

ANTICOAGULANT AND ANTIPLATELET USE IN RENAL TRANSPLANTATION: IS PERIOPERATIVE BLOOD LOSS AND TRANSFUSION RATES A SIGNIFICANT CONCERN?

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Renal transplantation in patients on concurrent anticoagulation or taking antiplatelet therapies is a safe and feasible option with an INR less than 2.5 given the increased risk of bleeding

Background

Renal patients often have multiple ongoing associated pathologies which necessitate the use of indefinite antiplatelet or anticoagulant use. Renal transplantation remains the gold standard for those patients with end-stage renal failure. Major surgical procedures, such as renal transplantation pose an increased risk of significant hemorrhage and blood loss in both the operative and post-operative periods, often requiring transfusion of red blood cells and other associated blood products.

Whilst monitoring of and reversal of agents such as warfarin is possible, the effect of antiplatelet therapies such as aspirin, Clopidogrel, and new oral anticoagulants associated with bleeding risks and surgical safety is less well understood.

This small, yet focused study looks at recipient outcomes, specifically regarding perioperative blood loss in those undergoing renal transplantation on concurrent anticoagulation or antiplatelet therapy, along with the requirement of blood products and the need for transfusion in the first 72 hours following renal transplantation.

Methods

Electronic and paper records were accessed to investigate transplants occurring between December 2019 – December 2022 inclusive. Preoperative anticoagulant or antiplatelet regimes were recorded, along with coagulation screens preoperatively and haemoglobin levels. Sequential haemoglobin levels post operatively were collected and analysed for 72 hours, along with transfusion rates and adverse outcomes.



Results

N = 12 transplants occurred during the specified time period of study.

5 live donor transplants and 7 deceased donor kidneys.

Anticoagulants used ranged from single or dual antiplatelet therapy (DAPT), namely aspirin and clopidogrel, apixaban, ticagrelor, with warfarin being the most commonly used agent. The preoperative INR's for such patients ranged from 0.9-2.4. No perioperative blood products or reversal agents were required prior to transplantation.

All patients on warfarin had an INR below 2.5, which is the agreed local INR guideline cut-off. The average haemoglobin drop was 16.2 g/dl at 72 hours.

1 recipient (12) required a 2-unit RBC transfusion, receiving 1 unit at induction and the second unit day 1 post operatively due to a low starting haemoglobin (76 g/dl).

No serious untoward incidents or deaths recorded of patients included in this study.

Conclusion

This small, yet focused study suggests a blood transfusion rate of approximately 8% in those recipients undergoing renal transplantation in association with concurrent anticoagulant/ antiplatelet therapy. As demonstrated in table 1 Haemoglobin trends at 24, 48 and 72 hours are within acceptable ranges.

This would suggest that renal transplantation is a safe and a feasible option for potential recipients requiring long-term anticoagulation or antiplatelet therapies, with an INR less than 2.5.

Limitations include the size of this study, and indeed further future investigations on a larger scale are necessary.

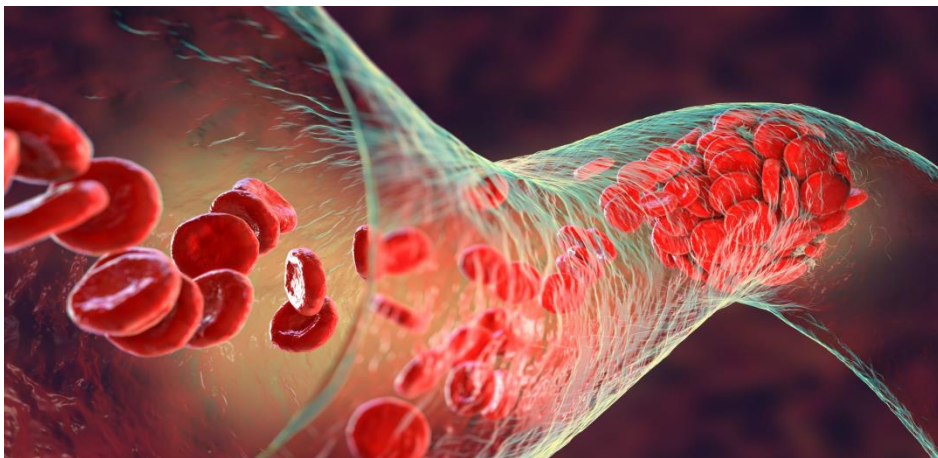


Table 1: Post operative HB trends, post renal transplant in recipients on anticoagulant therapy

Recipient	Agent	Rtx type	Hb Preop	Hb postop	Hb D1	Hb D2	Hb D3
1	DAPT	LD	108	97	98	89	96
2	DAPT	LD	128	119	112	119	113
3	Warfarin	LD	121	106	94	93	104
4	Ticagrelor	LD	92	80	83	82	85
5	Warfarin	LD	120	113	108	109	107
6	Apixaban	Dec.	116	103	106	111	104
7	Apixaban	Dec.	121	98	104	96	92
8	Warfarin	Dec.	127	119	112	102	96
9	Warfarin	Dec.	146	122	119	103	94
10	Warfarin	Dec.	106	102	102	99	101
11	Clopidogrel	Dec.	120	107	108	106	99
12	Warfarin	Dec.	76	86	86	83	87