

INVITED COMMENTARY

Liver transplantation in more elderly age**Invited Commentary on Schmitt *et al.***

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Over the last few decades, liver transplantation has transformed the management and subsequent survival of people with liver disease. But alongside the improving survival of transplanted patients is an ageing population. As the population ages, and medical management of those with chronic liver diseases improves keeping people alive into more elderly age, we can expect to see greater numbers of elderly patients with liver disease.

Twenty-eight percent of people diagnosed with alcoholic liver disease are over the age of 60 years [1], 26% of patients with nonalcoholic liver disease are over 60 years [2] and 50% of patients with the autoimmune cholestatic disease, primary biliary cirrhosis, present for the first time over the age of 65 [3]. In line with this, the demand for liver transplantation in elderly patients is increasing; the proportion of patients over 60 years of age who had received a liver transplant during 1990–91 was 10%, doubling to 21% during 1997–99 [4]. As the age of those transplanted increases, we can also expect to see more elderly patients requiring re-transplantation as a result of early graft failure. Furthermore, as survival of those transplanted at younger ages increases we may also expect to see more patients requiring re-transplantation as a result of organ failure or reoccurrence of disease in later life.

Schmitt *et al.* [5] addressed the issue of re-transplantation in recipients aged over 60 years. In 2141 of their re-transplantations, over 10% were performed in patients

over 60 years of age. Unadjusted Kaplan–Meier survival curves revealed a significantly poorer survival for the over 60-year-old recipients when compared with those under 60. However, when mortality calculations were adjusted for factors that were previously found to influence survival, age over 60 years was not independently associated with an increase in mortality; in fact, an increasing age *up to*, but not beyond, the age of 60 years had adverse effects on survival. The authors' explanation for this is rigorous screening for co-morbidities prior to re-transplantation in more elderly patients. While this goes some way to explain the 'stabilization' of mortality at 60 years, it does not explain the increase in mortality seen between the ages of 18 and 30 years at both 90 days and 1 year post-procedure. Further selection bias could be explained by more elderly and/or frailer patients declining repeat surgery because of their own concerns/prejudice about surgery, whether or not they would be suitable for re-transplantation. Factors influencing survival post re-transplantation are complex, and many cannot, at present be taken into consideration; donor, recipient and medical/surgical factors all contribute in a complex fashion. Nevertheless, the above findings are consistent with those of Markmann *et al.* [6], who set out to design a model estimating survival following re-transplantation ($n = 150$); age above or below 50 years did not show statistical differences in survival postsurgery, and with

Pfutzmann *et al.* [7] who followed 119 re-transplants over 15 years showing that recipient age had no statistical influence on survival.

Although the article by Schmitt *et al.* is in contrast with some other published work showing that advancing age confers a poorer survival [8,9], the 43% survival at 5 years in the patients over 60 years of age undergoing re-transplantation provides adequate justification for the procedure. In addition, it is perhaps important to remind ourselves that allocation of donor livers is judged on far more considerations than only on the length of survival.

Advances in healthcare will prolong the lives of our patients with chronic liver disease, resulting in greater numbers of patients requiring liver transplantation. Although the evidence provides a case for re-transplanting more elderly patients, it is perhaps timely to consider those patients who will be unable to undergo this procedure. Relatively little progress has been made to develop symptom management strategies for those who are unable to undergo transplantation. Experience shows that these patients often have a poor quality of life, but there are currently few, good evidence-based interventions specifically designed to address this. Quality-of-life issues related to chronic liver disease are increasingly being recognized such as fatigue [10,11], cognitive impairment [12] and falls [13]. As we start to see more of these more elderly patients with chronic liver disease, we will face important management issues relating to their quality of life. In addition to these chronic liver disease associated issues, these patients will also face age associated quality life impairments such as instability, incontinence, immobility, dementia and polypharmacy. If we are to optimize the quality of life of our patients we will need to improve the way in which we manage both liver and age related sequelae.

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