

Letter to the Editor

Relationship between ABO Blood Group Type and COVID-19 Outcome in Pregnant Women

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Dear Editor

Since December 2019, many new Coronavirus-related Pneumonia cases have been reported in China which spread rapidly all over the world. The World Health Organization called this disease “Coronavirus 2019” (Covid-19). Covid-19 has a variety of clinical symptoms and shows a wide range of severity in the disease. The majority of infected patients only have mild or no symptoms at all. The pathogenesis of its severe type and related respiratory failure is not well-understood. This strongly shows that the host factors influence the outcomes of the disease (1-2).

With the rapid pandemic growth of coronavirus worldwide, identifying the individuals exposed to high risk has turned into a major challenge in the health systems. Some of the risk factors related to Covid19 are recognized, such as age, sex, smoking, and chronic diseases such as diabetes, high blood pressure, and obesity-related features as well as cardiovascular diseases. Genetic factors may also be linked to host responses. Blood type as a genetic marker can be related to Covid-19. The difference in antigens of blood types can increase or decrease the sensitivity of the host to many infections (3-5).

Here, we present the medical documents of pregnant mothers diagnosed with Covid19 who have been referred to Nekouei-Hedayati-Forqani Hospital in Qom in April and May have been examined. The distribution of 56 patients’ blood type in 8 categories based on the table was divided and analyzed. The study was approved by IRB, Qom University of Medical Sciences; ethics approval number: IR.MUQ.REC.1399.130.

The distribution of 56 pregnant mothers’ blood type diagnosed with Covid19 showed that there were 16 (28.6%) patients with blood types of A+ and O+, 13 (23.2%) patients with blood types of B+, 7 (12.5%) patients with blood types of AB+, 3 (5.4%) patients with blood types of O-, 1 (1.8%) patient with the blood type of A-. There were no mothers diagnosed with a blood type of B- and AB-. Among blood types, the blood types A+ and O+ have been the most common. By dividing the frequency of a specific blood type in the study sample by the frequency of the same blood type in Iran, the proportion of patients was obtained. According to the obtained data, the proportion of patients with the blood type of AB+ and O- was higher than other blood types.

Finally, we found that there seems to be a

Table 1: Distribution of ABO blood Groups

| ABO blood group | Frequency (percent) | ABO Blood type status in the Iranian Population | Ratio |
|-----------------|---------------------|---|-------|
| A+ | 16 (28/6) | 27 | 1/06 |
| A- | 1 (1/8) | 3 | 0/60 |
| B+ | 13 (23/2) | 22 | 1/06 |
| B- | 0 | 2 | 0/00 |
| AB+ | 7 (12/5) | 7 | 1/79 |
| AB- | 0 | 1 | 0/00 |
| O+ | 16 (28/6) | 34 | 0/84 |
| O- | 3(5/4) | 4 | 1/34 |
| Total | 56 (100) | 100 | |

correlation between pregnant mothers diagnosed with Covid-19 and their blood type, which requires more accurate statistical analysis. The risk of Covid19 was higher in pregnant mothers with the blood type of AB+ and O- respectively from other blood types. Our findings are somewhat similar to other studies (1), indicated patients with AB blood group have higher susceptibility, and patients with O blood group have lower susceptibility to COVID-19 infection. while, Wu et al. reported that the risk of Covid19 infection in patients with the blood type of A is higher than all, and patients with the blood type of O have a lower risk of infection with Covid-19 (3) which is different from the findings of the present study. Due to the differences between the findings of the present study and other studies, and genetic differences between Iranian and other nations, and the small sample size in the present study, as well as different methodology and participants, it is highly recommended to conduct more research with bigger sample size, a different methodology specially for pregnant women in, due to the changed physiology in pregnancy which makes

pregnant women a special susceptible individual in infectious diseases.

Conflicts of Interest

The authors declare that there are no conflicts of interest.

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