



MAX
Healthcare

Association between Blood types and COVID-19 Infection

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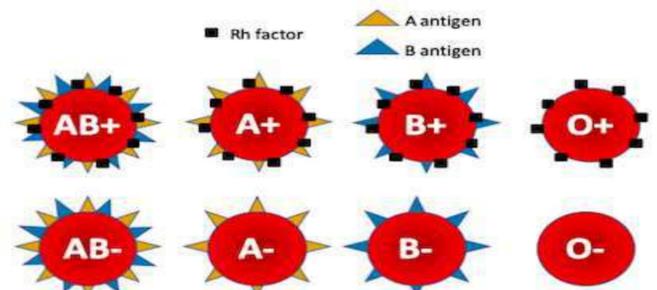
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BACKGROUND

The pathogenesis of severe COVID-19 infection and the associated respiratory failure are still unclear. Biological factors that determine susceptibility to SARS-CoV-2 and severity of COVID-19 are yet to be fully understood.

Many studies have implicated that the ABO blood type is a potential risk for various diseases such as cancer, myocardial infarction, acute kidney injury, and venous thromboembolism. Recent researches are pointing to the fact that the ABO blood group might play an important role in a person's susceptibility and severity of COVID-19 infection.

• ABO blood group
• Rhesus factor (Rh)



AIMS

The aim of the study is to study if there is a relationship between the ABO groups and COVID-19 infection and mortality

METHODS

The study was conducted on 504 COVID-19-confirmed patients admitted in the Max Super Speciality Hospital Vaishali, Ghaziabad, Uttar Pradesh, India.

The diagnosis of COVID-19 was confirmed by a positive RTPCR(Real-Time Reverse Transcriptase Polymerase Chain Reaction) test of SARS-CoV-2 on nasal and pharyngeal swab specimens from patients. ABO grouping was done by Fully Automated Galileo System. Follow up of these 504 COVID-19-confirmed patients was done to know the prognosis of the disease whether patients were cured/discharged or died.

RESULTS

The study population was divided based on the ABO blood group into types A+, A-, B+,B-, AB+,AB-, O+ and O-.

It was found that out of 504 COVID-19-confirmed patients 344 patients recovered and were discharged.160 patients died.

S.NO.	Infection Susceptibility %	Recovery%	Mortality%
1.	B+ 188(37.3%)	B+127(36.9%)	B+ 61(38.1%)
2.	O+139(27.58%)	O+97(28.2%)	O+42(26.25%)
3.	A+112(22.22%)	A+75(21.8%)	A+37(23.13%)
4.	AB+ 37(7.34%)	AB+ 23(6.69%)	AB+ 14(8.75%)
5.	B- 12(2.38%)	B- 10(2.9%)	B- 2(1.25%)
6.	A. 7 (1.38%)	A-5(1.45%)	A-2 (1.25%)
7.	O- 6(1.19%)	O- 6(1.74%)	O- 0(0%)
8.	AB- 3(0.59%)	AB- 1(0.29%)	AB- 2(1.25%)
Total	504	344(68.25%)	160(31.75%)

CONCLUSIONS

In this study we found the evidence for associations between ABO and Rh blood groups and COVID-19 infection and mortality. It was found in the study that Positive Blood Groups were associated with high susceptibility of infection and mortality as compared to Negative blood groups.

Blood Group B+ had the highest susceptibility of infection and mortality whereas blood group AB- had lowest susceptibility of infection. In blood group O- no mortality was seen. Rh- status seemed to be protective against SARS-CoV-2 infection. Our results add further evidence to the previously discovered associations between blood types and COVID-19. The ABO gene is highly polymorphic, and ABO blood groups are distributed differently across ancestries and geographies. Differing disease susceptibilities could be due to difference in the natural antibodies present.

REFERENCES

- 1.AABB Technical Manual
- 2.Rossi's Principles of Transfusion Medicine
- 3.WHO Technical Manual
- 4.Accreditation Standards on blood banks/Blood centres and Transfusion Services