Letters to the Editor

Pregnancy with severe influenza A (H1N1) related acute respiratory distress syndrome: Report of three cases from a rural critical care unit in India

Sir,

Pregnant women are important medically susceptible subset of the population. Changes in immune function during pregnancy alter a pregnant womans susceptibility to and severity of certain infectious diseases. These alterations are particularly problematic because physicians may hesitate to provide prophylaxis or aggressive treatment to pregnant women because of concerns about effects on the fetus.

Because of concerns about the severity of the disease during pregnancy, the Center for Disease Control and Prevention has implemented enhanced surveillance for infection and has placed them in a group that merits priority vaccine administration. Pregnant women were more likely to be hospitalized or admitted to Intensive Care Units (ICU) and were at higher risk of death compared to nonpregnant adults. In critically ill pregnant patients, spectrum of clinical features associated with H1N1 infection includes, rapidly progressive lower respiratory tract disease and acute respiratory distress syndrome (ARDS) with refractory hypoxemia and secondary bacterial infection, septic shock, and multiorgan failure. Increased mortality was seen in patients with ARDS following H1N1 influenza as compared to all other causes of ARDS in Indian settings.[1]

We report three pregnant patients with bilateral pneumonia in severe ARDS, admitted in our ICU. Their nasopharyngeal and endotracheal swabs were positive for H1N1. In our experience, we noticed the wide variation in the course of events that the disease displayed during ICU stay [Table 1]. The first Case A Figure 1, the delay in termination of pregnancy and also the delay in starting the antiviral therapy made her more prone to fatal outcome. Whereas in Cases B Figure 2 and C Figure 3, early delivery combined with a lung-protective ventilation strategy provided significantly better fetal and maternal outcomes.[2] We also noticed that prone

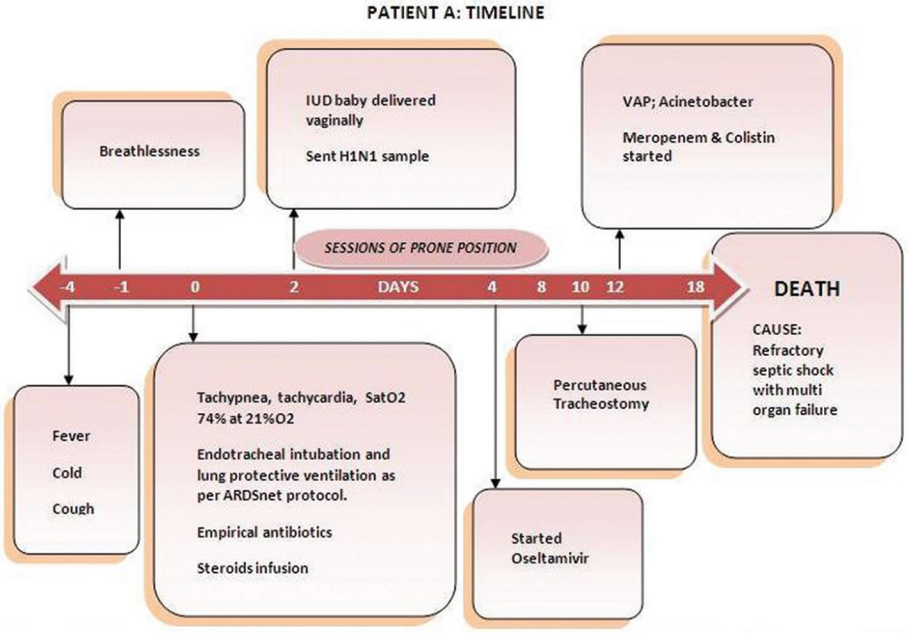

Figure 1: Timeline of Case A

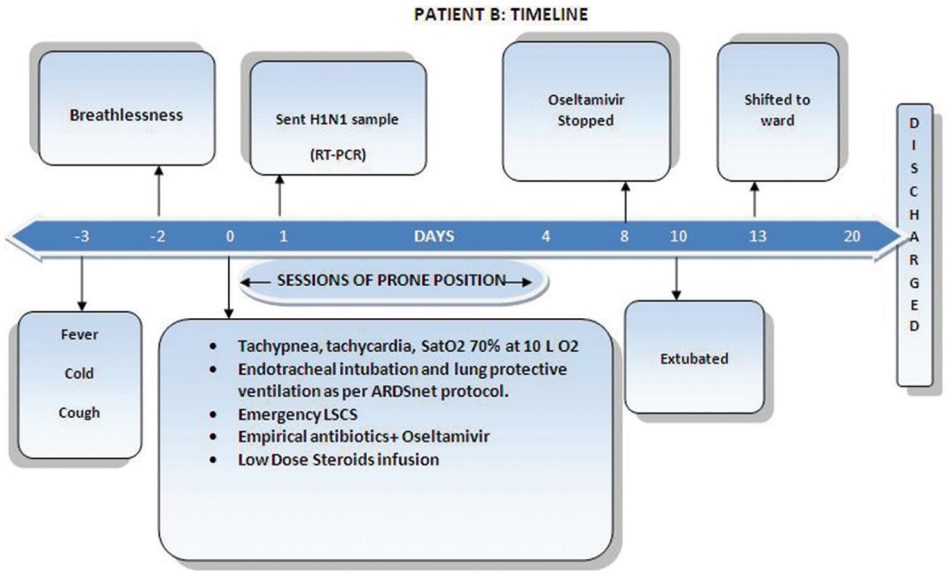

Figure 2: Timeline of Case B

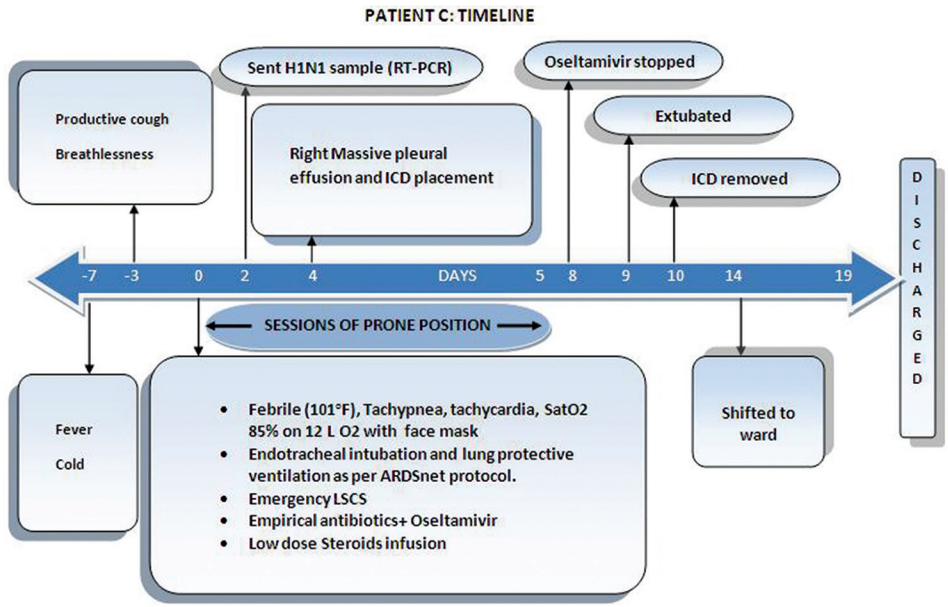

Figure 3: Timeline of Case C

position ventilation[4] and low-dose methylprednisolone infusion[3,5] improved oxygenation and eventually outcomes in the survivors Figure 4.

Early treatment with antiviral medication is recommended for pregnant women with suspected novel H1N1 infection regardless of the gestational age.[6] Oseltamivir has been used quite extensively in pregnancy with good results, and of most benefit when administered within 48 h of symptom onset and may reduce the incidence of pneumonia in patients with seasonal influenza.[6] In a report of six maternal deaths with H1N1 pandemic influenza, none of these patients had received antiviral within 48 h of onset of symptoms.[7]

In conclusion, our experience suggests that pregnant women are at high-risk of complications such as ARDS requiring mechanical ventilation from H1N1 influenza. We also suggest the following.

Early termination of pregnancy may result in improvement in the mother's condition. The timing to terminate is a critical decision necessitating proper cooperation with an obstetrician. Antiviral drugs should

Table 1: Course of events during Intensive Care Unit stay

	Case A	Case B	Case C
Clinical parameters			
Age	28	20	25
Gestational age (weeks)	Primigravida (38)	Primigravida (28)	G2P1 L0 (30)
Conscious level	Conscious	Conscious	Conscious
Respiratory rate (/min)	40	45	50
Heart rate (/min)	135	140	150
SaO_2 with 10 L oxygen (%)	74	70	85
Lab parameters			
Hemoglobin (g %)	7	14	11
Leukocyte count	14,100	12,100	3800
Platelet count	110,000		115,000
Coagulation (%)	PT: 41, APTT: 80, INR: 4.4	PT: 15, APTT: 36, INR:1.3	PT: 20, APTT: 50, INR: 1.8
PaO_2/FiO_2 ratio	63	95	60
2D-Echo (%)	Normal	PASP: 40 and EF: 45–50	EF: 45-50
H1N1 (RT-PCR)	Positive	Positive	Positive
Drugs			
Empirical antibiotic therapy	Yes	Yes	Yes
Duration (days)	08	08	10
Empirical antiviral therapy	No	Yes	Yes
Duration	Day 4-16 (12)	Day 0-8 (08)	Day 0-8 (08)
Methylprednisolone infusion (days)	1 mg/kg infusion (12)	1 mg/kg infusion (10)	1 mg/kg infusion (10)
Interventions			
MV	Yes	Yes	Yes
Tracheostomy	Yes	No	No
ICD	No	No	Yes
Prone ventilation sessions	06	04	05
Emergency LSCS	No	Yes	Yes
Complications			
VAP*	Yes	No	No
Massive pleural effusion	No	No	Yes
CRBSI*	No	No	No
Outcomes			
APACHE II score	18	11	16
MV days*	18	10	09
ICU LOS*	18	13	14
Hospital LOS*	18	20	19

VAP: Ventilator-associated pneumonia; CRBSI: Catheter-related bloodstream infection; ICU: Intensive Care Unit; RT-PCR: Reverse transcription polymerase chain reaction; APACHE II: Acute Physiology and Chronic Health Evaluation II; MV: Mechanical ventilation; LOS: Length of stay; ICD: Intercostal drainage; LSCS: Lower segment cesarean section, PT: Prothrombin time; APTT: Activated partial thromboplastin time; INR: International normalized ratio; EF: Ejection fraction; PASP: Pulmonary artery systolic pressure;
*The leading cause of death from nosocomial infection in Case A

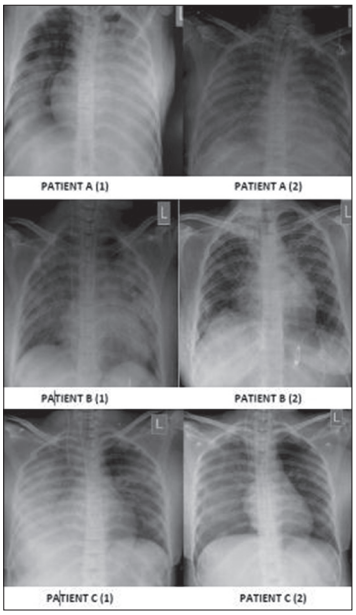

Figure 4: As there are three patients in the study, we included all the X-rays in one figure (which includes, one at admission and one before discharge/death)

be started empirically. To follow ARDS net ventilation protocol and prone position ventilation as necessary.

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Conflicts of interest

There are no conflicts of interest.

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References

1. Samra T, Pawar M, Yadav A. Comparative evaluation of acute respiratory distress syndrome in patients with and without

H1N1 infection at a tertiary care referral center. Indian J Anaesth 2011;55:47-51.
2. Hung C, Hu H, Chang C, Huang C, Kao K. Outcomes of early delivery in pregnant patients with acute respiratory distress syndrome. Crit Care 2012;16(Suppl 1):112.
3. Meduri GU, Golden E, Freire AX, Taylor E, Zaman M, Carson SJ, *et al.* Methylprednisolone infusion in early severe ARDS: Results of a randomized controlled trial. Chest 2007;131:954-63.
4. Rasmussen SA, Jamieson DJ, Macfarlane K, Cragan JD, Williams J, Henderson Z; Pandemic Influenza and Pregnancy Working Group. Pandemic influenza and pregnant women: Summary of a meeting of experts. Am J Public Health 2009;99 Suppl 2:S248-54.
5. Martin-Loeches I, Lisboa T, Rhodes A, Moreno RP, Silva E, Sprung C, *et al.* Use of early corticosteroid therapy on ICU admission in patients affected by severe pandemic (H1N1)v influenza A infection. Intensive Care Med 2011;37:272-83.
6. Tanaka T, Nakajima K, Murashima A, Garcia-Bournissen F, Koren G, Ito S. Safety of neuraminidase inhibitors against novel influenza A (H1N1) in pregnant and breastfeeding women. CMAJ 2009;181:55-8.
7. Jamieson DJ, Honein MA, Rasmussen SA, Williams JL, Swerdlow DL, Biggerstaff MS, *et al.* H1N1 2009 influenza virus infection during pregnancy in the USA. Lancet 2009;374:451-8.

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