Early post-transplant blood transfusions are common and independently associated with allograft failure: results of a multicentre study

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Introduction
The clinical impact of post-transplant blood transfusions has been inconsistently reported in the literature. Inter-centre variation in clinical practices and patient demographics may contribute to conflicting outcomes. In this study, performed as part of a NHSBT and BTS national working group, we aim to review the incidence of blood product transfusion and allograft outcomes across 4 centres.

Methods
Patients receiving a renal transplant between 2016–2017 at Cambridge, Guys, Imperial and Oxford were included. The blood service at each unit confirmed the transfusion status for each individual up to a year post transplant. The collated data was analysed against nationally collected outcomes by NHSBT statistics department.

Results
221/723 (30.6%) of transplant recipients were transfused, with comparable transfusion rates between the units.

189/723 (26.1%) of patients received blood products only, 25/723 (3.5%) received both blood and platelets, whilst only 7/23 (1%) received platelets alone. Transfusions commonly occurred within the first week post-transplant [median time of 4 days (IQR: 0-12)].

Transfused patients were older (p<0.01), female (100/221 (45%), p<0.01), non-Caucasian (96/221 (43%), p<0.01) and waited longer for a transplant (p=0.001). They were more likely to receive kidneys from older donors (p<0.01) with a higher UKKDRI (p<0.01) with a longer cold ischaemic time (p<0.01).

Graft outcomes were inferior in the transfused group, who were more likely to have delayed graft function (p<0.01) and a lower eGFR at 3 and 12-month time points (p<0.01).

After risk adjusting for recognised factors associated with allograft loss, transfusion was found to be independently associated with graft failure; HR: 3.33 (1.65-6.71), p=0.0008, which was further analysed by transfusion with blood-only (HR: 2.69 (1.26-5.72), p=0.01), and blood and platelets together (HR:11.13 (4.26 – 29.08), p<0.001).

Conclusion
Transfusions are common in the acute post-transplant period and independently associated with inferior outcomes. Further studies are required to delineate the mechanisms associated with adverse outcomes.