

ARTICLE INFORMATION

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Physician Attitudes on Kidney Biopsies for Research: A Survey Study



To the Editor:

Kidney biopsy is the gold standard for diagnosing many kidney diseases, but only a minute fraction of patients undergoes this invasive procedure.¹ Severe bleeding is a major complication associated with biopsy.^{2,3} Recent interest in kidney biopsies for research purposes has raised the question of safety for participants.⁴ To understand how physicians perceive the risks of kidney biopsy, we sent an institutional review board–approved anonymous online survey to 60 hospitalists at 1 academic hospital in Boston and 98 nephrologists at 3 academic hospitals in Boston. Survey participants were asked about their clinical experience, their perceived risk of kidney biopsies, and the likelihood that they would support biopsies being obtained from their patients for research purposes.

The overall response rate was 46% (15/60 hospitalists and 57/98 nephrologists). Twenty-nine (51%) nephrologists had mixed clinical, research, and administrative roles. Twelve (21%) identified as clinicians, and 16 (28%), as researchers. Twenty-eight (47%) were in practice for more than 10 years. All but 1 of the hospitalists had a patient who had undergone a kidney biopsy in the previous 5 years. Three (5%) nephrologists had never done a biopsy, 12 (21%) had performed 10 or fewer, 25 (44%) had performed 11 to 50, and 17 (30%) had performed more than 50 biopsies.

Participants were asked to estimate the likelihood of a variety of postbiopsy complications, including hematoma formation, need for transfusion, need for angiographic or surgical intervention, kidney loss, and death (Table 1). Hospitalists were more likely to underestimate the risk for hematoma complicating a biopsy compared with nephrologists. There were no significant differences between respondents' assessments of kidney biopsy risk when comparing researchers versus clinicians or stratifying by years of experience or number of biopsies performed. The current literature suggests that the risks for hematoma,

Table 1. Willingness of Nephrologists to Allow Their Patients to be Approached for a Study Involving Research Kidney Biopsies

	Primarily Clinical Care (n = 12)	Primarily Research and Administration (n = 43)	P
Reserve a small portion of an existing core	4.7 (0.6)	4.7 (0.5)	0.97
Perform an extra pass to obtain a research core	2.3 (1.3)	3.3 (1.2)	0.02
For research biopsies			
Acute kidney injury with clinical equipoise			
Suspected AIN from nafcillin vs ATN from hypotension	2.6 (1.2)	3.6 (1.1)	0.01
Suspected CIN vs atheroemboli post-cardiac catheterization	2.6 (1.2)	3.2 (1.0)	0.12
Suspected ATN vs AIN post-cardiac surgery	2.8 (1.3)	3.4 (1.0)	0.09
Acute kidney injury without clinical equipoise			
Clinical diagnosis of AIN from nafcillin	2.1 (0.9)	3.1 (1.2)	0.007
Suspected CIN post-cardiac catheterization	2.1 (1.0)	2.6 (1.1)	0.18
Suspected ATN post-cardiac surgery	1.9 (0.9)	2.6 (1.2)	0.09
CKD			
Nonproteinuric CKD stage 3	2.4 (1.0)	3.2 (1.2)	0.04
CKD stage 3 suspected to be due to diabetes	2.3 (1.2)	3.3 (1.2)	0.01
Average score on Likert scale	2.6 (0.9)	3.3 (0.8)	0.008

Note: Results are reported as mean (standard deviation) on a scale of 1 through 5 (higher number suggests higher likelihood).

Abbreviations: AIN, acute interstitial nephritis; ATN, acute tubular necrosis; CIN, chronic interstitial nephritis; CKD, chronic kidney disease.

transfusion, need for invasive procedure to achieve hemostasis, and death are >20%, 2% to 5%, 1%, and <0.1%, respectively.^{2,5} Overall, participants underestimated the risks for hematoma (only 8 of 72 responded >10%) and transfusion (only 11 of 72 responded >1%).

Respondents were asked to grade the likelihood of agreeing to a research kidney biopsy in a variety of clinical scenarios: (1) reserving portions of a core in clinically indicated biopsies; (2) performing an extra pass in clinically indicated biopsies; and (3) performing research biopsies in patients with no indication. Respondents self-identified their roles and were categorized into 2 groups, primarily clinical care or mix of clinical, research, and administration (Item S1). We scored responses using a Likert scale (1 = “absolutely not”; 5 = “definitely yes”). We used Kruskal-Wallis with a single group factor (research vs clinical) predicting mean differences in scores between groups. In patients undergoing biopsy as part of their clinical care, 71 (98%) respondents answered “likely” or “definitely yes” to the question of whether they would

agree to a portion of the core being reserved for research, and 24 (34%) reported that they would be “unlikely” or would “absolutely not” allow an extra pass to be performed to obtain a research core. For biopsies obtained primarily for research purposes, participants’ responses varied depending on the likelihood that clinically useful information might be found from the biopsy.

Interestingly, we observed that there was a difference in responses between nephrologists who were involved in research compared with those who were primarily clinicians. In every scenario, a lower proportion of clinicians were comfortable with allowing a research kidney biopsy compared with researchers (Table 1). For example, primarily research nephrologists were more willing to support an extra needle pass during clinically indicated kidney biopsies to obtain a research core as well as to perform a biopsy in a patient with chronic kidney disease stage 3 suspected to be due to diabetes. The overall mean score on the Likert scale across all scenarios was lower in the clinical nephrologists compared with the researchers (2.6 ± 0.9 vs 3.3 ± 0.8 , respectively; $P = 0.008$).

Our results provide some perspective on physician attitudes toward kidney biopsies, which has not been an area of significant investigation to our knowledge. There are several limitations to consider. Most importantly, our sample size was relatively small and drew from physicians at academic hospitals in a single city in the Northeast United States. The lower response rate among hospitalists was likely because they are less likely to make decisions regarding the suitability of biopsies and would defer to nephrologists. Larger studies that include different regions and community practices would provide more generalizability. We limited our questions to brief descriptions of cases without the opportunity for more additional detail to be provided on the clinical context. Cases were designed to test the likelihood of allowing a biopsy in situations in which the clinical indication is not clear cut and so cannot speak to physicians’ overall confidence in kidney biopsy as a procedure. We did not query patients about their perceptions of the risks and benefits of kidney biopsy. This represents an area in need of further investigation.

In conclusion, kidney biopsies for research purposes are beginning to be performed to enhance our understanding of the underlying mechanisms contributing to kidney disease. Engaging physicians and the broader community will require ongoing education, as well as transparency about the risks and benefits of kidney biopsy.

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SUPPLEMENTARY MATERIAL

Supplementary File (PDF)

Item S1: Physician Survey for Research Kidney Biopsies

ARTICLE INFORMATION

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