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Where are we today with pulmonary transplantation? Current results from a national cohort

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Abstract Lung transplantation is now an accepted therapy for the treatment of end-stage lung disease. This paper presents some current results of lung transplantation as determined from a validated national database.

Key words Lung transplantation · Survival analysis

Introduction

Transplantation evolved into a definitive therapy for end-stage lung disease in the late 1980s. Several workers report continually improving outcomes. The survival benefits of pulmonary transplantation are not clear, however, and have been recently questioned [2]. We examine the outcome of lung transplantation based on activity in the UK between 1995 and 1998.

Materials and methods

These analyses are based on data from the UK Cardiothoracic Transplant Audit, a national multicentre prospective cohort study examining thoracic transplantation in the UK. Analysis includes 862 patients placed on the national waiting list for lung or heart-lung transplantation, and 451 recipients who had first-time cadaveric pulmonary transplants between April 1995 and March 1998. The data represent a complete national cohort of consecutive transplants (some data available on 99% eligible patients). Survival estimates were computed using the Kaplan-Meier and actuarial methods.

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Results

Annual transplant activity was constant within the 3-year period with approximately 285 new listings and 150 transplants per year. One hundred and forty-eight heart-lung, 180 single lung and 123 bilateral lung transplants were performed. The estimated 2-year survival without transplantation, as determined by censored waiting list survival (event death, censored at transplant or de-listing), was 46% (95% CI 40–53). In comparison, the 2-year patient survival after pulmonary transplantation was 60% (95% CI 53–66) for lung and 62% (95% CI 53–71) for heart-lung. Graft attrition rates, even after the immediate postoperative period, were high, with a median survival of 2.7 years for all transplants. By 1 year, 76% had experienced at least one episode of acute rejection and 82% at least one major infection episode with a mean of 1.8 rejection episodes and 2.0 infection episodes for patients surviving to 1 year. Rejection and infection episodes were those requiring anti-rejection or antimicrobial therapy. Of those surviving to 1 year, 33% were documented as having cardiorespiratory symptoms (NYHA II–IV) at their annual assessment.

Discussion

While there are limitations in using waiting list survival as a proxy for survival without transplantation, this remains the commonly used method for assessing the benefits of transplantation [2, 3]. The waiting list survival was comparable to that reported in American [2] and Dutch [1] cohorts, suggesting many patients listed will survive 2 or more years without a transplant. In contrast, at least in the UK, lung transplantation is still associated with considerable mortality (half of the recipients died within 3 years); the survival benefit may therefore not be as pronounced as previously thought. While our outcomes after transplantation may be poorer than often quoted or published, we believe they are more reflective of the true situation, as our data represent a validated national experience. They are not subject to single-centre bias or publication bias, which may account for the preponderance of more optimistic reports in the literature. Improving medical treatment and broadening of indications for transplant may have reduced mortality

on waiting lists while transplanting of higher-risk recipients limits survival after transplantation. In the face of increasing supply-demand mismatch and a relatively high mortality and morbidity, there is a need to review indications for transplantation with a view to identifying those patients for whom the marginal benefit will be greater and excluding those for whom transplantation may carry a greater risk than medical treatment. Lung transplantation still has a high mortality and morbidity and for some patients will not provide good long-term survival. As we move into the next millennium, the current limitations of lung transplantation should be recognised; addressing these and the development of alternative therapies should remain a priority. Further work is needed to develop valid methods for stratifying waiting list patients, to enable identification of those patients in whom lung transplantation is unlikely to provide survival benefit. For such patients, debate is required into the clinical, ethical and social issues in using lung transplantation solely to improve quality (rather than quality and quantity) of survival.

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