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A Kidney Biopsy Simulation Training Program for Renal Fellows: Two Years of Results

Maria-Eleni Roumelioti

Jonathan Owen

Christos P. Argyropoulos

Yue-Harn Ng

Mark L. Unruh

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A Kidney Biopsy Simulation Training Program for Renal Fellows: Two Years of Results

Roumelioti ME, Argyropoulos CP, Ng YH, Unruh ML, Owen J

Department of Internal Medicine, Division of Nephrology, UNM-HSC

INTRODUCTION

Interventional Nephrology could re-foster interest in Nephrology and attract more medical graduates. Percutaneous kidney biopsy (PKB) is an important diagnostic tool and should be taught through simulation according to ACGME requirements. We initiated a PKB simulation training program and designed a 2-year study in order to examine its effect on the confidence level, the procedural competence and the satisfaction with this training of Nephrology fellows compared to historical controls (fellows trained on PKBs two years before the initiation of the program).

SPECIFIC AIMS

To **develop** a simulation tool for teaching and practicing real-time ultrasound-guided percutaneous kidney biopsy (PKB)

To **establish** the efficacy of this simulation training in reducing discomfort and adverse PKB outcomes in patients undergoing this procedure in UNMH

To **incorporate** this PKB simulation into the core curriculum of the UNMH Nephrology fellowship training program according to the ACGME requirements

To **increase** the confidence level and the procedural competence of the Nephrology trainees on PKBs

METHODS

All fellows were consented and trained at UNM's simulation center (BATCAVE) with a simulation training model (CAE Healthcare Blue Phantom™). Trainees' demographics and previous PKB experience were collected. We utilized pre-assigned readings, online videos and hands-on simulation practice. **Performance level** of each trainee during each session was graded with a **modified PKB procedural competence evaluation form.** Drs. JO and MER were present in all sessions and completed the evaluation forms. Each session lasted 1 to 1-1 1/2 h. **Pre-and post-simulation surveys** evaluated the participants' **confidence level** quantitatively on a 5-point Likert scale. All participants completed the **satisfaction with PKB simulation experience scale (PKB-SSE).**

Kidney Biopsy Simulation Training Improves Trainees'

Performance Level, Confidence Level and Satisfaction

RESULTS

- All three 1st and 2nd year renal fellows completed the simulation training in 2018 and two first year fellows completed the training in 2019.
- A maximum of 3 sessions was needed for each trainee. Independent of their previous experience on PKBs all renal fellows expressed a high level of satisfaction from their participation (4 to 5) and increased their confidence level.
- This year's trainees increased their performance level from 2 to 5 and from 1 to 5, respectively.

Trainees	I (2018)	II (2018)	III (2018)	IV (2019)	V (2019)
Year of Training	1st	2nd	1st	1st	1st
Previous experience	no	yes	no	yes	no
Number of sessions	1	1	3	3	2
Number of passes/session	5	3	6	10	12
Pre-training confidence level	4	5	3	3	1
Post-training confidence level	5	5	5	4	4
Satisfaction level	4	4	5	5	4

DISCUSSION

- ✓ PKB simulation may improve trainees' confidence level and their satisfaction with the training.
- ✓ The procedural competence of the trainees on PKBs will be evaluated during the 2nd year of their fellowship and will be compared to the procedural competence of historical controls.
- ✓ We expect that the simulation training will reduce the discomfort and minimize the adverse PKB outcomes in patients undergoing PKB in UNMH. The training will enhance patient safety and satisfaction with the procedure.