



Original Article

# Study of blood group and platelet counts patients with Epistaxis

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## Keywords:

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## ABSTRACT

**Background:** Epistaxis is one of the most common emergencies and a very difficult problem to tackle especially in Primary Health Centers or Health Posts in rural areas of Nepal. The objective of the study was to identify blood group and platelet count with the occurrence of nasal bleeding.

**Materials and Methods:** A prospective study was carried out among 96 patients visiting Kathmandu Medical College and Teaching Hospital in Emergency Department and ENT Department with epistaxis from October 2021 to October 2022. Ethical clearance was obtained from IRC Kathmandu Medical College Teaching Hospital (reference no: 0609202105). A blood sample was sent for blood groups and platelet count. Convenience sampling was used. Data were entered in Microsoft Excel 2016 and analyzed in Statistical Package for Social Sciences version.

**Results:** The age group of 20-29 years was found to be the commonest age group presented with epistaxis. The commonest blood group with epistaxis was found to be O + ve and platelet count was found to be within the normal range in the majority of the cases.

**Conclusions:** Epistaxis was found to be more common among patients with O +ve than non 'O' blood groups. Patients with Blood group O+ve need to be investigated further for coagulation profile before any kind of procedure.

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## INTRODUCTION

Epistaxis is defined as acute hemorrhage from the nostril, nasal cavity, or nasopharynx. It is a frequent complaint in the emergency department.<sup>1</sup> Epistaxis is one of the most common emergencies and a very difficult problem to tackle especially in Primary Health Centers or Health Posts in rural areas of Nepal. It is not a diagnosis, but a manifestation of underlying disease or conditions.<sup>2</sup> It is rarely life-threatening as most nose bleeds are benign and self-limiting but can be recurrent as well.

Causes of epistaxis include local causes such as trauma (nose-picking in children), foreign body, URTIs, tumors, nasal or sinus infection, and prolonged inhalation of dry air. Systemic causes such as coagulopathies (hemophilia, von Willebrand disease, thrombocytopenia, liver diseases), Hereditary hemorrhagic telangiectasia, migraine, and hypertension are associated with nose-bleed.<sup>1</sup> The source of bleeding is particularly the Little’s area, but bleeding may occur from one or many bleeding points. Epistaxis, quite often may become life-threatening requiring blood transfusion and even may require intensive care management.<sup>2</sup>

Thus knowing the blood group and platelet count of such patients presenting with epistaxis is very important and beneficial to the treating professional.

The study has attempted to show the relationship between blood group and platelet count with the occurrence of nasal bleeding. This will help to find the prevalence of blood group and platelet count in patients with epistaxis.

**MATERIAL AND METHODS**

This is a prospective study carried out in the Emergency and ENT Department of Kathmandu Medical College Teaching Hospital between October 2021 to October 2022. Patients presenting with epistaxis were taken for the study as a sample group. History was taken as per performa. Patients with nose bleed due to trauma or local malignancies were excluded. Blood test for Blood grouping by using the standard slide method and blood test for platelet count by Coulter method was done for all subjects. Informed consent was taken. SPSS was used for data analysis.

The sample size for the study has been calculated using the following formula for quantitative data:

$$n = Z^2 \times pq / e^2$$

$$n = (1.96)^2 \times 45 \times 55 / [10]^2$$

$$n = 96$$

where,

n= minimum required sample size

Z= 1.96 at 95% Confidence Interval (CI)

p= 45 (prevalence of epistaxis in patients with Blood Group “O” Positive from a previous study<sup>2</sup>)

q= 55 (1-p)

e= Allowable error by taking a 10% chance that error will exceed.

A total of 96 patients with epistaxis were identified, fulfilling the inclusion criteria. (n=96)

Data were analyzed using IBM SPSS 20.0. Point estimate and 95% CI were calculated.

**RESULTS**

Epistaxis was found to be common among young people, with the 20-29 years age group being the commonest; followed by 30-39 years. (Table 1). Most of the patients presented with epistaxis were males with Male to Female ratio being M: F= 1.13:1. The commonest blood group with epistaxis was found to be O +ve comprising 39.6 %, followed by A+ve 31.3%. (Table 2) The prevalence of epistaxis was found to be more common among males with the A<sup>+ve</sup> blood group however among B+ve and AB+ve patients, epistaxis was more common among females comprising 61.9% & 66.7 % respectively.

**Table 1: Age group variation with Blood group**

Blood group	Age Group in years (%)							Total	
	<20	>80	20-29	30-39	40-49	50-59	60-69		70-79
A –ve	0 (0.0)	0 (0.0)	1(100.0)	0 (0.0)	0 (0.0)	0( 0.0)	0(0.0)	0(0.0)	1(100.0)
A +ve	4(13.3)	2(6.7)	5 (16.7)	5(16.7)	5(16.7)	3(10.0)	3(10.0)	3(10.0)	30 (100.0)
AB +ve	1(16.7)	0(0.0)	2(33.3)	0(0.0)	0(0.0)	0(0.0)	3(50.0)	0(0.0)	6(100.0)
B +ve	1(4.8)	4(19.0)	1(4.8)	3(14.3)	6(28.6)	2(9.5)	3(14.3)	1(4.8)	21(100.0)
O +ve	4(10.5)	2(5.3)	9(23.7)	7(18.4)	3(7.9)	7(18.4)	3(7.9)	3(7.9)	38(100.0)
<b>Total</b>	<b>10(10.4)</b>	<b>8 (8.3)</b>	<b>18(18.8)</b>	<b>15(15.6)</b>	<b>14(14.6)</b>	<b>12(12.5)</b>	<b>12(12.5)</b>	<b>7(7.3%)</b>	<b>96(100.0)</b>

**Table 2: Male/Female variation with Blood group**

Blood group	Sex		Total
	F (%)	M (%)	
A –ve	1(100.0)	0 (0.0 )	1 (100.0)
A +ve	10 (33.3)	20(66.7)	30 100.0)
AB +ve	4(66.7)%	2(33.3)	6(100.0)
B +ve	13(61.9)	8(38.1)	21(100.0)
O +ve	17(44.7)	21(55.3)	38(100.0)
<b>Total</b>	<b>45(46.9)</b>	<b>51(53.1)</b>	<b>96(100.0)</b>

The mean platelets level in patients included in our study was found to be 245958.32 with standard deviation of 88279.435. Platelet count was found to be less than normal range among only 9.4% (9) which comprises 5 A+ve and 4 B+ve cases however not even a single O+ ve case was found to have less platelet count. (Table 3).

**Table 3: Relation of Blood group and Platelet**

Platelets count/cumm	Blood group					Total
	A -ve	A +ve	AB +ve	B +ve	O +ve	
<150000	0	5	0	4	0	9
150000 – 300000	1	20	3	13	29	66
>300000	0	5	3	4	9	21
<b>Total</b>	<b>1</b>	<b>30</b>	<b>6</b>	<b>21</b>	<b>38</b>	<b>96</b>

p-value=0.081 (>0.05)

## DISCUSSION

Epistaxis is one of the commonest emergencies worldwide. It is a manifestation and not a diagnosis. It can be associated with several systemic conditions, which can have certain relationships with blood groups and decreased platelet counts.<sup>1</sup> Hence, blood grouping and platelet counts should be routinely done in patients with epistaxis.

Epistaxis was found to be common among young people, with the 20-29 years age group being the commonest; followed by 30-39 years. A similar result can be seen in a study done by Bista M et al<sup>3</sup> where epistaxis was seen maximum in the age group 21- 30 years. However, in a study done by Mobarek EM et al<sup>4</sup>, epistaxis was found to be more common among the younger age group of 6-12 years (30.76%) followed by 13-20 years (26.1% ) and 21-45 years group (6.53%). The mean age of the epistaxis was 43.37 ±23.61 years in the study done by Ozbay et al.<sup>5</sup>

Epistaxis was found to be more common among males with a ratio of M: F being 1.13:1. The findings were similar with predominance in males (77.69%) and lesser in females (22.30%) in the study done by Mobarek EM et al.<sup>4</sup> Similarly in a study done by Ozbay et al<sup>5</sup> 57% were male and 43% of patients were female.

The o +ve blood group was found to be the commonest blood group among patients with epistaxis in our study. The findings were very much similar with blood group O (45.5%) compared to people with non-O blood groups in a study done by Adhikari P et al<sup>2</sup>. A similar study done by Bista M et al<sup>3</sup> also revealed Blood group O as the commonest group comprising 45% followed by Group B (25%) and Blood group A, the 3<sup>rd</sup> most common blood group involved however in our study A+ve was found to be the second most commonly involved blood group. Mobarek EM et al<sup>4</sup> also revealed similar findings of Epistaxis with the O group (36.61%), A group (34.23%), and B group (15.7%). Ozbay I et al<sup>5</sup> also concludes their study by saying Epistaxis in Blood group O occurred significantly more frequently (p<0.0001).

People with blood group O are found to have significantly lower levels of factor VIII & von Willebrand factor compared with non-O blood groups. Von Willebrand factor is required

for complex formation with factor VIII and Calcium which in turn activates factor X in the coagulation cascade.<sup>6,7</sup>

The prevalence of epistaxis was found to be more common among males with A+ve blood group comprising 66.7%, however, among B+ve and AB+ve patients, epistaxis was more common among females comprising 61.9% & 66.7 % respectively. Among O+ve patients, epistaxis was found to be only slightly common among males (55.3%) in relation to females (44.7%).

Epistaxis is also found to be associated with decreased platelet counts, as in conditions like Immune Thrombocytopenic Purpura (ITP), and leukemia.<sup>1</sup> However contrary to this, the mean platelets count in patients included in our study was found to be within the normal range in the majority of cases. Platelet count was found to be less than the normal range among only 9.4% (9) which comprises 5 A+ve cases and 4 B+ve cases however not even a single O+ ve case was found to have less platelet count.

## CONCLUSIONS

Epistaxis was found to be more common among patients with O +ve than non 'O' blood groups. Patients with blood group O+ve need to be investigated further for coagulation profile prior to any kind of procedure.

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## Conflict of interest: None

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