**DISTRIBUTION OF BLOOD GROUPS AMONG MEDICAL STUDENTS**

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**ABSTRACT:**
A blood type (also known as a blood group) is a classification of blood, based on the presence and absence of antibodies and inherited antigenic substances on the surface of red blood cells (RBCs). These antigens may be proteins, carbohydrates, glycoproteins, or glycolipids, depending on the blood group system. This cross-sectional study was conducted among medical students of different medical colleges. A predefined proforma was distributed among all the students. Brief data i.e. name, age, gender and blood group was collected on a predefined proforma. A total of 130 medical students were included in this study. There were 65 (50%) male students and 65 (50%) female students. The mean age of the students was 21.23±1.23 years. The distribution of blood groups was A+ve n=23(18%), A-ve n=16, (12%), B+ve n=21,(16%), B- ve ,n=12,(9%), AB+ ve n=18,(14%), AB- ve n=21,(16%), O+ ve n=9,(7%) and O-ve n=10,(8%).

**Keywords:** Blood Groups, Medical Students
INTRODUCTION:

A blood type (also known as a blood group) is a classification of blood, based on the presence and absence of antibodies and inherited antigenic substances on the surface of red blood cells (RBCs). These antigens may be proteins, carbohydrates, glycoproteins, or glycolipids, depending on the blood group system. Some of these antigens are also present on the surface of other types of cells of various tissues. Several of these red blood cell surface antigens can stem from one allele (or an alternative version of a gene) and collectively form a blood group system.

Blood types are inherited and represent contributions from both parents. As of 2019, a total of 38 human blood group systems are recognized by the International Society of Blood Transfusion (ISBT). The two most important blood group systems are ABO and Rh; they determine someone’s blood type (A, B, AB, and O, with +, − or null denoting RhD status) for suitability in blood transfusion.

A complete blood type would describe each of the 38 blood groups, and an individual’s blood type is one of many possible combinations of blood-group antigens. Almost always, an individual has the same blood group for life, but very rarely an individual's blood type changes through addition or suppression of an antigen in infection, malignancy, or autoimmune disease. Another more common cause of blood type change is a bone marrow transplant. Bone marrow transplants are performed for many leukemias and lymphomas, among other diseases. If a person receives bone marrow from someone who is a different ABO type (e.g., a type A patient receives a type O bone marrow), the patient's blood type will eventually convert to the donor's type.

Some blood types are associated with inheritance of other diseases; for example, the Kell antigen is sometimes associated with McLeod
syndrome. Certain blood types may affect susceptibility to infections, an example being the resistance to specific malaria species seen in individuals lacking the Duffy antigen. The Duffy antigen, presumably as a result of natural selection, is less common in population groups from areas having a high incidence of malaria.

The ABO blood group system involves two antigens and two antibodies found in human blood. The two antigens are antigen A and antigen B. The two antibodies are antibody A and antibody B. The antigens are present on the red blood cells and the antibodies in the serum. Regarding the antigen property of the blood all human beings can be classified into 4 groups, those with antigen A (group A), those with antigen B (group B), those with both antigen A and B (group AB) and those with neither antigen (group O). The antibodies present together with the antigens are found as antigen A with antibody A, antigen AB has no antibodies and antigen nil (group O) with antibody A and B (1-3). The purpose of this study was to see the distribution of different blood groups among medical students.

Material of Methods:
This cross-sectional study was conducted among medical students of different medical colleges. A predefined proforma was distributed among all the students. Brief data i.e. name, age, gender and blood group was collected on a predefined proforma. All the data was entered and analyzed with SPSS ver 23.0. The qualitative variables were presented as numbers and frequencies. The quantitative variables were presented as mean and standard deviation.

RESULTS:
A total of 130 medical students were included in this study. There were 65 (50%) male students and 65 (50%) female students. The mean age of the students was 21.23±1.23 years. The
distribution of blood groups was A+ve n=23(18%), A-ve n=16, (12%), B+ve n=21,(16%), B- ve ,n=12,(9%), AB+ ve n=18,(14%), AB- ve n=21,(16%), O+ ve n=9,(7%) and O-ve n=10,(8%).

**DISCUSSION:**

Typically, blood type tests are performed through addition of a blood sample to a solution containing antibodies corresponding to each antigen. The presence of an antigen on the surface of the blood cells is indicated by agglutination. An alternative system for blood type determination involving no antibodies was developed in 2017 at Imperial College London which makes use of paramagnetic molecularly imprinted polymer nanoparticles with affinity for specific blood antigens. In these tests, rather than agglutination, a positive result is indicated by decolorization as red blood cells which bind to the nanoparticles are pulled toward a magnet and removed from solution.

In addition to the current practice of serologic testing of blood types, the progress in molecular diagnostics allows the increasing use of blood group genotyping. In contrast to serologic tests reporting a direct blood type phenotype, genotyping allows the prediction of a phenotype based on the knowledge of the molecular basis of the currently known antigens. This allows a more detailed determination of the blood type and therefore a better match for transfusion, which can be crucial in particular for patients with needs for many transfusions to prevent allo-immunization. Blood types were first discovered by an Austrian physician, Karl Landsteiner, working at the Pathological-Anatomical Institute of the University of Vienna (now Medical University of Vienna). In 1900, he found that blood sera from different persons would clump together (agglutinate) when mixed in test tubes, and not only that, some human blood also agglutinated with animal blood (4-6).
REFERENCES:


