

# A retrospective cohort study of early lactation outcomes of patients with chronic kidney disease or kidney transplantation

Anna Sadovnikova<sup>1</sup>, PhD, IBCLC, MPH, MA, Melinda D Wong<sup>1</sup>, Jeffrey Fine<sup>2</sup>, MPH, Darlene T Tran<sup>1</sup>, Nandakishor Kapa<sup>3</sup>, MD, MPH

1. School of Medicine, UC Davis, Sacramento, CA. 2. Department of Public Health Sciences, School of Medicine, UC Davis, Sacramento, CA  
3. Division of Nephrology, Department of Internal Medicine, UC Davis, Sacramento, CA.

## Background

- Breastfeeding is protective against maternal heart disease, hypertension, and diabetes (1,2).
- Existing literature on pregnant patients with chronic kidney disease (CKD) or kidney transplantation (KT) focuses only on their pregnancy outcomes (3,4).
- Breastfeeding has been actively discouraged in this patient population primarily due to perceived incompatibility of maternal medications with milk production or infant health.
- There are no data on lactation outcomes in patients with CKD or KT.

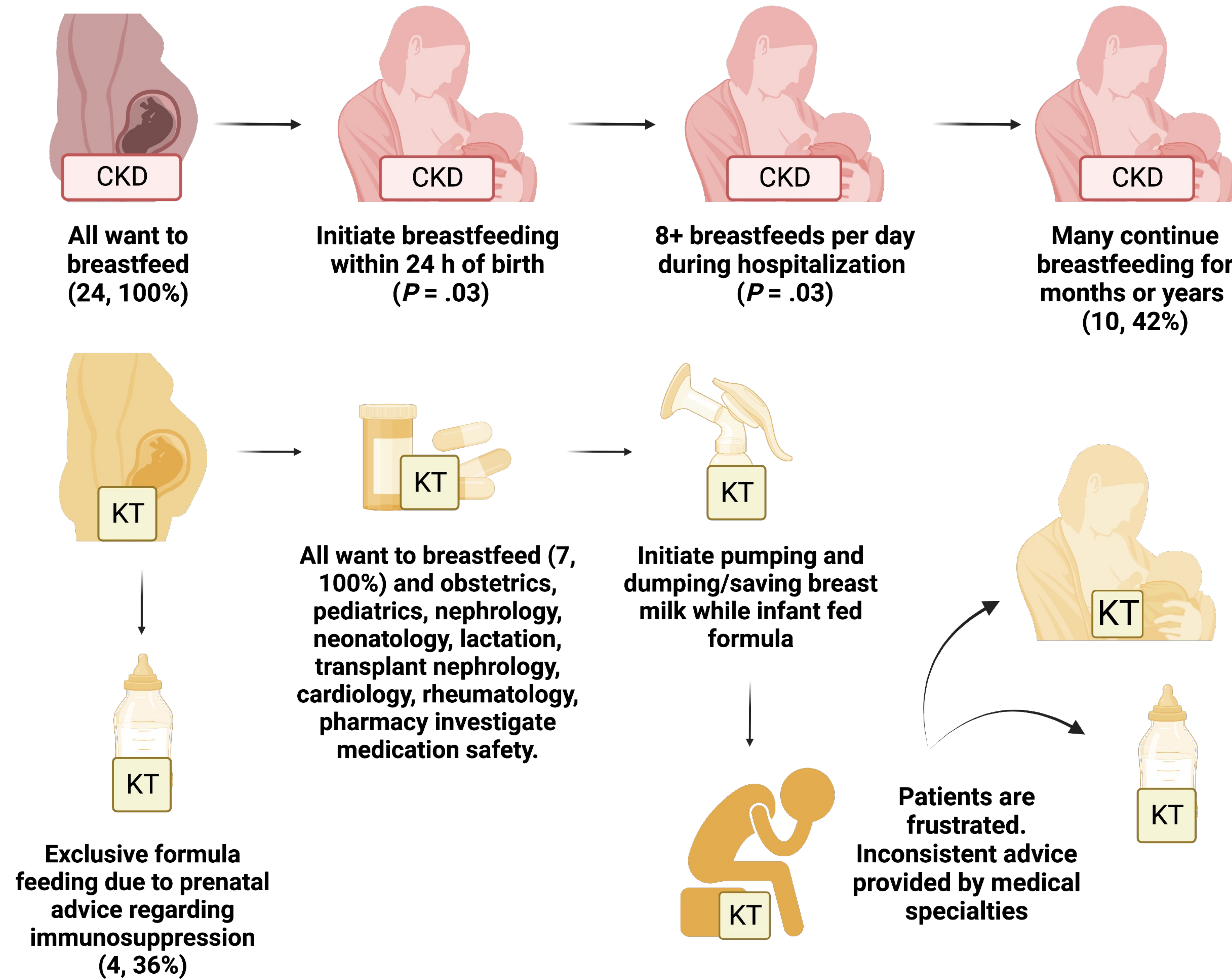
## Objectives

- Characterize the early lactation outcomes of patients with CKD or KT who delivered at UC Davis
- Develop recommendations for the role of nephrologists in supporting lactation among patients with CKD or KT

## Methods

- Retrospective cohort study of all female-identifying patients with CKD (High risk CKD 2 and 3-5) or KT who had a birth hospitalization at UC Davis Medical Center between 2010 and 2020
- Maternal data: co-morbid conditions, pregnancy and delivery complications, method of delivery, postpartum medications, lactation education, specialty involved in care, breastfeeding intention, initiation, frequency, duration.
- Pediatric data: gestational age at birth, birth weight, complications, skin-to-skin, breast milk volume consumption, formula volume consumption, LATCH score.

## Results



CKD and KT patients had similar co-morbidities, pregnancy outcomes, neonatal outcomes, and hospital length of stay ( $P > .05$ ), **but different lactation outcomes.**

The use of immunosuppressives was positively associated with exclusive formula feeding (OR 13.1, 95% CI 1.7-160.1,  $P = .02$ ) and unwanted breastfeeding cessation (OR 33.6, 95% CI 3.8-384.3,  $P = .0004$ ).

- Some patients breastfeed for months or years (3, 36%)
- Pumping with good results at discharge (1, 9%)

- Unsustainable pumping schedule (1, 9%)
- Medication incompatibility (1, 9%)
- Lactation poorly established (1, 9%)

## Discussion and Recommendation

- Despite many co-morbid conditions (eg, gestational diabetes, pre-eclampsia, obesity), polypharmacy, preterm delivery, and NICU hospitalization, many CKD and KT patients were able to successfully breastfeed for months or years.
- Tacrolimus and azathioprine are safe during lactation (5,6). There is no reason KT patients should have worse lactation outcomes than CKD patients.
- Neither nephrology, obstetrics, nor pediatrics assumed responsibility for medication safety advice.
- Lactation pharmacology and support training should be incorporated into nephrology fellowship and continuing education.

## Contact

Anna Sadovnikova, PhD, IBCLC  
asadovnikova@ucdavis.edu

## Funding support

NIH NICHD F30HD101295 & NIH NCATS UL1TR001860

## References

- Rameez RM, et al. Association of Maternal Lactation With Diabetes and Hypertension: A Systematic Review and Meta-analysis. JAMA Network Open 2019;2:e191340.
- Okoth K et al., Association between the reproductive health of young women and cardiovascular disease in later life: umbrella review. BMJ 2020;371:m3502.
- Chewcharat, A et al., Comparison of Hospitalization Outcomes for Delivery and Resource Utilization between Pregnant Women with Kidney Transplants and Chronic Kidney Disease in the United States. Nephrology 26, no. 11 (2021): 879-89.
- Deshpande, NA, et al. Pregnancy Outcomes in Kidney Transplant Recipients: A Systematic Review and Meta-Analysis. American Journal of Transplantation: Official Journal of the American Society of Transplantation and the American Society of Transplant Surgeons 11, no. 11 (November 2011): 2388-2404.
- Singh M. Breastfeeding and Medication Use in Kidney Disease. Adv Chronic Kidney Dis. 2020;27(6):516-524.
- Anderson PO. Breastfeeding After Organ Transplantation. Breastfeeding Medicine 2020;15:69-71.