

The Oozy O's: ABO blood group and postpartum haemorrhage



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Introduction

Early evidence suggests that O blood group has lower von Willebrand Factor and Factor VIII levels compared to non-O blood groups. Clinical studies have been mixed in showing a correlation with increased blood loss, but in the obstetric population there does appear to be a tendency towards postpartum haemorrhage (PPH) in O blood group patients.

Objectives

To determine if ABO blood group correlates with PPH rates.
To determine if ABO blood group correlates with blood transfusion rates.

Method

This retrospective review analysed all recorded births at a single tertiary centre from January 2015 to June 2019. Data was collected from the local health district Obstetrix® and eMaternity® databases.

Cases were excluded if there were known uterine anomalies, fibroids, maternal bleeding/clotting disorders, fetal death in utero, stillbirth, and medical termination of pregnancy. Cases were also excluded if data was incomplete or if the ABO blood group was not recorded.

Results

26,043 babies were born to 25,491 women in the study period. 2299 women were excluded, and 23,113 women were included in the review.

Table 1. ABO blood group and PPH rates*

	A n=7394 (%n)	z-test	B n=5152 (%n)	z-test	AB n=1475 (%n)	z-test	Non-O n=14,021 (%n)	z-test	O n=9092 (%n)
<500ml	6239 (84.4)	-1.94 NS	4371 (84.8)	-2.46 Signif	1230 (83.4)	-0.12 NS	11,840 (84.4)	-2.40 Signif	7570 (83.3)
PPH ≥500ml	1155 (15.6)		781 (15.2)		245 (16.6)		2181 (15.6)		1522 (16.7)
500-999ml	741 (10.0)		509 (10.0)		158 (10.7)		1408 (10.0)		1008 (11.1)
1000-1499ml	250 (3.4)		156 (3.0)		42 (2.9)		448 (3.3)		289 (3.2)
≥1500ml	164(2.2)		116 (2.2)		45 (3.0)		352 (2.3)		225 (2.4)

Figure 1: Proportion of patients and ABO blood group

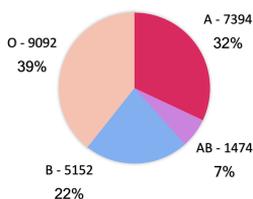


Table 2. ABO blood group and blood transfusion rates*

	A n=1155 (%n)	z-test	B n=781 (%n)	z-test	AB n=245 (%n)	z-test	Non-O n=2181 (%n)	z-test	O n=1522 (%n)
Transfused	74 (6.4)	-0.24 NS	51 (6.5)	-0.10 NS	21 (8.6)	1.11 NS	146 (6.7)	-0.07 NS	101 (6.6)
Not transfused	1081 (95.6)		730 (93.5)		224 (91.4)		2035 (93.3)		1421 (93.4)
Median units (Range)	2 (1-30)		2 (1-13)		2 (1-4)		2 (1-30)		2 (1-22)

*z-test hypothesis: No difference in PPH/transfusion rates between Comparing and O blood groups.

Discussion/Conclusion

This study strongly suggests that O blood group has significantly increased rates of PPH compared with non-O blood groups. On subgroup analysis, this difference was seen when O was compared to B blood group, but not when compared to A or AB, suggesting that A groups may also have an increased tendency to bleeding and PPHs.

No significant difference was seen in blood transfusion rates between the blood groups. This could be due to strict transfusion criteria, as well as the fact most PPHs that occurred were 500-999mls and therefore not usually large enough to require transfusion.

References

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