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### Kidney Outcomes in the Very Low Birth Weight Population

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# SUMMARIES OF STUDENT WORK

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TOWARD A BETTER UNDERSTANDING OF...

## KIDNEY OUTCOMES IN THE VERY LOW BIRTH WEIGHT POPULATION

*Prachi Aggarwal*

*Mentor: T. Keefe Davis*

In critically ill pediatric and adult patients, acute kidney injury (AKI) has been associated with increased morbidity and mortality. AKI is more prevalent in the critically ill population. Therefore, the very low birth weight (VLBW) neonate (<1500g) is at risk for AKI due to critical illness during infancy. In addition, the risk for AKI may be further potentiated by kidney under development due to incomplete nephrogenesis leading to low nephron endowment. In this study we sought to determine the incidence, clinical factors associated with, and outcomes of AKI in a large cohort of VLBW infants.

488 neonates weighing  $\leq 1500$ g and cared for at St. Louis Children's Hospital's Neonatal Intensive Care Unit were enrolled in the study. Comprehensive clinical data was recorded on clinical research forms developed and stored in REDCap. AKI was defined as an increase in serum creatinine of  $> 0.3$  mg/dL from a previous value.

In patients for whom AKI could be determined, AKI occurred in 18.3% of the cohort. Based upon gender, 13.5% of females had AKI and 22.3% of males had AKI ( $P=0.06$ ). Lung disease was a risk factor for AKI, 30.7% of subjects who required high frequency ventilation had AKI as compared to only 5.2% not requiring high frequency ventilation ( $P<0.001$ ). Additionally, 35.7% of patients with necrotizing enterocolitis (NEC) had AKI compared to only 15.1% of patients who did not. Overall, there was a significant difference in survival between the two groups, 36% of patients who developed AKI expired versus 8.5% of patients who did not ( $P<0.001$ ).

We conclude that AKI in the VLBW population is prevalent, multifactorial, and associated with a high mortality rate. Future directions include analysis of antibiotic exposure, blood pressure control, and ultrasound imaging in relationship to AKI and chronic kidney disease in this cohort.