

Impact of COVID-19 on Women, Pregnancy and Psychologically

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Abstract

Background: Gender differences among the responses to the COVID-19 disease needs to be studied. As the pandemic is growing and more and more cases are being registered, correlation between disease and gender response if any should be examined.

Summary: The pandemic of COVID-19 is evolving which reported its first case in Wuhan, PRC, considerable amount of efforts are only directed towards containment of the virus. The effect of the pandemic on pregnant women physiologically, psychologically and classification by socioeconomic status can give better trends to study. Further mortality rate between men and women and reason behind it can be evidently proved after thorough study. After all, one solution to different problems cannot be implemented. Middle East respiratory syndrome (MERS) and Severe Acute respiratory syndrome (SARS) also belonging to similar family of the coronavirus have more things to study regarding which strategy should be employed in containing the viral spread. Vertical transmission is not seen yet but occurrences of sporadic deaths of infants or still birth could be explained after research.

Conclusion: Gender based case fatality rate and its reasons can be extremely helpful in treating the patient with specific gender. Psychological state in the time of distress always been a cause of worry. It worries more when identified in pregnant state. All these aspects need to be studied thoroughly.

Keywords:- COVID-19, OBSTETRICS, INFODEMIC, SARS, MERS, VERTICAL TRANSMISSION

Introduction

The COVID-19 disease which first reported in Hubei province of People's Republic of China in December 2019. Researchers then started studying the continuously evolving virus and found out that its shape resembles to the crown. Hence, they named it coronavirus.⁽¹⁾ The disease caused by the coronavirus strain is known as coronavirus disease 2019 also known as COVID-19. Nearly 33 million cases have been reported and ever increasing. No downward trend has been recorded so far. Minor fluctuations can be seen. Nearly a million people died of the disease.⁽²⁾ Symptoms include minor cough, cold and fever to asphyxiation and diarrhea. Various strategies are being implemented and rectified on daily basis. Previous outbreaks of the coronavirus family include severe acute respiratory syndrome (SARS) and middle east respiratory syndrome. World

Health Organization (WHO) after seeing the severity and nature of quick spreading decided that it should be declared as pandemic in mid-March 2020.⁽³⁾ Since then Health authorities and governments are trying out various plans to contain the viral spread. Extreme non-pharmacological interventions like lockdown, movement restrictions, physical distancing, wearing mask were tried out. As time passed there is gradual lifting the ban on the movement restrictions. As consequence the cases of infected patients are increasing rapidly.^(4,5,6) The rising cases overwhelmed the health infrastructure and left them exposed. As the result of lockdown various persons were confined to homes and non-immediate surgeries were postponed. This includes elderly and pregnant women. Pregnant women need regular checkups between the trimesters. But as almost all the resources were diverted to the containment of COVID-19 other medical departments were left unattended. Due to movement

restrictions and fear of contracting the disease, pregnant women and their families were refraining the hospital visit. This can create complications as regular checkups are necessary in pregnancy. In chalking out the plan to deal with this previous outbreaks of SARS and MERS can be studied.⁽⁴⁾ Vital data needs to be studied so that it can be used in drawing out the plan. Severe restrictions imposed should be studied and define their viability and employing local health care workers should be the part of the plan. Transmission vertically, from mother to offspring is also a crucial topic to be examined. Although the chances of contracting the disease of men and women are same, mortality rate is more in men than women. Women research needed more funding to do more fact-finding study. Habits and innate response to the virus is different in men and women. The neglected and one of the most important topics of psychological state of the pregnant women also be studied. Often it is neglected and leaves a scar on the mind of the patient. Neonatal and postpartum care is necessary in these times of pandemic. In this paper we will study all these aspects in light of the COVID-19.⁽⁵⁾

Pregnancy and Covid-19

Wuhan where first case reported of the COVID-19 is creating a global disorder in health care sector. Fever, cough and in some cases, diarrhea is reported. Oral route through sneeze and cough are the transmission factors of the disease. After testing the sludge from the residential areas, it is found out that feces of the human also contain the viral strain. As the case with comorbidities, pregnancy is also a vulnerable state with respective COVID-19 infection. While in pregnant state, women undergo immense transformation, mentally as well as physically. The already immunosuppressive state of the person is complemented by other physiological changes like change in hormone level, change in heart rate, respiration and breathing etc., which can be very dangerous if the person is contracted by COVID-19.⁽⁶⁾ Already maternal mortality rate (MMR) is highly debatable topic as scientific and health care community is striving hard to bring down the MMR rate. Now this deadly pandemic is only adding to the concerns of the associated professionals. Though there is considerable decline in the MMR, still the number is far behind the set goal by various policies. In countries like India where there is huge population and population density it is

decline to 113 per Hundred thousand live births. The sustainable development goals set by United Nations aims to reduce global mortality rate to 70 per hundred thousand births. At the starting phase of the pandemic, the obstetric patients were categorized as low risk. Then it was rectified as the data becoming available and more research was being done. It was seen from various studies that there was more need to shift the patient in intensive care unit (ICU) than non-obstetric women. However, the death rate remains low on paper until now. This can be attributed to underreporting than good healthcare facilities. The non-pharmacological interventions (NPI) like social distancing, prohibition on roaming and gatherings, persistent lockdowns made situation much worse as pregnant women's and their families was finding it hard to access the health care facility. There is stark difference can be observed in between socio-economic groups. Poorer people were already experiencing job loss and the added cost of transportation only added to their woes. On authorities' side, Major chunk of or rather say almost all the resources was being used to mitigate the spread of COVID-19. This creates artificial shortage of health care services for non-COVID-19 patients which also includes elderly who were having surgeries even which were postponed. The regular checkups between trimesters was completely halted. Further there is also a fear of large scale unwarranted births as people were finding it difficult to access the contraception's and necessary medicines.⁽⁶⁾

COMPARING WITH SARS AND MERS

The coronavirus disease 2019 also known as COVID-19 is caused due to the coronavirus family. The shape of the virus resembles with the crow so named as coronavirus. It belongs to the family whose other members caused the severe acute respiratory syndrome (SARS) and Middle Eastern respiratory syndrome (MERS) earlier in 2002 and 2012 respectively. Taking cue from that we can somehow predict the relation between pregnancy in females and the effects of COVID-19 on it. The new form of coronavirus popularly known as novel coronavirus (nCOV). The similarities observed are incubation period. All three of them have incubation period ranging from two days to fourteen days. Also, bat is the common animal hosts and almost all reported cases were from adults excepting very rare occurrence of child case report. Almost 95 percent patients' symptoms

were fever and cough in all the three-virus infection. In addition to these symptoms some rare cases of diarrhea also have reported. Symptoms part can be considered dynamic because in some form or the other they had changed.⁽⁴⁾

SARS which reported 8000 cases worldwide has similar symptoms. Also like in COVID-19 superspreading also caused widespread infection. Highest possibility of viral excretion was in the second week of the infection. Hong Kong was the place where largest number of pregnant infected cases were found. Out of 12 cases of SARS infection in pregnant women 3 died, making case fatality rate to 25 percent. Respiratory distress syndrome was prevalent among them. Abortion, premature or preterm delivery of infant was seen as the consequence of SARS infection. Half of the in first trimester and others were in second trimester.⁽⁷⁾ Two of the new born babies were suffering from respiratory distress syndrome. Two babies were having gastrointestinal infection. But the correlation between mother's infection and infant's disease was not established by the empirical evidence. Another interesting yet predictable conclusion was that forty percent of pregnant women was put on ventilator while this figure drops to thirteen in case of non-pregnant. Case fatality rate was also high among pregnant women's than non-pregnant ones. Also, other non-pharmacological measures were at place to supplement the efforts. Some lessons can be learnt to tackle the COVID-19.⁽⁸⁾

MERS also known as Middle East respiratory syndrome was first identified in the Persian Gulf countries. In 2012 when the outbreak reported there were almost two and half thousand cases reported of which around 900 deaths were reported. The case fatality rate stands at around 38 percent. Same initial symptoms of cough and fever were observed. Co-morbidity is also a factor in deciding the severity of the cases.⁽⁹⁾ Not much study has been done but there were thirteen cases of pregnant women who have been infected with MERS. Out of which 3 died. The case fatality rate in pregnant women stands at 23 percent. Contact tracing helps finding two women in asymptomatic state. Complications in the delivery is observed but no correlation is established with the infection.^(2,10)

Non-pharmacological interventions and pregnant women.

As the outbreak turned pandemic is wreaking havoc in the entire world little was known about the containment of the disease. After clarifying the WHO stated that the human to human transmission is highly relevant in this disease. Naturally various agencies and governments started to act. They put restrictions on movements of the people all of a sudden as this pandemic has not given enough time to strategize. So, government plans motive was to break the chain and identify the people who are already infected. Non-pharmacological interventions (NPI) such as physical distancing, wearing mask which is also called as social vaccine, lockdowns, movement restrictions etc. was imposed. This severely halted all other things except the COVID-19 containment. All the resources were targeted to serve the COVID-19 containment purpose.⁽¹¹⁾ Naturally people avoided the health services due to fear. This also include the pregnant women which needs regular checkups and vaccination. This severely impacted the necessary interventions by the health care professionals which can lead to other complications other than the COVID-19 infection. The immediate family of the pregnant women were also in fear of attracting the disease of services are accessed. Ground and local health care workers need to look into the matter as soon as possible so the other disaster couldn't unfold. A very sad impacts on women in general is that they are very prone to domestic violence due to forced close consistent proximity with their partner. Also, as part of NPI all shops including those who serves liquor etc. are also closed down. Addicted people release their anxiety either on their children's or their spouse. According to the UN study there are chances of seven million unwanted pregnancies due to lack of access to contraceptives. Various programmed run by non-governmental organization has halted their programmers which was crucial in creating awareness in rural masses.^(12,13) Infodemic is also a serious issue to tackle. Only considering pregnant ladies, false information which turns into infodemic is creating fear about hospital visits and other fears of falsely showing positive with infection.⁽³⁾ This hinders the need of regular visit to the doctor.

TRANSMISSION FROM MOTHER TO OFFSPRING

There is not much empirical evidence whether the mother to offspring transmission of the disease takes place or not internally. Few positive cases of the mothers who delivered babies were found out that there was no prenatal transmission of the disease. But some instances of few days old babies testing positive for the novel coronavirus disease is concerning. But it can be attributed to the transmission outside the womb where symptomatic mother accidentally sneezes or coughs and droplets inhaled by the baby. No infant death has been reported as far now.⁽⁹⁾ Transmission through breastfeeding is also a contentious topic but no evidence on this also found. But coughing or sneezing near the baby can be very dangerous and can cause infection. Proper masks to be wear at the time when baby is in near proximity.⁽⁸⁾

LOW MORTALITY RATE AMONG WOMEN

Figures till date shows that men have more case fatality rate (CFR) than women in COVID-19. This means more men are dying than women after contracting the COVID-19. This is interesting to study as it indicates towards manifestation of disease in different way. Immune response can also be a reason among others. Also, women are less prone to engaging in risky behavior, less sin goods consumption and more sincere in following the non-pharmacological interventions such as wearing masks and physical distancing.⁽¹⁴⁾ More funding overall and more research needed in the women health research which is already underfunded. Correlation between how a disease behaves in men's anatomy and women's anatomy should be established. Then only we can conclude that one size fits all approach is not efficient in dealing with all the genders. Although men and women are equally prone to contracting the disease.⁽¹⁵⁾ Comorbidities are the main factor in confirming the severity of the disease. It is found in study that men have more heart ailment than women which is one of the prime reasons in deciding the case fatality rate. Diseases related to blood and liver caused by excessive consumption of alcohol also found in men mostly. Smoking is an activity which very few women subscribe to leading to their lungs being more efficient than men who are more in to that activity. Larger

percentage of angiotensin-converting enzyme 2 (ACE2) in the blood of the men than women is also a cause of concern. Since ACE2 let the coronavirus infect the healthy cells it can be attributed to why more men are vulnerable than women.⁽²⁾

PSYCHOLOGICAL IMPACT OF THE COVID-19

In the time of lockdown and movement restrictions due to fast spread of the COVID-19, there was distress everywhere. Slowly the anxiety built up and much needed events to vent out the anxiety like social gatherings and festivals were not happening. It creates a mental condition where you feel low and tired due to the monotonous life that just has started. The rising uncertainty accumulate overtime. It further worsens the situation because person do not know when this situation will end. And constant fear of catching the disease is there already. Home confinement also leads to less physical activity and more lethargy which then transforms into mental tiredness. If the family member is working on frontline to fight the disease then there is additional safety concern about the lover ones. It affects all age group and physiological condition. But among most vulnerable pregnant women are at the forefront. First, they are already bedridden and in later days they are unable to go out on their own. Second the loved ones visiting them are no more near them to bear the pain of the pregnancy. The hormonal imbalance which is common in the pregnancy aggravates the situation more.⁽⁵⁾ This leads to unnecessary thoughts of fetal deaths and vertical transmission worries the person more. Psychological interventions are as important as clinical intervention. Especially when there is the question of mental wellbeing of the pregnant women. It deeply affects the state of the neonates and affects their full development. Study showed that psychological impact of the COVID-19 is more in first trimester pregnant women than in second and third trimester pregnant women. Almost 70 percent women in pregnant state with infection showed more than normal anxiety. Around 50 percent women showed anxiety about vertical transmission of the disease from them to the offspring. Socioeconomic status of the pregnant women also matters in her pregnancy. Women from lower strata of the socioeconomic ladder has to work even if they are ill. Pregnancy in poor rural household already lacking the regular public health center forget

about the secondary and tertiary health service which almost all are concentrated in urban areas. NPI halted this access to. Domestic violence is on rise as lockdowns and movement restrictions are imposed. Addictive urge is not fulfilled so people are venting out their anger to the family members. Urban slums have bare minimum facilities with common sanitation and water facility. This create a huge challenge in the containment as there is congestion and therefore unable to implement the physical distancing measures^(16,17,18). So far now, social distancing and isolation of suspected cases are the best prevention strategies for Covid-19^(19,20).

Conclusion

With almost 33 million and increasing cases of the COVID-19 infection reported, governments are struggling to at least contain the virus spread. The highly uncertain behavior with changing viral strain and symptoms among the patients making it difficult for the scientists, researchers and health care professionals to chalk out the containment strategy. Among various of patients, pregnant women are one of the most vulnerable groups. Although some deaths are reported in pregnant women infected with COVID-19 and reports of still births, abortion, there is need conclusive study which clearly established the correlation between the COVID-19 infection and effects of it on pregnant women. Previous outbreaks of SARS and MERS can guide us on the plan to avoid any complications in pregnant women with the afore mention infection. The effects of non-pharmacological interventions like physical distancing and lockdown had severe impact in halting the access to healthcare service to the pregnant women. There is a need of local healthcare workers and professionals to reach out to the future mothers who needs medical intervention for vaccination and regular checkups. Also, no access to contraception's will lead to many unwanted pregnancies which can be a challenge in upcoming days. Socioeconomic status plays a crucial role in any disaster as they are less resilient in terms of health and economic condition. Especially women where they are the victims of domestic violence and poor health and sanitation facilities. A common and widely seen factor was severe anxiety about the vertical transmission of the disease which is attributed to the innate response of the human beings toward the safety of their offspring. Proper guidance to the treating doctors or other health care

professionals to counsel and give support to the future mothers. Designated and experienced doctors related to the psychological departments can be employed in the maternity ward. More comprehensive study needed with the empirical evidences to find and establish the correlation between pregnancy and COVID-19. Telemedicine option should be implemented wherever necessary. Also, pregnant women need not withhold the vital information of fever, cough due to fear of contracting the virus. Hygiene and sanitation should be assessed and rectified which helps in preventing the virus spread. Monitoring the mother and offspring in post-partum period is essential. Study by gender specific fatalities needed to establish or to undisclosed the reason behind high mortality rate among men than women. Gender specific habits needs to be monitored.

Ethical Approval: IEC, DMIMS Wardha

Conflict of Interest: None

Funding: DMIMS, Wardha

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