

# FREQUENCY OF ABO BLOOD GROUPS AMONG MEDICAL STUDENTS

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## ABSTRACT

*Objective* To find out the frequency of ABO blood groups among medical students.

*Study design* Cross sectional study.

*Place & Duration of study* At the Department of Physiology and Medicine at Nishtar Medical College (NMC) Multan , from March 2008 to May 2008.

*Subjects and Methods* All the medical students of the first year were included in the study. Blood was collected by finger prick method. A drop of monoclonal anti-A, anti-B was added to a drop of finger prick blood on clean glass slide and mixed well. Results of agglutination were recorded immediately.

*Results* There were a total of 221 students of whom 106 were females and 115 males. Frequency of different blood groups were as follows; A: 31.3%, AB: 6.7%, B: 42.1% and O: 29.9%. The distribution of blood groups among females (F) and males (M) was as follows: Group A: 46.8% F, 53.2% M; Group AB: 13.3% F, 86.7% M ; Group B: 55.9% F, 44.1% M and Group O: 45.5% F, 54.5% M.

*Conclusion* The study showed that blood group B was more common among the students.

*Key words* ABO Blood Group, Gender, Medical students, Nishtar Medical College.

## INTRODUCTION:

People have always been fascinated by blood, ancient Egyptians bathed in it, Aristocrats drank it, authors and playwrights used it as a theme and modern humanity transfuses it.<sup>1</sup> The first blood group antigen system, recognized in 1900, was ABO, the most important in transfusion medicine. The major blood groups of this system are A, AB, B and O. The A and B antigens are expressed on the red blood cells (RBCs) and these antigens are inherited co-

dominantly over O. These antigens are complex oligosaccharides that differ in their terminal sugars.<sup>2</sup> In order to avoid danger of mismatched blood transfusion, it is important to determine the blood groups of those involved prior to a transfusion.

These days, to eliminate the risk of transfusion reactions, the practice of autologous transfusion is followed by most of the physicians.<sup>3</sup> The routine practice of blood typing and cross matching blood products should prevent adverse transfusion reactions caused by ABO antibodies. However clerical error can result in transfusion reaction that can be fatal.<sup>4</sup> Apart from this, the knowledge of distribution of ABO blood group is most important as certain diseases/malignancies have predilection for certain blood groups,<sup>5</sup> like it was found that carcinoma of

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cervix had higher frequency in blood group A.<sup>6</sup> A significant association was identified for cholera in which cholera patients were twice as likely to have blood group O and one ninth as likely to have blood group AB as community controls.<sup>7</sup>

Some interesting facts are also related to blood groups. An association has been found between distribution of finger print (dermatographic) pattern and blood groups. The correlation is more consistent for blood group A and loops, arches are more common in blood group AB.<sup>8</sup> The objective of this study was to find the frequency of different blood groups among the medical students so as to prepare a database for the blood bank of this institution and also to create awareness as who is exposed to which of the diseases.

**SUBJECTS AND METHODS:**

The study was conducted in the Department of Physiology and Medicine at Nishtar Medical College from March 2008 to May 2008. All the students of first year were included in the study. Informed consent was taken. ABO blood group was determined in a practical in physiology laboratory by conventional glass slide method. Blood samples were collected by finger prick with a sterile lancet, after cleaning the puncture site with 70% ethyl alcohol. A drop of anti sera, anti A and anti B was placed on glass slides. A drop of blood from each subject was mixed with each anti-sera individually with the help of separate glass rods. Blood groups were determined on the basis of agglutination.

**RESULTS:**

The distribution of ABO blood groups in students is illustrated in Table I. The results revealed that blood group B was predominant among the students in order of B>O>A>AB. Blood group B was also most common blood group in both the genders. However, blood group A, AB and O were more common among male students.

Blood groups	Total (n 221)	Females (n 106)	Males (n 115)
A	47 (21.3%)	22 (46.8%)	25 (53.2%)
AB	15 (6.7%)	02 (13.3%)	13 (86.7%)
B	93 (42.1%)	52 (55.9%)	41 (44.1%)
O	66 (29.9%)	30 (45.5%)	36 (54.5%)

**DISCUSSION:**

The need for blood group prevalence study is not only important for transfusion medicine but also for organ transplantation and genetic research. The frequency of AB blood group was much higher in the inhabitants of Medieval Ras than in the inhabitants of Ras region of 20<sup>th</sup> century. On the other hand, incidence of blood group O was low in Ras population of early middle ages.<sup>9</sup> This spectrum difference may be attributed to migrations, which took place in that region, natural selection which is affected mainly by traditions and habits.<sup>9,10</sup> Though we don't have data of such remote past but study of Majeed et al conducted in Lahore, showed that AB has a low prevalence in contrast to its higher prevalence in middle ages in Ras.<sup>11</sup> The results of our study are consistent with that study.

Results of Shaik YA et al<sup>10</sup> showed the predominance of blood group O in contrast to our study. Nwauche CA et al<sup>12</sup> prevalence study from Nigerian population showed blood group O>A>B>AB which is a contrast to our results except for the fact that AB is least common blood group in both the studies. Yousaf et al in his study from Bahawalpur, showed the same prevalence of blood groups what we have documented.<sup>14</sup> However in Rawalpindi, in northern Pakistan predominance of blood group O followed by the order A>AB>B was reported. From India the same prevalence of ABO blood groups was reported as in our study.<sup>16</sup>

Blood group O is a risk factor for duodenal ulcer.<sup>17</sup> Blood group B has highest frequency of Diabetes Type II, since diabetes is common in our population, persons with blood group B who are at high risk should have screening for diabetes earlier than normal population.<sup>5</sup> Coronary artery disease (CAD) is also very common here but risk of CAD is same in all blood groups.<sup>18</sup>

**CONCLUSIONS:**

Everyone should have knowledge of their blood group. This not only saves lives of patients when a transfusion is required but also predicts who is prone to which of the diseases as many diseases have association with certain blood group although more research is required in this aspect.

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