



How Blood Groups Correlate with Capacity of Drinking Water?

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ABSTRACT

The objective of the present study was to correlate the blood grouping with the capacity of drinking water. Total of 172 subjects participated in the present study. The subjects were students of Bahauddin Zakariya University Multan, Pakistan. For determining the blood type a slide with 3 drops of antiserum A, B and D was taken. The 3 blood drops were mixed with drops of antiserum A, B, and D respectively on the slide. Blood clusters together with antisera D shows the +ve Rh factor. Our variable was capable of drinking water per day and our work was to correlate the variable with blood group. All the subjects were questioned about how many glasses of water they drink per day according to blood group. It was concluded from the present study that female who had blood group AB- have greatest mean value and had a maximum capacity of intake of water and in males who had blood group O+ have a maximum value of mean that showed that O+ male had the greatest capacity of drinking water.

Keywords: Daily water intake, Drinking capacity relation with blood group, Water adequacy

INTRODUCTION

On superficial of red blood cells complex chemical, systems originate which are said to be blood groups. In 1901 this was discovered in humans by Austrian Karl Landsteiner. For his discovery, he was awarded Noble Prize in 1930. Blood group is known by genes which a person receives from their parentages. Existence or non-appearance of definite protein particles called antigens and antibodies tell us about dissimilarity in human blood. Antigen placed on RBCs and blood plasma contains antibodies. Today more than 20 blood group systems are inherently determined but two most important are ABO system and Rh system. Incompatible blood groups cause clumping and agglutination.

ABO Blood Group System

Within ABO system 4 chief blood sets or groups are present. "A" blood type has antigen A on RBC and has anti-B antibodies. A person has "B" blood type takes antigen B but have antibodies against his blood type. "AB" person has both antigen but takes no antibody. "O" blood group takes no antigen and has together antibodies A and B. Antigens A and B appears in 6 weeks of fetal life and rises during adolescence. Antibodies are absent at birth, appear 10-15 days after birth, reach a maximum of 10 years. Some plants and microbes also formed antigens A and B. Blood group which is commonly found are O. Almost 48% people, near about half population, take blood type O. It is correspondingly named universal giver or donor because it can transmit blood to all individuals. People who have blood group AB are termed as the universal acceptor for the reason that they can receive blood from all groups. A person can transfer blood to that person who has the same blood group or antigens. A and AB people can take blood from a person who has A blood group. And B blood person can transmit blood to group B and AB. Incorrect blood transfusion can cause clump formation (creation of blood clots) and cause death [1].

Rh Blood Group System

It is another utmost significant blood group organization. In rhesus monkey this factor was revealed for the first time, so its name is derived from the rhesus monkey. There is one more antigen, recognized as RhD antigen which is present on RBCs. RhD antigen presence shows positive blood type and absence of this antigen demonstrate that blood has a negative group. In this means 8 sets of blood are present. Every type has +ve and -ve type of blood. About 85%

population of the UK is RhD+ and the remaining 15% are RhD negative. Rh- blood person can produce Rh antibodies if he accepts blood from a person who has Rh+ blood, whose Rh antigens can generate Rh antibodies. Rh+ blood person can get blood from a person with Rh- blood without any difficulty. During pregnancy, Rh mismatch is risky as compared to ABO mismatch. Most large particles of anti A or anti B antibodies do not cross the placenta. Infact Rh-mother carrying an Rh+ foetus is resistance to sensitisation to the Rh antigen. Her both antibodies destroy any foetal cells that pass in her blood before they can elicit anti- Rh antibodies in her. So, an injection of anti Rh antibodies (or Rhogam) is given to the mother after each birth of Rh+ baby [2].

Drinking water also named as potable water that is harmless to drink or to usage for food preparation. Amount of drinking water required varies in people. Drinking water capacity per day is influenced by physical activity, health matters, age, and environmental conditions. It also depends on weight, and on our body movement level and where we live. Every day we must try to drink between half an ounce and an ounce of water for each pound we weigh. Try to drink 75 to 150 ounces of water in a day if weight is 150 pounds, 8 ounce glasses are recommended by health authorities, which equals to 2 litres. Everyone have different blood groups that are why our bodies react to water in different ways. Drinking abundant water may be harmful since an excess of water may cause electrolytes in the body to lose their balance. Internationally by 2015, 89% of people had access to water that is appropriate for drinking from a source. According to WHO a basic human right is an access to safe drinkable water. About 1-2 billion persons lack safe drinking water. Numerous people die from unsafe water. Normally, the adult human body holds 60% water, human body cells contain most of the water. In short, our billions of cells required water to live.

The objective of the present study was to correlate blood grouping with a capacity of drinking water.

PATIENTS AND METHOD

Total of 172 subjects participated in the present study. The subjects were students of Bahauddin Zakariya University Multan, Pakistan.

Blood Grouping

For determining blood group we took a slide and have put 3 drops of antiserum A, B and D on it respectively. We cleaned skin with an antiseptic before blood test which helps to prevent any infection. We used a syringe to draw several blood samples from the tip of the finger. For determining the blood group, the hand was then turned downwards and 3 blood drops were mixed with drops of antiserum A, B, and D respectively on the slide. Get a big drop of water squeeze on the tip of the finger. If blood was clustered together with antisera D it shows the +ve Rh factor. If agglutination happens in A and D it showed that blood is A positive and if clumps are not formed in D then blood is A negative (A-). Clumps formation in B and D means blood is B positive (B+) if agglutination does not occur blood is B negative (B-). If blood clumps together in A and B and D antisera, blood is AB positive (AB+) and if agglutination does not occur in D then a group of blood is AB negative (AB-). If blood does not make clumps with A and B antiserum then blood is O. Clot formation in D blood is O positive (O+), and if clumps are not formed then it is O negative.

Project Designing

The variable was capable of drinking water per day and our work was to correlate the variable with blood group. So, we took permission from every subject whether we ask a question or not. When they agreed on the response, then we asked all subjects how many glasses of water they drink per day. Then every subject told us how many glasses of water they drink in a day according to blood group.

Statistical Analysis

Statistical analysis was performed using MS Excel. The results were given as mean \pm standard deviation.

RESULTS AND DISCUSSION

How blood groups correlate with the capacity of drinking water is given in Table 1. According to the present study, women who had blood group AB- have supreme mean value and had a maximum capacity of drinking water and in males who had blood group, O+ have the maximum value of mean which showed that O+ male had a maximum capability of drinking water.

Table 1 Shows the correlation of blood group with a capacity of drinking water per day

| Blood group | Female Mean \pm Standard deviation | Male Mean \pm Standard deviation |
|-------------|---|---------------------------------------|
| A+ | 5.1 \pm 2.69 | 4.9 \pm 2.80 |
| A- | 10.0 \pm 0.00 | 5.0 \pm 0.00 |
| B+ | 5.96 \pm 2.97 | 6.0 \pm 3.04 |
| B- | 6.0 \pm 1.15 | 5.5 \pm 1.41 |
| AB+ | 4.875 \pm 3.04 | 7.33 \pm 1.15 |
| AB- | 12.0 \pm 0.00 | No subject |
| O+ | 4.63 \pm 2.67 | 7.41 \pm 2.65 |
| O- | 5.8 \pm 2.95 | No subject |

Questionnaire based studies have given an important advancement in recent researches [3-6]. Many scientists had worked on the capacity of drinking water per day relation to body weight and other factors. Articles had also been published on it.

CONCLUSION

It was concluded from the present study that female who had blood group AB- have greatest mean value and had a maximum capacity of intake of water and in males who had blood group O+ have a maximum value of mean that showed that O+ male had the greatest capacity of drinking water.

DECLARATIONS

Conflict of Interest

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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