Infective complications after renal transplantation - a single centre experience comparing alemtuzumab to basiliximab induction.

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Introduction

Guidelines recommend the use of an antibody induction agent as part of the initial immunosuppression regimen in renal transplant recipients[1,2]. Whilst this, along with maintenance immunosuppression, reduces the incidence of rejection in transplant recipients, there is an increased risk of infection.

Our centre predominantly uses alemtuzumab (AI) as induction immunosuppression for renal transplantation. Routine protocol for maintenance immunosuppression includes tacrolimus monotherapy, with the addition of mycophenolate mofetil (MMF) in patients with a 2DR mismatch. Patients who receive basiliximab induction therapy (BI) routinely receive tacrolimus and MMF maintenance immunosuppression therapy, with prednisolone added if there is a 2DR mismatch.

We examined infective complications after renal transplantation, comparing different induction and maintenance immunosuppression regimens.

Methods

Retrospective analysis of all adult renal transplant patients followed up in our centre October 2013 to September 2016. Manual search of results systems for all microbiology results, with review of all admissions and documented infections, using electronic discharge summaries and clinic letters.

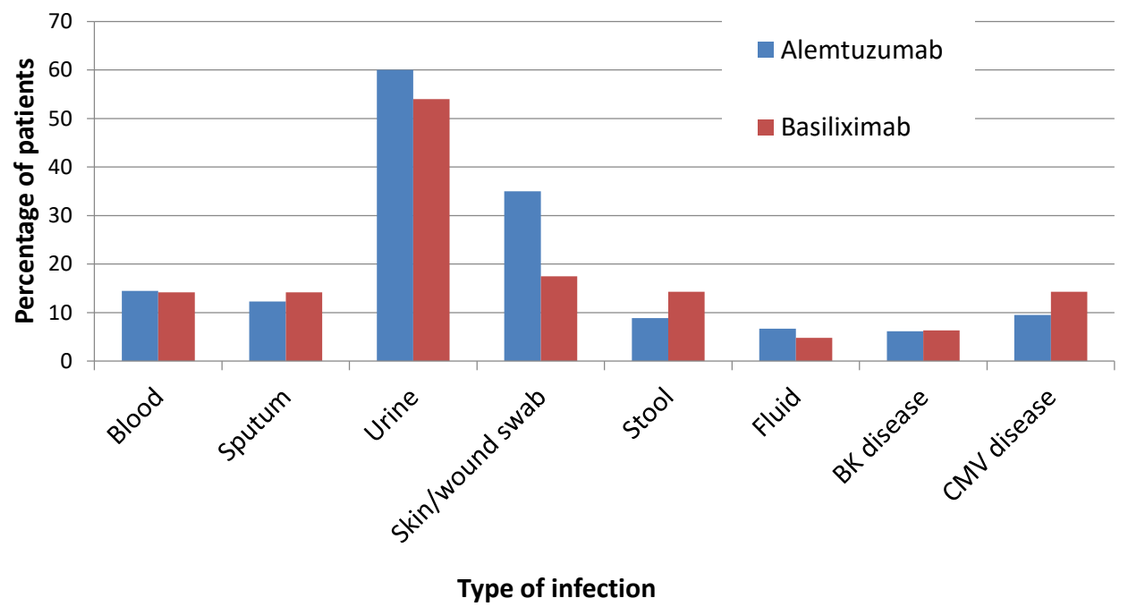
Results

252 patients received a renal transplant, and were followed up in our centre, in the analysis period (median length of follow up 4 years, range 2-5 years). 240 patients were transplanted in Leeds, 12 elsewhere in the UK and 3 in other countries (44.6% DBD, 33.5% DCD, and 21.9% LRD). Male:Female ratio was 159:93 and the average age at time of transplantation was 49.4 years. 12.8% of patients had a 2DR mismatch. 74% of patients received AI vs. 26% BI. 83.7% were steroid free at discharge, with the majority of patients (54%) receiving tacrolimus monotherapy maintenance immunosuppression.

A similar incidence of positive culture results was identified when comparing the two induction agents (see Figure 1). There was a higher incidence of wound infections (p=0.0086) with AI. Patients taking MMF following AI had a higher incidence of urinary tract infection (UTI) than those not taking MMF (p=0.044). There was no significant difference when comparing incidence of BK disease (defined as biopsy proven or with a PCR value >10*4) or CMV disease (defined as fever, leucopenia, rise in ALT or those requiring treatment).

45.6% of patients had one or more admission for an infective episode. This included 227 admissions and 2527 hospital days (estimated cost £631,750). Median length of stay was 7 days (IQR 3.75-14).

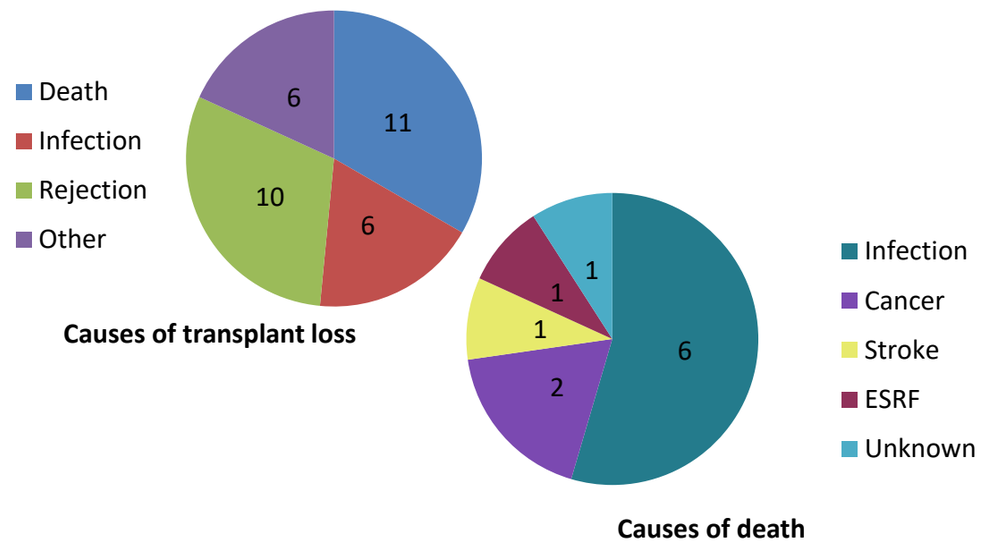
Figure 1. Microbiologically confirmed infection rates



27 (11.2%) patients were treated immediately post operatively for infection, with 4 requiring level 2 or 3 care. Sources of immediate post-operative infection included hospital acquired pneumonia, abdominal collection, UTI and wound infection. There was a significantly higher incidence of early post-operative infections (p=0.031) with BI.

33 transplants were lost in the follow up period (see Figure 2), with 12 losses due to infection. 6 transplants failed due to infection, including BK and CMV disease (3 cases, all of whom had received AI), pneumonia, UTI and E coli bacteraemia. 6 transplants were lost due to death with a functioning transplant secondary to infection, with infection accounting for over half of deaths in this cohort overall.

Figure 2. Causes of transplant loss and death



Discussion

Findings suggest minimal difference in infective complication rates when comparing the two induction agents, with a higher incidence of early post-operative infections in the basiliximab group and a higher incidence of wound infection with alemtuzumab induction.

Overall, infection rates appear to be comparable to other centres, with alemtuzumab induction not conferring a higher risk of viral infections, or infective complications overall.

Leeds Transplant Centre

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References
1. BTS Guidelines: Transplantation from deceased donors after circulatory death, 2013.
2. KDIGO Guidelines: KDIGO clinical practice guideline for the care of kidney transplant recipients: a summary, 2009.