inclusion of vascularized bone marrow with vascularized composite allograft (VCA) promoted chimerism and rejection-free graft survival in our non-human primate (NHP) facial VCA model. However, this beneficial effect was not reproduced with donor bone marrow transfusion alone. Here we investigate the effect of pre-transplantation donor mandible irradiation and post-transplantation donor bone marrow cell (BMC) transfusion on chimerism and allograft survival.

METHODS: Three NHPs underwent facial subunit VCA transplantation after bilateral donor mandible irradiation. Donor BMCs (20×10^6 kg) were transfused on postoperative day 1 and recipients were given standard tacrolimus and mycophenolate mofetil for maintenance immunosuppression. Rejection, chimerism, and graft survival were compared with historical cohorts.

RESULTS: Mean survival in the VCA + vertebral body marrow (VBM) with irradiation and BMC group was 20.7 ± 7.1 days compared with VCA + VBM 348.2 ± 85.9 days, VCA + BMC 75.7 ± 44.1 days, and VCA + VBM with irradiation 32 ± 22.0 days. At time of necropsy, chimerism was undetectable in peripheral blood. Histopathologic evidence of rejection was identified in all graft tissue types. Immunoglobulin (Ig) G and IgM donor alloantibodies were identified, with a mean fluorescence intensity of 1,973 and 6,445, respectively.

CONCLUSIONS: Cytodepletion by irradiation of the allograft and subsequent transfusion of donor bone marrow cells does not improve mixed chimerism or prolong graft survival. Vascularized bone marrow contains a radiosensitive cell population that is not reconstituted with bone marrow transfusion. Loss of this radiosensitive niche facilitates a marked antibody-mediated response. (Support: Department of Defense W81XWH-13-2-0056.)

Risk Factors for a Declining Renal Function Trajectory after Living Kidney Donation

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INTRODUCTION: Previous studies of living kidney donors (LKDs) have described an average trajectory of renal function after donation, and have not identified the subset of LKDs with a decline in renal function.

METHODS: We studied LKDs who donated a kidney between 1969 and 2015 in an ongoing multicenter cohort (Wellness and Health Outcomes of Live Donors [WHOLE-Donor]). Demographics were obtained from surveys and estimated glomerular filtration rates (eGFRs) were abstracted from medical records. Linear regression was used to estimate eGFR for LKDs with two or more post-donation eGFRs. Locally weighted scatterplot smoothing was used to create a visual display of trajectories.

RESULTS: Of 1,071 LKDs, 340 (32%) had a declining eGFR trajectory. The LKDs with a declining eGFR had a median decrease of 0.8 mL/min (interquartile range [IQR] 0.3 to 2.4 mL/min) per year compared with a median increase of 1.4 mL/min (IQR 0.6 to 3.6 mL/min) per year in LKDs with an increasing eGFR ($p < 0.001$), although this stabilizes over time (Figure). The LKDs with a declining eGFR had a higher immediate post-donation eGFR (median 65 vs 56 mL/min, $p < 0.001$). The LKDs with a declining eGFR had no difference in age at donation (median 47 vs 46 years, $p = 0.6$), African-American race (9% vs 11%, $p = 0.4$), or education (62% vs 68%, $p = 0.05$) compared with donors with an increasing eGFR. However, LKDs with a declining eGFR were more likely female (72% vs 60%, $p < .001$).

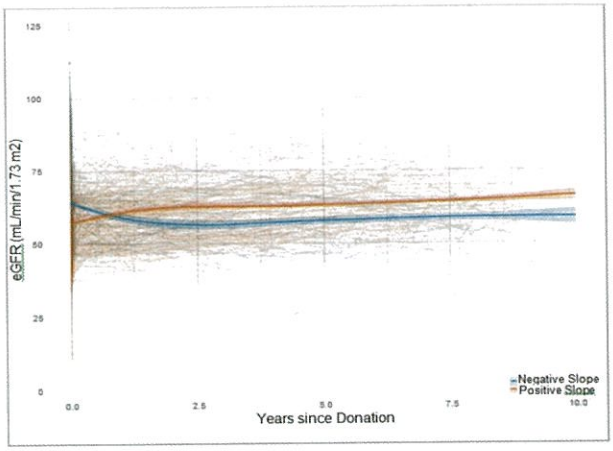

Figure. Smoothed line plot of increasing vs decreasing estimated glomerular filtartion rate (eGFR) trajectories in living kidney donors after kidney donation, with individual trajectories shown.

CONCLUSIONS: Nearly onethird of LKDs have a decreasing eGFR trajectory after donation. More work is needed to determine whether a decreasing post-donation eGFR is associated with adverse outcomes. (Support: American College of Surgeons Resident Research Scholarship.)

Turn Down for What: Outcomes Associated with Declining an Older Liver Donor

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INTRODUCTION: Despite the organ shortage, livers recovered from older donors are underused, yet they can offer a survival benefit.

METHODS: To characterize the survival benefit of accepting older liver donors (OLDs; age 70 years or older), we used 2009 to 2017 Scientific Registry of Transplant Recipients data to identify 42,533 adult liver transplantation candidates offered

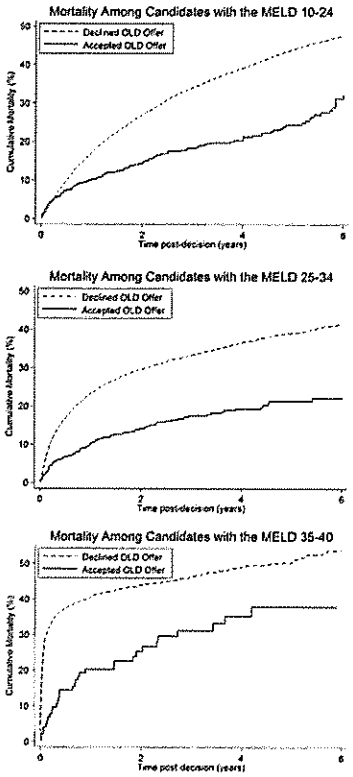

Figure. Patient mortality among those who accepted vs declined the older liver donor (OLD) offer, by Model for End-Stage Liver Disease (MELD) scores. (A) MELD score 10 to 24, (B) MELD score 25 to 34, and (C) MELD score 35 to 40.

OLDs that were eventually transplanted in another recipient. We followed patients from date of offer until death or end of the study.

RESULTS: After 5 years, 48.8% of candidates who declined an OLD had died or were removed from the waitlist. Candidates who accepted OLDs were at a 39% lower risk of mortality within 90 days post-decision (adjusted hazard ratio [aHR] 0.61, 95% CI 0.49-0.76, $p < 0.001$) and 61% lower risk of mortality beyond 90 days post-decision (aHR 0.39, 95% CI 0.34-0.45, $p < 0.001$) compared with candidates who declined OLDs. For Model for End-Stage Liver Disease (MELD) score 10 to 24 candidates, OLD acceptance was associated with a 56% decreased risk of mortality (aHR 0.44, 95% CI 0.36-0.53, $p < 0.001$) beyond 90 days (absolute 6-year mortality 48% vs 32%). For MELD score 25 to 34 candidates, OLD acceptance was associated with a 54% lower risk of mortality (aHR 0.46, 95% CI 0.37-0.58, $p < 0.001$) beyond 90 days. For MELD score 35 to 40 candidates, OLD acceptance was associated with a 78% lower risk of mortality (aHR 0.22, 95% CI 0.12-0.41, $p < 0.001$) within the first 90 days, but similar mortality beyond 90 days (aHR 1.17, $p = 0.5$). However, for MELD score 35 to 40 candidates, 6-year mortality was 38% among those who accepted vs 54% among those who declined the OLD.

CONCLUSIONS: Accepting an OLD at any MELD score was associated with a long-term survival benefit when compared with waiting for a younger donor; surgeons should consider these results as they receive OLD offers. (Support: National Institute on Aging F32AG053025.)