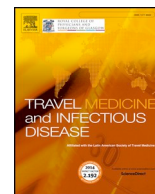




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Middle East Respiratory Syndrome Coronavirus (MERS-CoV) and COVID-19 infection during pregnancy

Dear Editor,

The emergence of the Middle East Respiratory Syndrome Coronavirus (MERS-CoV) in 2012 was associated with variable rate of asymptomatic infection but no asymptomatic cases were reported among pregnancy [1]. The newly emerging 2019 novel coronavirus (2019-nCoV), later named SARS-CoV-2 is the causative agent of the COVID-19. SARS-CoV-2 was identified initially in Wuhan, China. Since its first description in December 2019, the total number of cases as reported by the World Health Organization (WHO) had reached 191,127 confirmed cases on February 18, 2020, with 7807 deaths [2]. The clinical picture and radiographic presentations were recently described [3,4] and the clinical picture in nine pregnant women [5] were similar to non-pregnant women [3,4]. One study showed that 15 pregnant patients with COVID-19 had mild disease [6]. All of the pregnant patients in one study and 66.7% of pregnant COVID-19 patients had C-section, moreover all the newborn survived [5,6]. However, 4 of 9 (44%) pregnant COVID-19 patients had premature delivery [5]. In a previous study of MERS-CoV, there were 11 pregnant women [7]. A comparison between MERS-CoV and COVID-19 cases in pregnancy is shown in Table 1. There was no difference in the age group of the patients, however, the gestational age was lower among MERS-CoV than COVID-19 patients. Of the MERS-CoV cases in pregnancy, 63.6% required intensive care unit admission and this is comparable to 50% of SARS pregnant women [8]. There was no mention about the death rate among pregnant women with COVID-19, however, the case fatality rate among MERS-pregnant patients was about 35% and was not statistically different when compared to the overall MERS case fatality rate [7]. In the MERS cases, 40% had C-section and this is much lower than 100% C-section rate in the case of COVID-19. This difference may reflect a variance in the practices between different countries. Another difference is the high fetal demise rate of 30% among pregnant women with MERS compared to 0% among COVID-19. The fetal demise rate among 12 pregnant women with SARS was 25% [8]. Thus, similar to the difference in the clinical presentation and course among SARS, MERS-CoV and COVID-19, there is also differences in the outcome and course of

Table 1

A comparison between pregnant women with MERS-CoV and COVID-19.

	MERS-CoV [7]	COVID-19 [5]	COVID-19 [6]	P value
Number of patients	11	9	15	
Mean Age (year)	33.2	29.9	32	0.127
Mean Gestational age (weeks)	28	37.1	32	0.01
ICU admission (%)	63.6	–	0	
Maternal survival (%)	72.7	–	100	
Fetal survival (%)	70	100	100	
C-section, n (%)	40	100	66.7	

pregnant women with these coronaviruses' infection. Understanding the impact of COVID-19 on pregnancy and outcome would guide healthcare authorities and public health on further risk mitigation and advise for pregnant women around the world.

References

- [1] Al-Tawfiq JA, Gautret P. Asymptomatic Middle East Respiratory Syndrome Coronavirus (MERS-CoV) infection: Extent and implications for infection control: a systematic review. *Trav Med Infect Dis* 2019;27:27–32. <https://doi.org/10.1016/j.tmaid.2018.12.003>.
- [2] World Health Organization. Situation report-17 situation in numbers total and new cases in last 24 hours 2020. https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200206-sitrep-17-ncov.pdf?sfvrsn=17f0dca_2 accessed February 7, 2020.
- [3] Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *Lancet* 2020. [https://doi.org/10.1016/S0140-6736\(20\)30183-5](https://doi.org/10.1016/S0140-6736(20)30183-5).
- [4] Wang D, Hu B, Hu C, Zhu F, Liu X, Zhang J, et al. Clinical characteristics of 138 hospitalized patients with 2019 novel coronavirus-infected pneumonia in Wuhan, China. *J Am Med Assoc* 2020. <https://doi.org/10.1001/jama.2020.1585>.
- [5] Chen H, Guo J, Wang C, Luo F, Yu X, Zhang W, et al. Clinical characteristics and intrauterine vertical transmission potential of COVID-19 infection in nine pregnant women: a retrospective review of medical records. *Lancet* 2020. [https://doi.org/10.1016/S0140-6736\(20\)30360-3](https://doi.org/10.1016/S0140-6736(20)30360-3).

<https://doi.org/10.1016/j.tmaid.2020.101641>

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- [6] Neher RA, Dyrda R, Druelle V, Hodcroft EB, Albert J. Potential impact of seasonal forcing on a SARS-CoV-2 pandemic. *Swiss Med Wkly* 2020;150:w20224. <https://doi.org/10.4414/smw.2020.20224>.
- [7] Alfaraj SH, Al-Tawfiq JA, Memish ZA. Middle East Respiratory Syndrome Coronavirus (MERS-CoV) infection during pregnancy: Report of two cases & review of the literature. *J Microbiol Immunol Infect* 2019;52:501–3. <https://doi.org/10.1016/j.jmii.2018.04.005>.
- [8] Wong SF, Chow KM, Leung TN, Ng WF, Ng TK, Shek CC, et al. Pregnancy and perinatal outcomes of women with severe acute respiratory syndrome. *Am J Obstet Gynecol* 2004;191:292–7. <https://doi.org/10.1016/j.ajog.2003.11.019>.

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