

**OPTN Kidney Committee
Biopsy Best Practices Workgroup
Meeting Summary
February 22, 2021
Conference Call**

Andrew Weiss, MD, Chair

Introduction

The Biopsy Best Practices Workgroup (the Workgroup) met via teleconference on 02/22/2021 to discuss the following agenda items:

1. Summary of January 25th Meeting
2. 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 January 25th Meeting

Staff reviewed and summarized the last Workgroup meeting, including introductory discussions of donor kidney criteria appropriate for biopsy and consensus on a guiding principle that biopsies should be performed to determine the most appropriate recipient.

Summary of discussion:

The Workgroup Chair acknowledged that the current literature doesn't necessarily support performing biopsies on all organs, but that this Workgroup's focus is on improving best practices and standards for biopsies that are performed. The Workgroup Chair reiterated that biopsies should be used to determine which patient will receive the most benefit from the organ, and that standardization of practices will support that goal.

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

The Workgroup reviewed criteria discussed at the previous meeting and worked to finalize a minimum set of donor kidney criteria appropriate for biopsy.

Data summary:

Previously considered donor criteria includes:

- Diabetes – defined as any history of diabetes, including diagnosis during donor evaluation
- Anuria
- Renal Replacement Therapy
- Terminal Creatinine equal to or greater than 2.5 mg/dL

Donor Criteria to be discussed:

- High kidney donor profile index (KDPI)
- Hypertension history
- Donor age
- Manner of death

- Downtime/downtime with CPR
- Terminal creatinine
- Maximum donor kidney criteria
- Others

Summary of discussion:

The Workgroup Chair remarked that the 2.5 mg/dL terminal creatinine threshold was selected arbitrarily, and lower creatinine levels could also indicate cause for concern. Another member agreed, commenting that expanded criteria donors (ECD) criteria had a threshold of creatinine 1.5 mg/dL or higher. A Workgroup member noted that acute kidney injury (AKI) is generally indicated by a large change in creatinine or a deviation from baseline creatinine. The Workgroup Chair agreed, commenting that seeing normal creatinine levels at any point in donor management generally increases his confidence that AKI is the cause of upward trending creatinine.

One member noted that many kidneys will be biopsied that don't meet the criteria, and that there should be agreement from organ procurement organizations (OPOs) to perform kidney biopsies when donors meet significant criteria. The member asked the Workgroup to determine what terminal creatinine or creatinine minimum threshold is the standard of care to request a biopsy.

The Workgroup Chair asked whether the Workgroup felt having a subtext that a normal baseline creatinine would invalidate a high terminal creatinine qualification, or if focusing on a minimum threshold was a better, clearer option. The Workgroup Chair recommended a terminal creatinine of 2.0 mg/dL as any creatinine lower than 2.0 mg/dL could be subject to interpretation of patient risk factors. A member noted that some situations don't need a biopsy, and provided an example. For a 19 year old donor with bad AKI, significant blood loss, and an admission creatinine level of 6 mg/dL who underwent renal replacement therapy (RRT), the member would not ask for a biopsy, particularly if there are no other risk factors. These donors would qualify under terminal creatinine threshold criteria, but may not actually need kidney biopsy for appropriate placement or recipient care.

A Health Resources and Services Administration (HRSA) representative recommended leaving interpretative room, such that a nephrologist can determine upon donor evaluation when biopsy is appropriate for AKI and the chances of reversing the AKI. The HRSA representative continued that this removes the somewhat arbitrary element of a terminal creatinine threshold. The Workgroup Chair clarified that if an absolute number minimum terminal creatinine threshold were chosen, the guidance or policy would say as a subcategory that high creatinine as a result of AKI then a biopsy may not be warranted. The Workgroup Chair further clarified that specifying definitions of acute renal failure could be beyond the Workgroup's scope.

One member suggested that the Workgroup determine a set of absolute criteria appropriate for biopsy and a secondary set of criteria where consideration of biopsy is recommended. The Workgroup Chair noted that it will be important to critically establish these guidelines, and noted they could be left as recommendations.

The Workgroup agreed that anuria and renal replacement therapy were appropriate criteria for biopsy. One member added that the definition for diabetes should also include metabolic syndrome, and another member agreed, noting that it rarely was mentioned in medical social histories. The Workgroup Chair expressed concern about increased specificity, particularly for thresholds and definitions that will require data the Workgroup does not currently have. Another member agreed that leaving a history of diabetes somewhat open to interpretation would be helpful, but that diagnosis of diabetes during donor

evaluation needs a more objective definition. The Workgroup Chair agreed, and noted that the Endocrine Society guidelines for diabetes diagnosis could be utilized for that definition.

The Workgroup agreed that most organ procurement organizations (OPOs) biopsy kidneys from donors with KDPI greater than or equal to 85 percent. One member noted that KDPI incorporates many more risk factors than ECD, and that while high KDPI is a strong criterion, there are certain risk factors that are also appropriate for biopsy for KDPI less than 85 percent. The Workgroup Chair suggested utilizing both KDPI greater than or equal to 85 percent and ECD criteria – donors over age 60, or ages 50-59 with at least two of three criteria: terminal creatinine of 1.5 mg/dL or higher, hypertension, and death by cerebrovascular accident (CVA). Another member agreed, commenting that the increased specificity for donors with KDPI less than 85 percent is helpful.

One member noted that many pediatric donors who are smaller have higher KDPIs that are not necessarily reflective of risk in kidney function. The Workgroup Chair noted that donor kidneys allocated en bloc have blinded KDPIs, since the donors are so small. Another member contributed that it was possible for donors over 18kg who are not automatically en bloc kidney donors to have KDPIs 85 percent and higher. The Workgroup reached consensus to exclude pediatric donors from the KDPI criteria.

One member mentioned that donors after cardiac death (DCD) don't necessarily need a biopsy for being DCD alone, particularly if they are young and there is little warm ischemic time. Another member agreed, and suggested using the length of the agonal phase as a criterion. The Workgroup Chair agreed with these points, and noted that the Workgroup could choose not to address DCD as a criterion on its own, particularly as it is captured in KDPI calculation. Other members agreed.

A member suggested assigning points values to certain risk criteria, such that each donor would have a score that could qualify them for biopsy if above a certain threshold. The Workgroup Chair expressed concern that building a score would become too complicated compared to yes or no criteria.

The Workgroup Chair circled back to the terminal creatinine criteria, noting that the ECD criteria included terminal creatinine for certain donors, and asked the group if terminal creatinine should be expanded to apply to otherwise non-ECD qualifying donors. Another member agreed that there wasn't much consensus on a terminal creatinine threshold outside of ECD, but that it may not be necessary to include, as other criteria are also good indicators of acute renal failure.

Staff reminded the Workgroup that they would need to determine whether these recommendations should be guidelines or if policy should be updated. One member commented from an OPO perspective that this should be incorporated into policy, particularly because these are reasonable criteria. The Workgroup Chair noted that any policy change would need to be acceptable to most of the community, and supported by a decent amount of data. The Workgroup Chair also reiterated that the goal of this project was to standardize biopsy performance, and that not all subgroups and scenarios must be captured within the minimum criteria. Another member agreed, adding that any change to policy would go to public comment as well for the community to contribute and provide feedback.

Next steps:

The Workgroup will begin discussing standardization of kidney pathology forms and reporting.

Upcoming Meeting

- March 22, 2021

Attendance

- **Committee Members**
 - Andy Weiss
 - Arpita Basu
 - Malay Shah
 - Catherine Kling
 - Vincent Casingal
 - Jim Kim
 - Colleen O'Donnell Flores
 - Dominick Santoriello
 - Meg Rogers
- **HRSA Representatives**
 - Marilyn Levi
- **SRTR Staff**
 - Bryn Thompson
 - Jonathan Miller
 - Nick Salkowski
- **UNOS Staff**
 - Lindsay Larkin
 - Kayla Temple
 - Amanda Robinson
 - Ben Wolford
 - Lauren Motley
 - Nicole Benjamin