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SMALL BOWEL

Abstract# 1011 Poster Board #-Session: P347-I

Citrulline More Than 13 μmoles/L in a Dry Blood Spot Can Rule out Moderate or Severe Rejection in Intestinal Transplantation. Andre I. David,1 Jeffrey J. Gaynor,1 Tomoaki Kato,1 Gennaro Selvaggi,1 Jang I. Moon,1 David M. Levi,1 Seigo Nishida,1 Violet Squenazi,1 Lobella Conanan,1 Debbie Weppler,1 Phillip Ruiz,2 Andreas G. Tzakis.1 *1Surgery, University of Miami, Miami, FL; 2Pathology, University of Miami, Miami, FL.*

Background. An accurate biochemical marker for detection of acute cellular rejection following small intestine transplantation has been sought. Citrulline, a nonprotein amino acid synthesized mainly by functioning enterocytes, has been proposed. The assay's sensitivity has been reportedly high but with low specifi city. Thus, our goal was to determine, in a suffi ciently large analysis, the minimal value of citrulline that can rule out rejection in the post-transplant setting and the predictors of low citrulline.

Methods. Since March, 2004 we obtained 2,135 dried blood spot (DBS) citrulline samples from 57 small intestine transplant recipients at or beyond 3 months posttransplant,
i.e., once the expected recovery period in citrulline levels occurred. Sensitivity and specifi city where calculated for different values of citrulline during rejection episodes and stepwise linear regression was performed to determine the important predictors of log{DBS citrulline}.

Results. Multivariable analysis found 7 characteristics associated with a signifi cantly lower citrulline: presence of mild, moderate, or severe acute cellular rejection (ACR), presence of bacteremia or respiratory infection (based on positive culture), being a child, and time (from transplant) to DBS sample <36 months (P<.00001 in each case).
Using a <13 vs. >13 μmoles/L cutpoint, sensitivity of DBS citrulline for detecting moderate or severe ACR was extremely high (96.4%). Furthermore, specificity estimates (given the absence of ACR and the particular infections associated with lower citrulline levels), while controlling for time-to-DBS sample were reasonably high (54%-74% in children and 83%-88% in adults), and the negative predictive value (NPV) was >99%.

Conclusions. Due to the high NPV, a moderate or severe ACR can be ruled out exclusively based on knowledge of a value higher than 13μmoles/L for DBS citrulline. Specifi city of DBS citrulline is signifi cantly increased once its important predictors are controlled.

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Abstract# 582

Inclusion of Donor Spleen in Multivisceral Transplantation. Tomoaki Kato,1 Genarro Selvaggi,1 Seigo Nishida,1 Jeffrey J. Gaynor,1 James Mathew,1 Roland Garcia-Morales,1 Andre David,1 Hidenori Takahashi,1 Erick Hernandez,2 Gary Kleiner,2 Jang Moon,1 David Levi,1 Eddie Island,1 John Thompson,3 Phillip Ruiz,3 Andreas G. Tzakis.1 *1Division of Transplant, University of Miami, Miami, FL; 2Department of Pediatrics, University of Miami, Miami, FL; 3Division of Immunopathology, University of Miami, Miami, FL.*

Background: Sporadic cases of splenic transplant have been reported in humans; as part of the pancreas transplant or attempted to treat hematological disorders. In animal models, donor splenic transplantation or splenocyte infusion was suggested to induce donor specifi c tolerance. We have started to include donor spleen as part of multivisceral graft in an attempt to decrease both risk of infection from asplenic state and the risk of intestinal allograft rejection by its tolerogenic effect.

Patients and Methods: All patients who received spleen as part of the multivisceral graft (N=55, spleen group) were compared with multivisceral recipients who did not receive spleen (N=77, no spleen group). Logrank test p-values from the univariate analysis are displayed unless otherwise specifi ed. P=NS stands for p-value > .05.)

Results: Thirty-four of 55 (62%) are alive in the spleen group with a median follow up of 384 days and 36 of 77 (42%) are alive in no spleen group (p=NS). Although there were no statistical difference in the freedom from mild rejection (a trend towards favorable outcome in spleen group), the freedom from moderate to severe rejection of the intestinal allograft was signifi cantly improved in spleen group (p=0.02). The over all episodes of infection in the fi rst three months was signifi cantly less in the spleen group (average episode 2.14 vs 2.96, t-test: p=0.02) and freedom from the fungal infection is signifi cantly improved in the spleen group (p=0.049). Both platelet and leucocyte counts were normal in spleen group (these counts were signifi cantly increased in no spleen group). Five patients in spleen group (9%) and 5 in no spleen group (6%) developed GVHD (p=NS). Only one patient (2%) developed PTLD in spleen group and 9 (11%) developed PTLD in no spleen group (p=NS).

Conclusions: Allograft spleen in the multivisceral graft showed its function of normalizing peripheral blood cell counts, improved protection against infection and intestinal allograft rejection.