OPTN Kidney Committee
Biopsy Best Practices Workgroup
Meeting Summary
January 25, 2021
Conference Call

Andrew Weiss, MD, Chair

Introduction

The Biopsy Best Practices Workgroup (the Workgroup) met via teleconference on 01/25/2021 to discuss the following agenda items:

1. Summary of December 17th Meeting
2. Review of Project Goals and Scope
3. Discussion: Develop a Minimum Set of Donor Kidney Criteria Appropriate for Biopsy

The following is a summary of the Workgroup's discussions.

1. Summary of December 17th Meeting

Staff reviewed the group composition and summarized the last workgroup meeting, including discussion of current policy, UNet℠ resources and system behaviors, and common pathology reporting practices.

Summary of discussion:

The Workgroup had no comments or questions.

2. Review of Project Goals and Scope

The Workgroup reviewed the primary goals of the workgroup and the scope of the project. The Chair acknowledged that literature on procurement biopsies is controversial, and noted that whether procurement biopsies should be performed and reported is not within the Workgroup's scope. The Chair framed the Workgroup's focus to standardization of procurement biopsies that are done.

Data summary:

Staff presented the Workgroup's primary goals as set by the Policy Oversight Committee

1. Develop a minimum set of donor kidney criteria appropriate for biopsy
2. Develop a form that pathologists would complete during biopsy readings to allow analysis across Organ Procurement Organizations and Transplant Centers
3. Through discussion, determine if a policy update or guidance document is appropriate

Summary of discussion:

The Workgroup had no comments or questions.

3. Discussion: Develop a Minimum Set of Donor Kidney Criteria Appropriate for Biopsy

The Workgroup discussed minimum donor criteria appropriate to initiate procurement kidney biopsy.

Summary of discussion:

One member brought up the OPTN "Guidance on Requested Deceased Donor Information" resource as a reasonable set minimum donor criteria for biopsy, specifically mentioning donors with high Kidney Donor Profile Index (KDPI), acute kidney injury, and histories of hypertension and/or diabetes. The Chair agreed, and asked clarifying questions regarding diabetes history and duration, hypertension and medication, KDPI cut offs, manner of death, and creatinine trends.

A member asked if the Chair would request a biopsy for a donor with rising creatinine. The Chair noted that a donor with minimal Chronic Kidney Disease (CKD) risk factors that came in with a normal creatinine that rose during donor management would be indicated as having acute kidney injury (AKI), and that a biopsy may not be necessary. The Chair continued that a donor with no evidence of normal creatinine could have a higher risk of CKD, and he would want biopsy information in such a case. The member asked if cortical necrosis was a concern for creatinine inclines, and the Chair continued that he was unsure how quickly on a biopsy cortical necrosis could be diagnosed. Another member mentioned that diagnosis of cortical necrosis would be subject to sampling variabilities, as kidney imaging can appear normal when subcortical infarcts are small. The member continued that large infarcts are easy to diagnosis on any modality, either frozen section or paraffin-embedded biopsy samples.

The Chair noted that anuria is also cause for concern. An SRTR representative agreed that anuria is a definite indication to get a biopsy, and added that it frequently correlates with cortical necrosis.

The Chair directed discussion towards diabetes and diabetes history as a criterion, noting that some centers often utilize degrees of proteinuria to determine if they want to request a biopsy. One member added that some diabetic donors remain undiagnosed for extended periods of time, and come in with a high Hemoglobin A1c (HbA1c) and standard diabetic characteristics. The member remarked that performing biopsies on diabetic kidneys is worthwhile. Another member agreed that diabetes should indicate kidney biopsy, and noted that some organ procurement organizations (OPO) require the diabetes history to be over five years in order to perform a biopsy. A member agreed, noting that diabetes and hypertension duration requirements are inappropriate, and that diagnosis is not reflective of start of illness. Another member added that chart and medical/social histories are often not reliable, giving any requirements around duration or number of medications a poor foundation. The member also agreed that an elevated HbA1c in the absence of medical history of diabetes should be considered diabetes. The Workgroup reached consensus that a diabetes diagnosis, either historically or on donor evaluation, should prompt a biopsy.

The Chair of the Kidney Transplantation Committee asked if there should be maximum donor kidney criteria for biopsy, allowing an OPO to deny biopsy. The Chair of the Kidney Transplantation Committee continued that this would also help standardize when transplant centers can expect to not receive biopsy information as well.

The Workgroup Chair guided discussion to hypertension, and asked if age and medication levels impact biopsy requests. A member asked if relying on Expanded Criteria Donor (ECD)[1] criteria would be helpful for the purposes of biopsy, and noted that for young donors with normal creatinine levels, hypertension alone doesn't necessarily prompt a biopsy. The Chair agreed that his own OPO utilizes the ECD criteria to indicate biopsy. Another member agreed that ECD criteria objectively outlines risk factors for donors.

[1] An Expanded Criteria Donor (ECD) is a donor over 50 with two qualifying risk factors, including: history of hypertension, creatinine greater than or equal to 1.5, or death due to cerebrovascular accident/stroke (CVA) OR a donor age 60 or older.

The Chair asked if kidneys from every donor over age 60 would be biopsied under ECD guidelines, even if the donor had normal creatinine and no other risk factors. A member agreed that this is an important consideration, and that biopsies themselves are not performed to determine if an organ should be used, but to help determine which patient will receive the most benefit from that organ. The Chair and an SRTR representative agreed, and noted that this concept of performing biopsies to help determine the most appropriate recipient should be included in the guidelines.

The Chair asked if the ECD criteria could instead be built upon, incorporating number of risk factors for certain age groups. One member agreed. Another member remarked that this would be prescriptive and could fail to provide standardization of biopsy for donors for which such information could be critical. The member provided an example – an otherwise healthy 60-year-old donor would prompt a biopsy, whereas a 50-year-old donor with a 25-year history of hypertension would not under ECD criteria. One member agreed, but noted that he would request a biopsy for a 60-year-old donor regardless.

A member noted that these criteria would be guidelines, and noted that this should reflect the most commonly encountered situations. The Kidney Committee Chair agreed, adding that because kidney biopsy requested can be declined, the minimum biopsy criteria need to be specific so that transplant centers can expect whether or not a biopsy will be performed. The Kidney Committee Chair remarked that an OPO declining to biopsy is directive of clinical care, and asked if a biopsy is something that can be demanded. One member stated that he didn't believe that transplant centers should be able to demand a biopsy, just that reasonable requests for biopsy should be respected. Other members agreed. Another member noted that, from an OPO perspective, the challenge is standardizing the method of biopsy performance and reporting.

The Workgroup Chair asked the group how acute renal failure in donors should be evaluated and identified, asking if there is a comfortable creatinine threshold or final creatinine for identifying acute renal failure. A member noted that acute renal failure evaluation is dependent on many other donor characteristics, including hypertension and diabetes risk factors and elevating creatinine trends. The Chair noted that certainly anuria would be a component of acute renal failure. One member stated that any renal replacement therapy, such as hemodialysis or continuous renal replacement therapy (CRRT) should warrant a biopsy. The member continued that there is likely literature regarding AKI that could be referenced. The Chair asked if a terminal creatinine of at least 2.5, regardless of starting creatinine, could be considered an indicator of acute renal failure. One member agreed, and noted that he would want more data about AKI kidney performance post-transplant. The Chair noted that AKI kidneys tend to perform well, and that it is important to transplant AKI kidneys into appropriate recipients and identify kidneys from donors with CKD.

The Workgroup Chair asked how the Workgroup dealt with Donation After Circulatory Death (DCD) donors, particularly how they factored in donor risk factors, warm ischemic time (WIT), and age. One member remarked that for DCD donors, he considered age, WIT, and post-flush imaging, noting that he would request a biopsy and perfusion for kidneys that don't pump well. The member also stated that while he didn't often request biopsies for younger DCD donors, he typically requested them for all DCD donors over age 50. Another member added that he considered DCD donors and Brain Death (BD) donors similarly, and typically wanted a biopsy for any DCD donors with more than 30 minutes of WIT or if the kidney will not be pumped, regardless of age. One member shared that including DCD status as a required biopsy criterion would ease placement for DCD kidneys. Another member noted that it would be difficult to combine this criteria, and that DCD and age alone may not be enough to prompt biopsies on appropriate donors. The Chair agreed.

Next steps:

The Workgroup will continue to meet to finalize donor criteria appropriate for biopsy, and begin discussing standardization of kidney pathology forms and reporting.

Upcoming Meeting

- February 22, 2021

Attendance

- **Committee Members**
  - Andy Weiss
  - Arpita Basu
  - Catherine Kling
  - Vincent Casingal
  - Dominick Santoriello
  - Jim Kim
  - Malay Shah
  - Meg Rogers
- **HRSA Representatives**
  - Jim Bowman
  - Marilyn Levi
- **SRTR Staff**
  - Bryn Thompson
  - Jonathan Miller
  - Nick Salkowski
  - Peter Stock
- **UNOS Staff**
  - Lindsay Larkin
  - Tina Rhoades
  - Kayla Temple
  - Amanda Robinson
  - Ben Wolford
  - Lauren Motley
  - Leah Slife
  - Matt Prentice
  - Nicole Benjamin