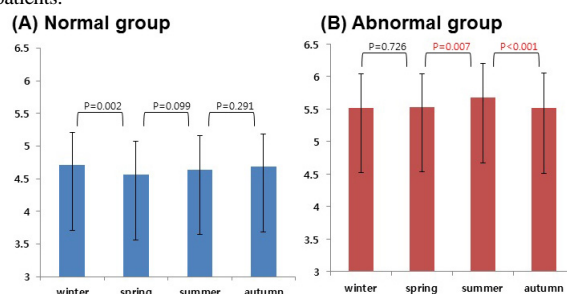


# The Assessment of Seasonal variation for Potassium level in Hemodialysis Patients using DialysisNet

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**Background/Aims:** Hyperkalemia is common, but serious complication in end-stage renal disease (ESRD) patients that should be managed carefully. Dietary restriction is critical in ESRD patients with reduced potassium excretion. There are differences in dietary habits culturally, and seasonal intake of foods and fruits may be different in the same culture. So, seasonal levels of potassium may be different, but research on this is scarce. **Methods:** We performed a multicenter cohort study using DialysisNet in hemodialysis patients treated at one of four Korean hospitals from January 2016 to December 2016. Blood tests were performed monthly, and patients enrolled for more than 8 months of potassium testing were included. K-means, nonhierarchical method was used for clustering groups. Seasonal differences in potassium levels were analyzed by chi-square test. **Results:** The total of 279 patients were analyzed. Mean age was 63.3±13.1 years and 55.9% were men. Overall mean potassium level was 5.08 mmol/L. Overall mean Kt/V was 1.63 per week. Trajectory analysis revealed that 52% of patients (N=146) were included in the normal group (K 4.6±0.4 mmol/L), and 47% (N=133) were included in the abnormal group (K 5.6±0.4 mmol/L). Mean potassium level was the highest in December (4.83±0.73 mmol/L) among the normal group, while mean potassium level was the highest in July (5.51±0.70 mmol/L) among the abnormal group. There were no significant differences in potassium levels by season among the normal potassium group. However, in abnormal potassium group, potassium level was significantly higher in summer than in autumn ( $p<0.001$ ) and than in spring ( $p=0.007$ ). **Conclusions:** Potassium level was significantly higher in summer compared to potassium level in autumn and in spring among the abnormal potassium group of hemodialysis patients.



# Impact of Chronic Kidney Disease on Kidney Function after Successful Percutaneous Nephrostomy

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**Background/Aims:** Obstructive nephropathy refers to the renal disease caused by impaired flow of urine or tubular fluid. The kidney with acute functional changes may recover after the effective release of the obstruction, but structural changes may be permanent and lead to chronic renal impairment. Effective release of the obstruction by PCN usually result in an adequate return of renal function. However, there is very little literature on the kidney outcome after the effective release by PCN of the obstruction according to the baseline kidney function. **Methods:** We retrospectively identified patients with obstructive nephropathy who underwent PCN from February 2001 to January 2017 ( $n=857$ ). Patients who underwent follow-ups for at least 1 year before and after PCN were enrolled ( $n=181$ ). We excluded patients with normal kidney function at the time of PCN and those who did not recover to baseline serum creatinine (sCr) values within 1 month after PCN ( $n=114$ ). We estimated glomerular filtration rate (eGFR) from sCr via the CKD-EPI equation during the year before and after PCN. Patients were classified according to baseline eGFR  $\geq 60$  ml/min/1.73m<sup>2</sup> (non-CKD group) and  $<60$  ml/min/1.73m<sup>2</sup> (CKD group). **Results:** In this analysis, 67 patients were included. A total of 44 (65.7%) patients were included in the non-CKD group, whereas 23 (34.3%) patients in the CKD group. Mean baseline eGFR (49.2±11.7 vs 78.1±16.5 ml/min/1.73m<sup>2</sup>,  $p=0.032$ ) and mean eGFR at the time of PCN (19.5±11.5 vs 28.9±20.5 ml/min/1.73m<sup>2</sup>,  $p=0.052$ ) were lower in CKD group compared with non-CKD group. The mean time to recovery to baseline eGFR after PCN was not significantly different between CKD and non-CKD group (12.3±8.3 vs 10.8±7.2 days,  $p=0.463$ ). The mean rate of decline in eGFR was not significantly different between CKD and non-CKD group at 3 and 6 months (-35.0±16.6% vs -27.9±23.2%,  $p=0.298$ , and -39.8±28.4% vs -36.0±24.2%,  $p=0.623$ ). No significant differences were observed in the time effect of treatment between the two groups in eGFR ( $p=0.685$ ). **Conclusions:** We suggest that the presence of CKD may not affect the recovery time to baseline kidney function and the rate of decline in kidney function after the effective release of the obstruction by PCN.

Figure 1. Study population. ACE, angiotensin converting enzyme; ARBs, angiotensin II receptor blockers; ISAs, immunosuppressive agents.

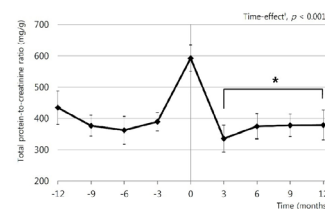


Figure 2. Changes of total protein to creatinine ratio in all patients; 12 months before and after treatment of percutaneous nephrostomy.

\* $p < 0.05$  vs. baseline levels; 'time-effect' was tested by linear mixed model and the following variables were adjusted: age, sex, diabetes, hypertension, estimated glomerular filtration rate, systolic and diastolic pressure.

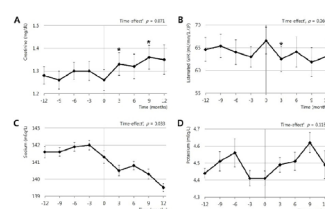


Figure 3. Changes of serum creatinine (A), eGFR (B), sodium (C), and potassium (D) levels in all patients; 12 months before and after treatment of percutaneous nephrostomy.

\* $p < 0.05$  vs. baseline levels; 'time-effect' was tested by linear mixed model and the following variables were adjusted: age, sex, systolic and diastolic pressure. GFR, glomerular filtration rate.

