

Gender Based Blood Group Distribution and Its Relationship With Bleeding Time And Clotting Time In Medical Students

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ABSTRACT

Haemostasis is stoppage of bleeding from damaged blood vessels. Evaluation of haemostasis is an essential factor for surgeons and anaesthetists before undertaking any surgical procedure. Hence it is a routine pre-operative test for hospitals. The objective of the present study is to assess the distribution of blood groups and to find out if there is any relationship of gender with bleeding time and clotting time. In the present study it is found that O blood group is more prevalent in both the sexes (25% in males and 14.5% in females) than A, B and AB. Clotting time is found to be more in O and AB blood groups in females, whereas bleeding time in different blood groups did not show any change in both the sexes.

Key words : Blood Group, Clotting time and Bleeding time.

INTRODUCTION

Bleeding time and clotting time are used as a routine preoperative test in hospitals.

Mourant A.E. (1983), Favaloro *et al* (2005) and Gill J.C. *et al* (1987) suggests that epistaxis is more often encountered in patients having blood group 'O' probably due to lower expression of von willebrand factor. Decaterina R *et al* (1994) reveals that the hemostasis is achieved by adequate functions of vessel wall, adequate number and function of platelets and an intact coagulation cascade. The bleeding time is affected by a large number of diseases, drugs, physiologic factors, test conditions and therapeutic actions, not all of them platelet related.

Research has been carried out all over the world regarding diseases and their correlation with blood groups. Reddy *et al* (2008) studied that among the Caucasian patients with epistaxis,

50.44% are blood group O compared with 45.10% of the control group. O blood group people are more vulnerable to gastrointestinal infection. A, B and AB blood group people have more vulnerability to arterial and venous thrombotic disease compared to O blood group people and non O blood group individuals have higher levels of von willebrand factor and factor V111, as reported by Jenkins PV and O' Donnell JS (2006) and Kamphuisen PVV *et al* (2001).

MATERIALS AND METHODS

The study is undertaken in 172 apparently healthy 1st year medical students, during the academic year 2013-2014 KBNIMS, Gulbarga. Students having bleeding time and clotting time related disorders are excluded from the study. Blood groups are determined by mixing the sample of blood with antisera A, B and D and appearance for clumping of RBC's under the microscope. The bleeding time and clotting time is done by Duke

and capillary tube method respectively as mentioned by Ghai C L (1999). Finally bleeding time and clotting time of different blood groups in both the genders are compared and statistical analysis is done. Prior to the study, ethical committee approval is taken from college authorities.

RESULTS AND DISCUSSIONS:

The data of 172 students are analysed. The age group is a homogenous one in the present study (17-20 years) as all of them belonged to the 1st year MBBS. Out of 172 students, 114 are males and 58 are females.

In the present, study it is found that O blood group is more prevalent in both the genders, as

Table 1 : Distribution of blood groups in males and females

Blood group	Males	Females	Total
A	32	12	44
B	34	15	49
O	43	25	68
AB	05	06	11
TOTAL	114	58	172

shown in Table 1 (25% in males and 14.5% in females) than A (18.6% and 6.98%), B (19.76% and 8.72%) and AB (2.9% and 3.48%).

Table 2. shows that clotting time is more in O and AB blood groups in females ($p < 0.05$) when compared with males. Bleeding time did not show any change in either sex in different blood groups, as it reveals in Table 3.

In the present study it has been found that females had higher clotting time when compared to males. This might be due to the presence of estrogens in females which increase the clotting time and decrease the level of fibrinogen of blood plasma.

In the present study, O group is more prevalent in both the genders. Clotting time is more in blood O and AB in females which was statistically significant. ($p < 0.05$). There is no statistically significant change in bleeding time in both the sexes ($p > 0.05$).

As there is some relationship between blood group and various disorders like epistaxis, gastrointestinal disorders, arterial and venous thrombotic disorders, preventive measures should

Table 2 : Distribution of clotting time according to sex

Blood group	Males (n=114) Mean + SD	Females (n=58) Mean + SD	t value	P value
A	206.62 ± 48.40	230.00 ± 48.43	1.43	$p > 0.05$
B	242.65 ± 37.20	254.00 ± 43.72	0.93	$p > 0.05$
O	217.33 ± 48.48	245.20 ± 58.75	2.113	$p < 0.05^*$
AB	180.00 ± 42.43	245.00 ± 29.50	2.996	$P < 0.05^*$

*p value < 0.05 is significant

Table 3 : Distribution of bleeding time according to sex

Blood group	Males (n=114) Mean + SD	Females (n=58) Mean + SD	t value	P value
A	160.58 + 39.01	152.50 + 20.06	0.68	$p > 0.05$
B	157.50 + 34.29	159.00 + 53.12	0.12	$p > 0.05$
O	152.79 + 33.26	157.20 + 24.92	0.57	$p > 0.05$
AB	162.00 + 16.43	145.00 + 22.58	1.398	$P > 0.05$

be adopted before the onset of such disorders. Screening for Hypoprothrombinemia and thrombocytopenia in females could be done in patients with higher bleeding time and clotting time.

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