Investigating the Relationship between Blood Group Types and Intrinsic Temperament of Patients with COVID-19 with Disease Severity and ICU Admission

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Abstract

Given that the virus is currently in the global pandemic stage and causes severe symptoms in some patients even without underlying disease. Therefore, it seems necessary to study internal characteristics, such as blood group, temperament, or even genes of patients. This cross-sectional study was conducted in 2020 in Vasei Hospital (Sabzevar City, Razavi Khorasan Province, Iran). For this purpose, 100 patients were selected among those who had respiratory symptoms and their coronavirus disease 2019 (COVID-19) test was positive. Temperament questionnaire was completed for each person. 3 cc of venous blood was taken from patients to evaluate their blood group types. Regarding the relationship between sex and disease severity, 42.2% of men were admitted to the ward and 38.9% of women were mostly examined on an outpatient basis, but this difference was not significant. In terms of blood groups, O-negative and A-positive blood groups had the lowest and highest prevalence among the patients. In terms of prevalence of wet and dry temperaments, 29.6% of the patients had wet temperament, 43.2% of them had moderate temperament, and 27.2% of them had dry temperament. Also, regarding hot and cold temperament, 21% of subjects had a cold temperament, 49.4% of them had a balanced temperament, and 29.6% of them had a warm temperament. There was no significant relationship between cold temperament and disease severity between the three temperament groups (P = 0.21). there was no significant relationship between the three groups in terms of the relationship between wet and dry temperament and disease severity (P = 0.09).

Conclusion: According to our results, prevalence of Coronaviruses was higher in the individuals with cold and wet temperament than other temperaments and O blood group was less common than other blood groups, which can be helpful in prognosis of patients.

Keywords:

Coronavirus; Intrinsic temperament; Blood group; Hospitalization

Introduction

Coronaviruses are a large family of viruses and subspecies of the Coronaviridae family, causing diseases ranging from common cold to more severe diseases, such as Severe Acute Respiratory Syndrome (SARS), Middle East Respiratory Syndrome (MERS), and Coronavirus Disease RA (COVIDRA).

The virus is naturally prevalent in mammals and birds, yet seven human-transmitted coronaviruses have been identified so far, among which the latest and new coronavirus became widespread in humans for the first time in Wuhan, China.

Coronaviruses are a subset of Coronaviridae family. Their structure also has a typical RNA genome [1].

Once, the virus is inside the host cell, its particle is uncoated and its genome enters the cell cytoplasm. People with co-morbidities and children with heart disease are at higher risk for being infected with coronaviruses.

Usually, severity of the cold caused by coronavirus is higher. Coronaviruses, as the second most common cause

of colds after rhinoviruses, are more common in winter and spring. It is a bit difficult to state whether coronavirus is cause of the disease, because unlike rhinoviruses, they are difficult to grow in laboratory. Structure of this virus consists of two layers; core of the virus is made up of genetic material and outer layer is made up of protein crowns. The species of coronavirus family have always been transmitted from one animal species to another. The virus can evolve for easier transmission and cause more severe disease [2]. Symptoms of a new coronavirus leading to coronavirus disease 2019 (COVID-19) usually begin a few days after a person becomes infected with the virus. But in some people, symptoms may appear a little bit later. According to statistics and research, symptoms can include fever (in 43.8% of patients at admission and 88.7% of patients in hospitalization), dry cough (in 67.8% of cases), respiratory distress, fatigue, and muscle pain (in 11 - 14% of cases), and diarrhea (in 3.8% of cases). Average incubation period has been reported to be four days. Although, 17.9% of patients with non-severe disease and 9.2% of patients with severe symptoms have not shown any problems in their radiology or Computer Tomography (CT) scan. Thus, due to the epidemic and high prevalence of this disease, knowing easy and practical ways of preventing the disease is necessary.

Given that the virus has infiltrated cells, causing severe disease in some patients, even without underlying disease, it is likely to be related to individual characteristics of the patients. Therefore, there is a need to study internal characteristics of the people, such as blood group, temperament, or even their genes. One of individual characteristics of every human being is his innate temperament, which remains the same from birth to death unless he suffers from a bad temper under the influence of environmental and psychological factors.

Human temperament can be singular (cold, hot, wet, dry) or compound (cold and dry, cold and wet, hot and dry, and hot and dry). Various studies have been performed to confirm the existence of temperament and its relationship with individual characteristics of humans including Syed Tariq Murtaza, who showed that most demos are mesomorphic (muscular) while most phlegms are endomorphic (having high fat), which is compatible with the concepts mentioned in the Greek and Iranian traditional medicines. Nasir used computer imaging to evaluate color and shape of the mora in different individuals and found consistent results with the previous statements on demonic temperament and phlegm in the Greek medicine [3]. Therefore, due to the fact that people with high Body Mass Index (BMI) are more likely to have coronary complications and people with a phlegmatic temperament have high fat percentage and BMI, it is assumed that investigating temperament of people has an important effect in predicting severity of the disease.

Materials and Methods

This cross-sectional study was conducted on patients referred to the emergency department of the Vasei Hospital (Sabzevar City, Razavi Khorasan Province, Iran), after approving the study and obtaining the ethics code from the Sabzevar University of Medical Sciences in 2020.

The code of ethics of the article from Sabzevar University of Medical Sciences. Totally, 100 patients were selected from those who had referred to the large hospital with respiratory symptoms and their COVID-19 test (Polymerase Chain Reaction (PCR) and molecular) was positive. Due to high prevalence of this disease in cities of Sabzevar and Venice, a high number of patients referred to the Vasei Hospital, which was the healthcare center of the city in COVID-19 pandemic, and all 100 patients detected in this period (December, 2020) were included in the study [4]. The questioner did not have information and cognition about types of innate temperaments so that, there would be no bias.

After obtaining consent of the patients in the hospitals̓ emergency department, temperament questionnaire developed by Dr. Mojahedi, whose validity and reliability have been already confirmed, was completed to determine their intrinsic temperament (by the patient himself through his complete acquaintance with his innate temperament). Based on specific grading and scoring in the questionnaire, the person's innate temperament was determined [5]. Patients were coded and followed up for one or two weeks after admission to assess severity or improvement of the disease. For checking blood group and RH of the patients, 3 cc of venous blood sample was taken in the emergency clinic and was placed in Ethylenediaminetetraacetic Acid (EDTA) drills, and it was sent to the hospital laboratory and there, blood group and RH of the patients were determined by ABO-RH blood group test on each patient and then, they were recorded in the checklist. Severity of COVID-19 disease was categorized as follows: Grade 1: Positive patients who were quarantined at home, Grade 2: Patients with mild respiratory symptoms ,such as dry cough and fever who were hospitalized and had lung involvement on CT scan, and Grade 3: Patients who were admitted to Intensive Care Unit (ICU).

- Data were analyzed by SPSS software version 23 using the Fishers̓ and Chi-Square tests.
- Inclusion Criteria
- All the patients with positive COVID-19 test in Sabzevar City
- Willingness to participate in the study
- Having over 18 years of age
- Exclusion Criteria during the Study
- Dissatisfaction with participating in the study (not completing the questionnaire)
- Patients with respiratory symptoms but negative COVID-19 test.

Results

The following results were obtained from 100 patients with a positive COVID-19 test in Sabzevar City. Mean age of the subjects was equal to 51 ± 16.5 years old. Regarding gender

distribution in this study, 55.6% (n = 45) of the subjects were male and 44.4% (n = 36) of them were female. Most of the patients were admitted to the ward at this time (39.5% (n = 32), followed by 35.8 (n = 29) and 24.7% (n = 20) of them

who were admitted to the ICU. Comparing blood groups of the subjects in this period, prevalence of blood groups was determined as follows:

	Grade 1 = Outpatient	Grade 2 = Hospitalization in the ward	Grade 3 = ICU admission	P
Mean age	17.6 ± 46.3years old	15.3 ± 54.8years old	3.13 ± 52.1 years old	P=0.11
Prevalence of hospitalization	%35.8 (people29)	%39.5 (people32),	%24.7 (20 people)	

O -negative (5%), O -positive (8%), A -negative (14%), A -positive (17%), B -negative (16%), B -positive (10%), AB -negative (16%), and AB -positive (14%). Among these, O blood groups were the least common. Regarding prevalence of wet and dry temperaments, 29.6% (24 people) of subjects had a wet temperament, 43.2% (35 people) of them had a moderate temperament, and 27.2% (22 people) of them had a dry temperament. Also, regarding hot / cold temperament, 21% (17 people) of the patients had a cold temperament, 49.4% (40 people) of them had a balanced temperament, and 29.6% (24 people) of them had a warm temperament (Figure 1).
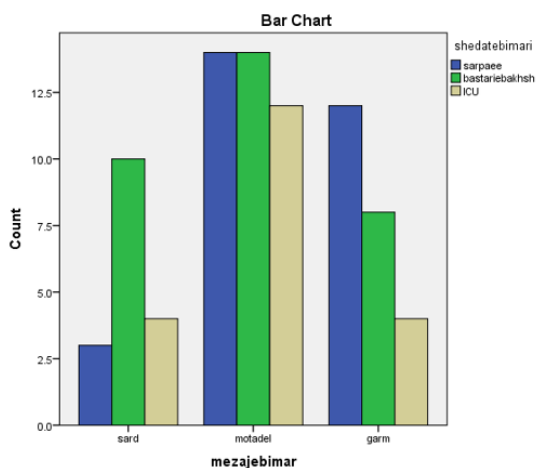

Figure 1: Evaluation and comparison of disease severity with hot/cold temperament of patients.

In studying the relationship between the patient's hot temperament and severity of the disease, it was found that the people with cold temperament were more hospitalized in the ward (10 people, 58.8%) and the hospitalized people with moderate temperament were more than outpatients (14 patients, 35%), and the people with more hot temperament were examined on an outpatient basis (12 patients, 50%) (Figure 2).
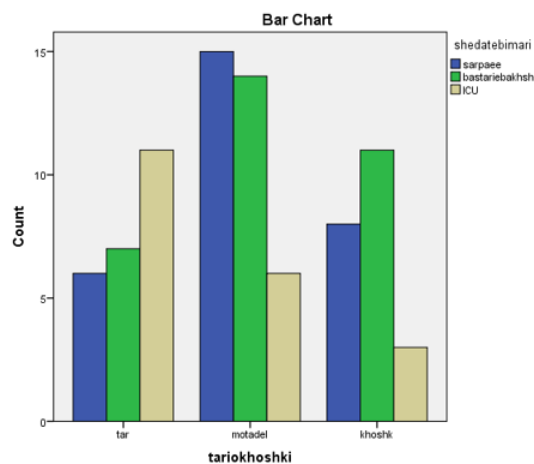

Figure 2: Evaluation and comparison of disease severity with wet and dry temperament.

But, the difference between these three temperament groups was not significant in terms of disease severity (P = 0.21). (Fisher's test). In investigating the relationship between wet and dry temperament and disease severity, our results showed that severity of the disease was higher in the people with more hot temperament than other temperaments and most of these people were admitted to the ICU (45.8%). While, the people with moderate temperament were mostly examined on an outpatient basis (42.9%) and the people with dry temperament were hospitalized in the ward (50%).

Discussion

Coronaviruses, as the second most common cause of colds after rhinoviruses, are more common in winter and spring. Although, it is a bit difficult to state whether coronavirus is cause of the disease because, unlike rhinoviruses, they are difficult to grow in the laboratory.

Due to the epidemic and high prevalence of this disease, knowing easy and practical ways of preventing the disease is necessary. As this virus penetrates inside the cells, in some patients, even without underlying disease, it causes severe disease. Therefore, it is likely to be related to individual characteristics of certain individuals, so there is a need to study internal characteristics of the individuals, such as blood group, temperament, or even their genes. One of individual characteristics of every human being is his innate temperament, which remains the same from birth to death

unless he suffers from a bad temper under the influence of environmental and psychological factors.

Human temperament can be singular (cold, hot, wet, dry) or compound (cold and dry, cold and wet, hot and dry, and hot and wet). Various studies have been performed to confirm the existence of temperament and its relationship with individual characteristics of humans, including Syed Tariq Murtaza, who studied on two types of temperament including demo and phlegm and compared their morphology in different samples. He found a significant difference between demo and phlegm in terms of their morphology. Also, he stated that most demos were mesomorphic (muscular) while most phlegms were endomorphic (having high fat), which is consistent with the concepts mentioned in the Greek medicine.

Nasir also evaluated color and shape of the mora in different people by computer imaging. In this study, hair thickness was measured by a Digital Vernier caliper. The obtained results were consistent with the previous statements on demo and phlegm temperaments mentioned in the Greek medicine (14). The relationship between temperament and various diseases has been studied and proven in the previous papers.

Studied the relationship between temperament and diabetes and stated that new patients with type 1 diabetes have a more hot and dry temperament. Most importantly, they found that "excess heat" in children could be considered a risk factor for type 1 diabetes. In the study by Nemat Shahi, the effect of saffron as a warm substance in premenstrual syndrome was compared with fluoxetine, and the results showed that saffron reduces symptoms due to increasing strength of the immune system and body temperature. Studied importance and relationship of the ancient Greek medicine in dealing with COVID-19 and stated that the use of incense or herbal sprays in COVID-19 patients would help to boost their immune system.

Study on the relationship between temperament and immunology entitled as″ Immunophenotype of Normal Individuals Classified Based on the Innate Human Temperament″, found a relationship between immune response and individuaĺs mood and innate temperament. This is also consistent with the present study. In his paper on temperament and incidence of coronary heart disease in India, Rasheed stated that demo temperaments were the least common, which is consistent with the present study.

Khan Mohammad in his study entitled as ″Mathematical Modeling and the Relationship between Two Different Temperament Classifications: During the COVID-19 Pandemic Using Mathematical Modeling″ investigated the relationship between individuaĺs mood in Ayurveda medicine and temperament in Greek medicine. The hypotheses were confirmed using a mathematical model. It was shown that different temperaments are also directly related to incidence of coronary heart disease. In his paper, Bhushan found a

common relationship between genotypes as a classification of the human population based on human leukocyte antigen (HLA) gene polymorphism and the concept of Prakriti (elements), and stated that there is a significant relationship between HLA type and Prakriti type , also corresponding to blood group and temperament in our study.

Considering lack of a similar study on age and sex distribution, etc., and the relationship between temperament and COVID-19 in the literature, therefore, no comparison could be made between findings in this regard.

Conclusion

Intrinsic temperament varies from person to person, and there are temperaments for all people on the planet. Every person's temperament influences many aspects of his life and also environmental and nutritional conditions and may lead to bad temper and can cause diseases. Knowing each person's innate temperament will help in prognosis, prevention and even treatment of diseases.

Conflict of Interest

The authors declared no conflict of interest.

Acknowledgments

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