

Training Nephrology Fellows in Temporary Hemodialysis Catheter Placement and Kidney Biopsies is Needed and Should be Required

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Clin J Am Soc Nephrol 13: 1099–1101, 2018. doi: <https://doi.org/10.2215/CJN.00040118>

Introduction

Proficiency in performing percutaneous kidney biopsies and placing temporary vascular access for hemodialysis (nontunneled catheters) has been a requirement of nephrology fellowship training in the United States since at least the 1980s. A lot has changed since then, but in my opinion, the need to learn how to do these procedures during fellowship has not. The Accreditation Council for Graduate Medical Education (ACGME) and the American Board of Internal Medicine require that nephrology fellows achieve competence, as defined by their Program Directors, in these procedures as well as acute and maintenance hemodialysis, peritoneal dialysis, and continuous RRT. In recent years, the requirement for training in hemodialysis catheter placement and kidney biopsies has been hotly debated, with some arguing that one or both requirements should be eliminated. A recent survey by the American Society of Nephrology of Division Chiefs and Program Directors showed a lack of consensus about preserving versus eliminating these training requirements (1). Most Program Directors did not think that catheter placement should remain a core competency, whereas the majority of Division Chiefs thought it should. A majority of both Division Chiefs and Program Directors thought that competency in performing kidney biopsies should remain a mandatory training requirement. Unfortunately, because <25% of Program Directors and <20% of Division Chiefs responded to the survey, these results are insufficient to guide such an important decision. Sadly, the survey also showed that some fellows do not actually do either procedure during their training and that others do very few. Thus, it is likely that many of the survey responses reflect what a program can do rather than what it should do.

There are several considerations in concluding that training nephrology fellows in these two procedures should not be abandoned.

Is It Better for Patients?

If this could be convincingly shown, arguments to abandon training in these skills become much less important. Personal experience and published literature show that fellows can become skillful during training in both procedures through use of simulation-

based training and direct hands-on supervised experience (2). Diagnostic yield and safety of biopsies seem to be at least as good when performed by nephrologists compared with radiologists (3). Comparison of outcomes, including complications rates, for biopsies performed by nephrology fellows compared with radiologists has not been well studied, with one small study finding that nephrology fellows performed kidney biopsies at least as well, if not better than, radiologists (4). Although it makes sense that the experience of patients getting a dialysis catheter placed, even more so when having a kidney biopsy performed, is likely to be better when the physician performing the procedure knows them, fully understands their clinical condition, and can obtain informed consent weighing not just the technical aspects and risks of the procedure but also, its potential benefits and the risk of not having the procedure, this also has not been studied. It would also be of benefit to patients if a hemodialysis catheter or kidney biopsy was needed urgently or emergently, and no one other than the nephrologist was available to perform the procedure. Of course, nephrologists who do these procedures in practice must receive sufficient supervised training and then maintain their skills over time so that they can perform them safely.

Is It Better for Nephrology as a Specialty?

Nephrology as a medical specialty is under threat. Radiologists have, of course, taken on catheter placements and biopsies. Perhaps more threatening, rheumatologists manage lupus nephritis and kidney vasculitis (and refer patients for kidney biopsies directly to radiologists, bypassing the nephrologist altogether), hospitalists manage hypertension and fluid-electrolyte disorders, and intensivists manage AKI. We are at risk of becoming a specialty of inpatient and outpatient “dialysis docs” as our scope of practices diminishes (5).

Surveys conducted by the American College of Physicians in the late 1980s indicated that 91% of practicing nephrologists were performing percutaneous kidney biopsies (6). Although the fraction of nephrologists performing percutaneous kidney biopsies has declined since then, the fraction who currently do biopsies (or nephrology practices with at least one nephrologist doing biopsies) is not known

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with any certainty. It has also been reported that medical students and internal medicine residents select their future subspecialties in part on the basis of the procedural aspects of the field, and the lack of procedures is a factor contributing to declining interest in nephrology (7).

A variety of reasons to abandon hemodialysis catheter insertion and/or kidney biopsy training requirements have been proposed, including very real time constraints and concerns about patient safety outcomes. We have addressed the former by scheduling specific biopsy days for a small faculty cohort who do all our biopsies with both first and second year fellows in rotation. The latter concern can be addressed with use of simulation, careful outcomes tracking, close fellow supervision, and limiting the number of faculty doing biopsies so that skills are well maintained. Other criticisms of these procedural requirements include a claim that most nephrologists are “intellectually oriented and are not seeking to perform lots of procedures,” that it seems unfair to deny graduation from fellowship and certification in nephrology “simply because the fellow is not good with her/his hands,” and that nephrology fellowship programs that cannot provide adequate experience for their fellows may lose ACGME accreditation (8). There is simply no factual basis for the first of these statements. The second concern begs the question as to why we would treat a decades-old core competency differently from others: if a fellow was “simply not good with treating acid-base disorders,” few would find this acceptable. The last issue is perhaps most contentious, but my response is simply that “yes, that is true.” Training requirements are just that . . . requirements. Each training program through its Program Director, its faculty, and its Division Chief or practice leaders has an obligation to provide the training that fellows are required to receive. If it cannot, the program must find external training opportunities or cease training. “I can’t train my fellows in _____” is not sufficient reason to fail to do so when such training is required.

Is It Better for Nephrology Fellows?

Patients with kidney disease need temporary hemodialysis catheters and kidney biopsies. Being able to perform these procedures during training avoids dependence of fellows on others to care for their patients. Thus, nephrology fellows might enjoy greater professional satisfaction if more, rather than fewer, procedures were part of their subspecialty training experience.

It has been suggested that programs should be free to decide whether to require proficiency in placement of dialysis catheters and kidney biopsies and that applicants for fellowship could then choose the kind of program that they would prefer. Unfortunately, few internal medicine residents will know what their career path will be and what will be interesting to them after they start training. Furthermore, virtually none will know where they will practice and what will be required of them in practice after training. Although learning to place a temporary hemodialysis catheter after training is possible, learning to skillfully do a kidney biopsy after fellowship or in just the last few months of fellowship is not. Thus, failure to provide adequate experience during fellowship reduces job opportunities available for graduating fellows. I recently conducted a survey *via* email of graduates of the University

of Pennsylvania Health System nephrology fellowship program from the last 6 years ($n=39$). In response to the question, “Have you personally done any native kidney biopsies since completing your Nephrology Fellowship?,” six of 30 (20%) indicated “yes.” In response to the question, “Do you or other nephrology colleagues plan to continue to do kidney biopsies?,” 12 (40%) responded “yes.” However, if I remove from the denominator those who are now in other training programs (three in critical care and one in ultrasound), doing full time research (7), and doing palliative care (2), about one third of these recent graduates who are in clinical practice have done kidney biopsies after fellowship. Thus, using this skill after fellowship is not nearly as uncommon as some insist, which others have also reported (3).

A majority of nephrology trainees are international medical graduates who are more likely than United States graduates to enter clinical practices in rural communities and less likely to practice in large urban centers. As such, they are also probably more likely to be called on to perform these procedures themselves. International medical graduates have also reported more difficulty finding desirable positions after training (9); lacking skill to perform these procedures may further diminish their employment opportunities.

As a Program Director and long-time educator, I feel strongly that all who are involved in nephrology fellow education have an obligation to ensure fellow exposure to clinical volumes that provide sufficient opportunity to become skillful in all of the procedures central to the discipline of nephrology, with nephrology faculty skillful in performing, teaching, supervising, and evaluating them, just as we expect them to master our knowledge base and become skillful clinicians (2,10). In the absence of an overwhelming consensus to the contrary among the broad nephrology community, training nephrology fellows in these procedural skills should not be abandoned.

Acknowledgments

The content of this article does not reflect the views or opinions of the American Society of Nephrology (ASN) or the *Clinical Journal of the American Society of Nephrology* (CJASN). Responsibility for the information and views expressed therein lies entirely with the author(s).

Disclosures

None.

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- Published online ahead of print. Publication date available at www.cjasn.org.
- See related articles, “Requirements for Procedural Skills in Nephrology Training Programs: Framing the Conversation,” “Training Nephrology Fellows in Temporary Hemodialysis Catheters and Kidney Biopsies Is Not Needed and Should Not Be Required,” and “Kidney Biopsy Training and the Future of Nephrology: What about the Patient?,” on pages 1096–1098, 1102–1104, and 1105–1106, respectively.