics with high mortality and morbidity occur when a virulent new viral strain emerges, against which the human population has no immunity With globalization, and increasing ease of travel these outbreaks have a higher likelihood to spread quickly and become significant global health threats.[4]

Early outbreak reporting informs expectations in morbidity, mortality and guides health system's response, to specific outbreaks. This reporting is instrumental for public health risk assessments.[5]

The state of Rajasthan, which is the largest state in India, reported its first case of H1N1 infection on 23rd July 2009. Soon the disease spread all parts of the state.[6]

On 12th February 2015, swine flu is declared as an epidemic in Rajasthan.[7] In first 3 month of 2015 (up to 8th April) a total no of 6597 H1N1 Positive cases and 406 fatal cases reported in Rajasthan which was highest in India.[8]

Clinicians expect complications to be similar to seasonal influenza: sinusitis, otitis media, croup, pneumonia, bronchiolitis, status asthmaticus, myocarditis, pericarditis, myositis, rhabdomyolysis, encephalitis, seizures, toxic shock syndrome, and secondary bacterial pneumonia with or without sepsis. Individuals at extremes of age and with pre-existing medical conditions are at higher risk for complications and exacerbation of the underlying conditions.[9]

This study was conducted with the objectives to estimate the serum biochemical parameters in suspected patients of swine flu admitted at SMS hospital and to compare these biochemical parameters in outcome of clinical progression in less than 60 years and more than 60

years of patients.

AIMS AND OBJECTIVES

To study the incidence and geographical distribution of influenza A (H1N1) virus by rRT-PCR method in less than and more than 60 age group's patients. 2. To study the variation in clinical presentation if any

METHODOLOGY

The study population comprised all adult patients (n=150), who were admitted or took consultation at Medicine OPD of SMS Hospital during one year period of the analysis (January 2015 to till sample size completed) and tested for the presence of (H1N1) infection based on clinical suspicion. Patients satisfying inclusion criteria were enrolled in after taking informed consent. The decision to hospitalize suspected patients was based on co morbidity, symptom severity, hypoxia or radiographic evidence of pneumonia and absence of social support.

We managed this cohort of patients with a standard protocol that consisted of using structured forms for recording the history, socio-demographic information, physical findings, serial laboratory and radiographic studies and treatment during hospital stay in addition to charting the patient's progress. The Data was entered in MS excel sheet and analyzed using appropriate statistical test.

Patients with Influenza like illness were included for the study Patients having other conditions that can cause LDH abnormalities like Myocardial Infarction, Hemolytic anemia, Ischemic cardiomyopathy, Liver disease such as hepatitis, Muscle injury, Muscular dystrophy, Pancreatitis, Viral meningitis, Encephalitis, Hypothyroidism etc are excluded from the study. Patient who did not consent for study and age less than 14 years are also not part of the study.

A thorough history, clinical examination and complete socio-demographic information were taken from study population, If any case fits in the case definition then samples should be collected according to the sample collection guidelines and laboratory data were obtained.

All the Included participants will be evaluated for the following investigations: Respiratory specimens : RT-PCR for H1N1, serum LDH, RBS, CPK, CRP, RFT, LFT, CBC, DLC, ESR, Chest X ray, Arterial blood gas analysis, Other relevant investigations. Respiratory specimens including: broncheoalveolar lavage, tracheal aspirates, nasopharyngeal or oropharyngeal aspirates as washes, and nasopharyngeal or oropharyngeal swabs

METHODS OF COLLECTION

Throat swab and Nasal / Nasopharyngeal swab

Transportation of specimens

Refer to WHO guidelines for the safe transport of infectious substances and diagnostic specimens Follow local regulations on the transportation of infectious material coordinate with the laboratory. All samples should be transported after proper packaging using the standard triple packaging system (WHO) and it should accompany with the clinical details as per proforma. While transportation cold chain should be maintained[10]

The Data was entered in MS excel sheet and analyzed using appropriate statistical test.

The Student's t-test was used to compare continuous variables, Chi-square test and odd ratio were used to analyze dichotomized variables.

Multivariable analysis was performed using logistic regression.

Qualitative and quantitative morphologic analysis was done. And results were interpreted accordingly.

OBSERVATION

Out of total 150 cases, 88(58.67%) were >60 years of age groups as compared to 62 cases (41.33%) were <60 years of age. No significant difference was observed according to gender among the groups. Males were more 1.526 times in >60 years of age group as compared to females, 1.526 (0.794 to 2.933). Slightly higher in rural area as compared to urban area as Odds ratio (95% confidence interval)1.260 (0.650 to 2.443). No significant difference was observed according to socioeconomic status (SES). According to clinical features fever cough coryza, headache diarrhea were observed more in >60 years of age groups as compared to <60 years of age group. Shortness of breath was less in >60 years of age groups as compared to <60 years of age group (P=0.016S)

Table .1Comparative statistics of the profile among the groups.

	>60		<60		Total		Odds ratio(95% confidence interval:	P value LS
Gender	No	%	No	%	No	%		
Male	49	63.64	28	36.36	77	51.33	1.526 (0.794 to 2.933)	0.27NS
Female	39	53.42	34	46.58	73	48.67		
	88	58.67	62	41.33	150	100.00		
Location								
Urban	39	61.90	24	38.10	63	42.00	1.260 (0.650 to 2.443)	0.61NS
Rural	49	56.32	38	43.68	87	58.00		
SES						0.00		
High	30	58.82	21	41.18	51	34.00	1.014 (0.464 to 2.213)	0.87NS
Mid	27	58.70	19	41.30	46	30.67	1.008 (0.452 to 2.249)	0.85NS
Low	31	58.49	22	41.51	53	35.33		
Clinical feature								
Fever	75	57.69	55	42.31	130	86.67	0.734 (0.275 to 1.961)	0.71NS
Cough	66	57.89	48	42.11	114	76.00	0.875 (0.407 to 1.883)	0.88NS
Coryza	6	100.00	0	0.00	6	4.00		0.09NS
SOB	41	49.40	42	50.60	83	55.33	0.415 (0.211 to 0.818)	0.016S
Headache	7	70.00	3	30.00	10	6.67	1.700 (0.422 to 6.848)	0.674
vomiting	4	50.00	4	50.00	8	5.33	0.690 (0.166 to 2.873)	0.88NS
diarrhea	5	55.56	4	44.44	9	6.00	0.873 (0.225 to 3.393)	0.88NS
Alter Sensorium	4	80.00	1	20.00	5	3.33	2.905 0.317 to 26.639)	0.60NS
Abdominal pain	2	66.67	1	33.33	3	2.00	1.419 (0.126 to 15.998)	0.76NS

Table.2 (Univarite analysis) Comparative biochemical statistics of the profile among the groups.

	>60		<60		Total		Odds ratio(95% confidence interval)	P Value LS
LDH>500	43	51.81	40	48.19	83	55.33	0.526 (0.270 to 1.024)	0.083
CPK>200	33	55.93	26	44.07	59	39.33	0.831 (0.428 to 1.614)	0.71NS
(15 to 45)Blood urea	33	71.74	13	28.26	46	30.67	2.262 (1.070 to 4.780)	0.047S
ANAEMIA	72	60.50	47	39.50	119	79.33	1.436 (0.649 to 3.179)	0.49NS
TLC>12000	38	76.00	12	24.00	50	33.33	3.167 (1.484 to 6.759)	0.004S
TLC <4000	2	14.29	12	85.71	14	9.33	0.097 (0.021 to 0.451)	0.001S
<1.4 PLT	2	14.29	12	85.71	14	9.33	0.097 (0.021 to 0.451)	0.001S
RT PCR (1=positive)	13	17.33	62	82.67	75	50.00		<0.001S

No significant difference was observed according to LDH>500, K>200 and anemia status of patient Abnormal Blood urea, TLC>12000, were more in >60 years of age groups as compared to <60 years of age group. TLC <4000, <1.4 PLT was less in >60 years of age groups as compared to <60 years of age group (14.29 % vs 85.71%) (P<0.001S). RT PCR (1=positive) was 17.33% in >60 yearsas compared to 82.67% in <60% years. (P<0.001S).

Table No 3: Multivariate analysis of the independent risk factors of the elderly group in comparison with non elderly group

Variables in the Equation									
		B	S.E.	Wald	Df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1[a]	SOB(1)	.229	.538	.181	1	.670	1.257	.438	3.606
	TLC>12000	2.070	.557	13.803	1	.000	7.921	2.658	23.602
	TLC<4000	-18.719	10385.178	.000	1	.999	.000	0.000	
	PLT<1lakh	-1.674	.816	4.209	1	.040	.187	.038	.928
	RT	.895	.533	2.812	1	.094	2.446	.860	6.959
	Constant	-2.945	.643	20.950	1	.000	.053		
a. Variable(s) entered on step 1: SOB, TLC more, TLC LESS, PLT, RT.									

A logistic regression analysis was done to predict risk factors disease using shortness of breath, TLC >12000, TLC <4000, platelet count <1 lakh, RT –PCR positive as predictors. A test of full model was statistically significant indicating that the predictors as asset reliably distinguish between LVH happening or not. (Chi square 24.779, df 5, p<0.001) Also the Hosmer and Lemshow test shows a good fit by high p value and low Chi square value. (Chi square 4.26, df 7, p=0.749). Negel Kerke R2 of 0.269 indicates fair relationship between predictors and grouping. Prediction success overall was 84% (With specificity was 93.8% and sensitivity 27.3%). The Wald criteria demonstrated that TLC<4000 and platelet count <1lakh **(p<.05 S) made a significant contribution to prediction. Other predictors were not significant predictors.**

	H1N1 negative(N=75)					**H1N1 positive(75)**				
Gender	**<60(N=66)**		**>60(N=9)**		**Total**	**<60(N=62)**		**>60(N=13)**		**Total**
Male	31	47.69	8	88.89	39	28	45.16	10	76.92	38
Female	35	53.85	1	11.11	36	34	54.84	3	23.08	37
	0.045S					0.075NS				
R	34	52.31	6	66.67	40	38	61.29	9	69.23	47
U	32	49.23	3	33.33	35	24	38.71	4	30.77	28
	0.62NS			0.00		0.82NS				
High	22	33.85	1	11.11	23	21	33.87	7	53.85	28
Low	24	36.92	3	33.33	27	22	35.48	4	30.77	26
Mid	20	30.77	5	55.56	25	19	30.65	2	15.38	21
(blank)										
0	9	13.85	2	22.22	11	7	11.29	2	15.38	9
Fever	57	87.69	7	77.78	64	55	88.71	11	84.62	66
	0.85NS					0.95NS				
0	19	29.23	1	11.11	20	14	22.58	2	15.38	16
Cough	47	72.31	8	88.89	55	48	77.42	11	84.62	59
	0.47NS					0.84NS				
0	61	93.85	8	88.89	69	62	100.00	13	100.00	75
Coryza	5	7.69	1	11.11	6		0.00		0.00	
SOB										
0	38	58.46	4	44.44	42	20	32.26	5	38.46	25
1	28	43.08	5	55.56	33	42	67.74	8	61.54	50
Headache										
0	60	92.31	8	88.89	68	59	95.16	13	100.00	72
1	6	9.23	1	11.11	7	3	4.84		0.00	3
Vomiting										
0	63	96.92	9	100.00	72	58	93.55	12	92.31	70
1	3	4.62		0.00	3	4	6.45	1	7.69	5
, diarrhea										
0	62	95.38	8	88.89	70	58	93.55	13	100.00	71
1	4	6.15	1	11.11	5	4	6.45		0.00	4
Alter Sensorium										
0	65	####	9	100.00	74	61	98.39	10	76.92	71
1	1	1.54		0.00	1	1	1.61	3	23.08	4
Abdominal pain										
0	64	98.46	9	100.00	73	61	98.39	13	100.00	74
1	2	3.08	0	0.00	2	1	1.61	0	0.00	1
	0.56NS					0.38NS				
LDH>500										
0	36	55.38	4	44.44	40	22	35.48	5	38.46	27
1	30	46.15	5	55.56	35	40	64.52	8	61.54	48
	0.83NS					0.90NS				
CPK>200										
0	43	66.15	6	66.67	49	36	58.06	6	46.15	42
1	23	35.38	3	33.33	26	26	41.94	7	53.85	33
(15 to 45)Blood urea										

0	44	67.69	5	55.56	49	49	79.03	6	46.15	55
1	22	33.85	4	44.44	26	13	20.97	7	53.85	20
(blank)										
TLC>12000										
0	43	66.15	1	11.11	44	50	80.65	6	46.15	56
1	23	35.38	8	88.89	31	12	19.35	7	53.85	19
TLC <4000										
0	64	98.46	9	100.00	73	50	80.65	13	100.00	63
1	2	3.08		0.00	2	12	19.35		0.00	12
<1.4 PLT										
0	47	72.31	8	88.89	55	48	77.42	12	92.31	60
1	19	29.23	1	11.11	20	14	22.58	1	7.69	15

	H1N1 negative		**0 Total**	**H1N1 positive**		**1 Total**
Gender	**<60**	**>60**		**<60**	**>60**	
Male	31	8	39	28	10	38
Female	35	1	36	34	3	37
	0.045S			0.075NS		
R	34	6	40	38	9	47
U	32	3	35	24	4	28
	0.62NS		0.82NS			
High	22	1	23	21	7	28
Low	24	3	27	22	4	26
Mid	20	5	25	19	2	21
(blank)	0.245NS			0.348NS		
0	9	2	11	7	2	9
Fever	57	7	64	55	11	66
	0.85NS			0.95NS		
0	19	1	20	14	2	16
Cough	47	8	55	48	11	59
	0.47NS			0.84NS		
0	61	8	69	62	13	75
Coryza	5	1	6			
	0.77NS					
SOB						
0	38	4	42	20	5	25
1	28	5	33	42	8	50
Headache	0.69NS			0.92NS		
0	60	8	68	59	13	72
1	6	1	7	3		3
Vomiting	0.67NS			0.97NS		
0	63	9	72	58	12	70
1	3	0	3	4	1	5
, diarrhea	0.8NS			0.65NS		
0	62	8	70	58	13	71
1	4	1	5	4		4
Alter Sensorium	0.88NS			0.79NS		
0	65	9	74	61	10	71
1	1	0	1	1	3	4
Abd pain	0.24NS			0.014S		
0	64	9	73	61	13	74
1	2	0	2	1	0	1
	0.56NS			0.38NS		
LDH>500						
0	36	4	40	22	5	27
1	30	5	35	40	8	48
	0.83NS			0.90NS		
CPK>200						
0	43	6	49	36	6	42
1	23	3	26	26	7	33
	0.77NS			0.63NS		
(15 to 45) Blood urea						
0	44	5	49	49	6	55
1	22	4	26	13	7	20
(blank)	0.77NS			0.036S		
TLC>12000						
0	43	1	44	50	6	56
1	23	8	31	12	7	19
TLC <4000	0.006S			0.025S		
0	64	9	73	50	13	63
1	2	0	2	12	0	12
<1.4 PLT	0.56NS			0.19NS		
0	47	8	55	48	12	60
1	19	1	20	14	1	15
	0.47NS			0.41NS		

DISCUSSION:

Influenza A H1N1 is a highly contagious pathogen which made headlines in 2009, as the so called swine flu, by causing a worldwide influenza pandemic. The study population comprised all adult patients (n=150), with Influenza like illness were included for the study Most of the patients were in the age group of 21-40 years Out of total 150 cases , 88(58.67%) were >60 years of age groups as compared to 62 cases (41.33%) were <60 years of age .**this finding was similar with study of Reyes et al[10].** in their study , regression logistic analysis (Area under curve, AUC 0.81) to predict A/ H1N1(+) pneumonia identified age < 60 years (Odds ratio, OR 5.9) as independent variables:

Different studies conducted by **Guadalupe Ayora-Talavera et al[11], M. Fabbiani et al[12], Sabra L Klein et al and Xiao H et al** [13]also showed that young individuals were mostly affected.

K. Subbaramareddy (2015) [14]The mean age was 31.15 years with a range of 11-90 years and the maximum number of cases falling in the age group of 11-45 years (n = 54, 61.36%), No significant difference was observed according to gender among the groups .Males were more 1.526 times in >60 years of age group as compared to females. 1.526 (0.794 to 2.933). **Sujatha, et al. (2016)** Males were more frequently affected (61%) than females (39%) A the study conducted by **Pankaj Kumar Mandal et al**, 71.8% of the cases of influenza (H1N1) which were confirmed were in males. In studies conducted by Xiao H et al and Ling LM et al6, higher number of cases effected were males than females Slightly higher in urban area as compared to rural as Odds ratio (95% confidence interval) 1.260 (0.650 to 2.443). No significant difference was observed according to SES. According to clinical features fever cough coryza, headache diarrhea were observed more in >60 years of age groups as compared to <60 years of age group. Shortness of breath was less in >60 years of age groups as compared to <60 years of age group (P=0.016S) **Reyes et al.** in their study analyzed the risk factors to predict influenza A/H1N1 infection in patients with pneumonia, and the impact of this etiology on mortality during a pandemic period. observed that 294 patients (80.5%) had A/H1N1(-) pneumonia, 47 (13.2%) A/H1N1(+) pneumonia, and 23 (6.3%) co-infection.

K. Sujatha (2016)[15] that fever, cough and cold (100%) were the most common clinical manifestations followed by S.O.B (25.55%), diarrhea and vomiting (11.11%), sore throat (3.33%) and convulsions (2.22%).The study conducted by Pankaj Kumar Mandal et al[16]reveals that fever, cough and sore throat were the most common clinical manifestations in confirmed cases of H1N1influenza.

"A striking percentage of hospitalized cases were severely ill, with more than 30% requiring intensive care; most adults and more than one-third of children required mechanical ventilation, when people aged 50 and older get hospitalized with H1N1 swine flu, their case-fatality rate is the highest of any group: 18% to 20%.

No significant difference was observed according to LDH>500., CPK>200 anemia. Abnormal Blood urea, TLC>12000 were more in >60 years of age groups as compared to <60 years of age group. TLC <4000, <1.4 PLT was less in >60 years of age groups as compared to <60 years of age group (14.29% v/s 85.71%) (P<0.001S). RT PCR (1=positive) was 17.33% in >60 years as compared to 82.67% in <60%

years. (P<0.001S).

Leukocyte counts are variable, frequently being low early in illness and normal or slightly elevated later. Severe leukopenia has been described in overwhelming viral or bacterial infection, while leukocytosis with >15,000 cells/L raises the suspicion of secondary bacterial infection.[26] Pandemic flu has changed the epidemiology of pneumonia, thus challenging the prediction of etiology and outcome.

Nianyue Wang et al [17]analyzed in their study that the total WBC in the peripheral blood of the influenza A H1N1-infected patients was within normal limits or decreased, while the ratio of neutrophils increased and the ratio of lymphocytes decreased. The results of the biochemical detection indicated the electrolyte imbalance showed a high occurrence in influenza A H1N1-infected patients; the mildly ill patients did not suffer accumulated damage in the important viscera, such as liver and kidney, except for a small number of patients with lung damage; the severely ill patients suffered more serious damage in the liver and kidney, thus these patients should be well protected during the treatment.[17]

Reyes et al. in their study , regression logistic analysis (Area under curve, AUC 0.81) to predict A/ H1N1(+) pneumonia identified independent variablesmultilobar infiltrates (OR 7.7), C-reactive protein (CRP) < 10 mg/dL (OR 2.8), and leukopenia < 5000/mm(3) (OR 3.4). Risk factors for in-hospital mortality in the whole group were A/H1N1 (+) etiology and LDH > 600 IU/L (OR 4.1) when adjusting for PSI, and hypoxemia (OR 4.2) when adjusting for CURB 65 (AUC 0.81). They concluded that the Leukopenia, multilobar infiltrates, and age < 60 years were independently associated with A/H1N1(+) etiology. Pandemic A/H1N1(+) increased mortality pneumonia. LDH > 600 was independently associated with mortality in A/H1N1(+) pneumonia.

Zhang et al in their study identified factors associated with the mortality of patients with 2009 pH1N1 infection, especially for young patients without chronic medical conditions in a Retrospective observational study of 2151 severe or critical adult cases (≥ 14 years old) admitted to a hospital with pH1N1 influenza.

A confirmed case was a person whose pH1N1 virus infection was verified by real-time reverse-transcriptase polymerase chain reaction (rRT-PCR).

They revealed that among the 2151 patients, the mean age was 34.0 years, pneumonia (OR 8.91), dyspnea (OR 3.95), central nervous system (CNS) symptom (OR 1.55), Alanine aminotransferase (ALT) (OR 1.002), and the lactate dehydrogenase (LDH) level (OR 1.001) were independent risk factors for death among adults without chronic medical conditions. This virus can cause injuries to the lungs, liver, and heart. However, data regarding whether this influenza virus can affect pancreatic islets are limited.[39]

CONCLUSIONS:

Our study concludes that this epidemic influenza H1N1 infection was more common in older age group, more common in rural areas as compared to urban areas. During this epidemic almost 50% of H1N1 positive cases were in severe category and required ICU care and mechanical ventilation and they all had significant respiratory involvement in form of pneumonia, acute respiratory distress syndrome (ARDS) and respiratory failure with high mortality rate even at tertiary care hospital.

Our study further concludes that out of total 150 cases, 88(58.67%) were >60 years of age groups as compared to 62 cases (41.33%) were <60 years of age. No significant difference was observed according to gender among the groups. Males were more 1.526 times in >60 years of age group as compared to females, 1.526 (0.794 to 2.933). Slightly higher in rural area as compared to urban as Odds ratio (95% confidence interval)1.260(0.650 to 2.443). No significant difference was observed according to socioeconomic status (SES). According to clinical features fever cough coryza, headache diarrhea were observed more in >60 years of age groups as compared to <60 years of age group. Shortness of breath was less in >60 years of age groups as compared to <60 years of age group (P=0.016S)

In our study we found that-

1. No significant difference was observed according to LDH>500, CPK>200 and anemia status of patient in comparison b/w less and more than 60 years age group
2. Abnormal Blood urea, TLC>12000, were more in >60 years of age group as compared to <60 years of age group.
3. TLC <4000, <1.4 PLT was less in >60 years of age groups as compared to <60 years of age group (14.29 % vs 85.71%) (P<0.001S). RT PCR (1=positive) was 17.33% in >60 years as compared to 82.67% in <60% years. (P<0.001S).
4. The Wald criteria demonstrated that TLC<4000 and platelet count <1lakh **(p<.05 S) made a significant contribution to prediction. Other predictors were not**

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