Using Elderly Donors in Liver Transplantation


ABSTRACT

Aim. Elderly donors are half of the grafts available in our center for liver transplantation. We retrospectively investigated their characteristics, outcomes, and variables related to graft failure.

Material and methods. From 1996 to 2003, 540 (46.4%) of 1163 donors were older than 60 years of age and 236 grafts (43.4%) were transplanted, whereas the others were refused. The clinical investigated variables were examined among this cohort.

Results. The median age of donors increased from 37 to 62 years. Donors older than 60 years of age were more often refused than younger ones (66% vs 44%); HCV-positive (9.9% vs 5.4%); HbcAb-positive (18.6% vs 12.6%), and steatotic (35.7% vs 13.9%; \( P < .01 \)). Among donors older than 60 years, the main parameter to refuse the graft was the grade of steatosis. The variables related to the graft loss from donors older than 60 years were as follows: model for end stage liver disease (MELD) recipient \( >15 \) (65% vs 39%), cold ischemia time \( >10 \) hours (25% vs 13%), high blood losses (3987 ± 4764 vs 2664 ± 2043 mL), and year of liver transplantation after 2000 (26% vs 46%; \( P < .01 \)). The 1-, 3-, and 5-year graft survival rates were significantly lower among donors older than 60 years than other donors: 75%, 65%, and 62% versus 85%, 83%, and 78%, respectively (\( P < .001 \)).

Conclusion. Donors older than 60 years of age provided liver transplants to half of our recipients. The graft survival rate of these organs was lower than that of younger donors and to improve it the other risk variables for poor outcome should be reduced, including MELD score of the recipient and prolonged cold ischemia time.

The proportion of organs from donors older than 60 years has been steadily increasing over the past decade, despite their lower graft survival after orthotopic liver transplantation (OLT) compared with organs from younger donors.1–3 The organ shortage and the growing number of patients listed yearly for OLT substantiate this policy. Surgical strategies to improve the outcome of grafts from donors older than 60 years are advocated, such as the selection of donors according to the presence of steatosis, which is more frequent among older grafts.1,4 The aim of the study was to investigated the incidence of donors older than 60 years, their outcome, and the variables related to graft failure.

MATERIALS AND METHODS

From 1996 to 2003, 1163 donor organs were offered for patients with chronic liver disease listed for OLT. Among them, 540 (46.4%) were from donors older than 60 years, including 304 cases not considered suitable for OLT, whereas 236 (43.4%) were used.

Clinical parameters were investigated among the following groups: donors 0–60 versus >60 years; donors >60 years accepted versus refused; and donors >60 years transplanted graft functioning versus graft loss. The variables in donors and recipient were as follows: sex, age, HbcAb-positive, HCV-positive, presence of steatosis, liver function tests, MELD score, cold ischemia time (CI), blood transfusions, and year of OLT. The graft survival was computed from the date of OLT to the date of graft loss or patient death. Chi-square, Fisher exact, and Student \( t \) tests were applied as appropriate. The survival rates were obtained using the Kaplan-Meier method: differences were compared using the log-rank test.

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360 Park Avenue South, New York, NY 10010-1710

0041-1345/05/$–see front matter
doi:10.1016/j.transproceed.2005.06.056

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Transplantation Proceedings, 37, 2582–2583 (2005)
RESULTS

During the study period, the median age of donors increased from 37 to 62 years and the rate of donors older than 60 years increased from 23% to 55%. Donors older than 60 years compared with younger ones were more often refused (66% vs 44%); HCV-positive (9.9% vs 5.4%); HbcAb-positive (18.6% vs 12.6%); and presented steatosis (35.7% vs 13.9%; \( P < .01 \)). Liver function tests did not show any differences between these 2 groups. Among donors older than 60 years, no variables emerged that were significant between the cases selected for OLT and those refused. On the other hand, our protocol concerning donor selection excluded donors with a macro-vesicular steatosis \( > 40\% \).

Considering the 236 donors older than 60 years suitable for OLT, the variables related to the graft loss were as follows: model for end stage liver disease (MELD) recipient \( > 15 \) (65% vs 39%); CI \( > 10\) hours (25% vs 13%); high blood losses (3987 ± 4764 vs 2664 ± 2043 mL); and year of OLT after 2000 (26% vs 46%; \( P < .01 \)). The 1-, 3-, and 5-year graft survival rates were significantly lower for donors older than 60 years than others: 75%, 65%, and 62% versus 85%, 83%, and 78%, respectively (\( P < .001 \)). Dividing the donors older than 60 years transplanted according to the presence of other variables related to the graft loss, such as CI and MELD, failed to show any difference in graft survival rates between donors 0–60 years and donors 60 years in the absence of other risk factors.

DISCUSSION

This study confirmed the previously reported decreased graft survival of donors older than 60 years.\(^2,3\) Our center has pushed the upper donor age limit over the years to decrease the disparity between the number of donors and recipients for OLT.\(^5,6\) Our evidence that donors older than 60 years now represent half of our resources shows an essential donor pool. More often these are marginal grafts, due to the presence of HCV- or HBV-positivity and to the presence of steatosis which is more common with aging.\(^4\) These features explain the higher risk of graft failure related to these donors, which may be predicted preoperatively considering only the grade of steatosis. The other variables related to the graft loss in donors older than 60 years shown by our study were related to the clinical features of the recipients and to their surgical procedures. Patients with MELD score \( > 15 \), longer CI, and higher blood losses less tolerated by these donors and therefore, had lower graft survival than cohorts without these risk factors. In conclusion, to improve the outcome of elderly donors in OLT, the other risk factors for poor graft function should be avoided, in particular, recipient MELD score \( > 15 \) and long ischemia time.

REFERENCES