## ■ Sat-329 ■

# Fracture risk in CKD: Results from Health Insurance Review and Assessment Service database in Korea

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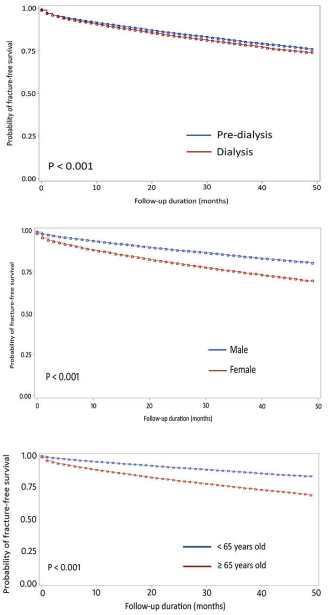
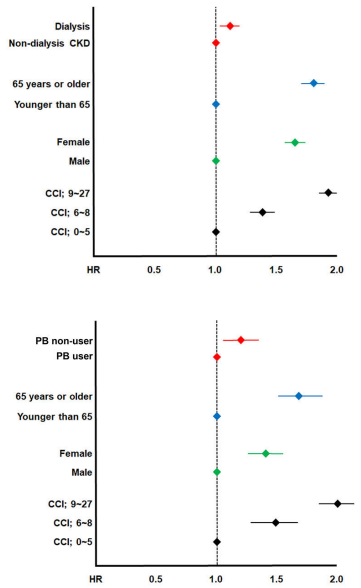
**Background/Aims:** Both chronic kidney disease-mineral and bone disorder (CKD-MBD) and fracture risk are closely related to renal function decline. Hyperphosphatemia control by taking phosphate binders is a basic of CKD-MBD treatment. The aim of this study is to find the fracture risk differences between pre-dialysis or dialysis-dependent chronic kidney disease (CKD) patients, and whether taking phosphate binders or not in dialysis-dependent CKD patients. **Methods:** A total number of 89,533 CKD patients' data about CKD diagnosis, dialysis, fracture and phosphate binder prescription history were retrieved from Health Insurance Review and Assessment Service database in Korea from 2012 to 2016. Multivariate Cox regression analyses were performed to identify whether dialysis or taking phosphate binders are associated with the higher fracture risk or not. **Results:** Overall, the number of fracture in pre-dialysis CKD patients was 74 per 1000 patient-years, and that in end-statge renal disease (ESRD) patients was 84 per 1000 patient-years. Consequently, rate ratio of fracture in ESRD patients compared to pre-dialysis patients was 1.132. The fracture risks in ESRD patients were higher than pre-dialysis dependent CKD patients (HR 1.163, 95% CI 1.115–1.214, P<0.001) after adjusting confounding variables. In addition, fracture risk of the patients who did not taking phosphate binders was increased by 19.6% compared to that in the patient who took phosphate binders in ESRD patients. **Conclusions:** Fracture is more prevalent in dialysis-dependent ESRD patients than pre-dialysis CKD patients. Moreover, taking phosphate binders is associated with the lower fracture risks in ESRD patients.







## ■ Sat-330 ■

# Placement of Tunneled Cuffed Catheter for Hemodialysis: Micropuncture kit(R) kit® vs. Angiocath™ IV

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**Background/Aims:** Tunneled cuffed catheters (TCC) provide stable, instantaneous, long-term intravenous access for hemodialysis. Because catheterization is often performed in emergency situations, speed and accuracy are emphasized. **Methods:** We retrospectively compared the Micropuncture kit to the standard 18-gauge Angiocath IV catheter for TCC insertion in the right jugular vein. From June 2016 to May 2017, 31 TCC were successfully inserted via the Micropuncture kit and another 31 via the Angiocath IV catheters. All the patients underwent the same ultrasound-guided procedure performed by a single experienced interventionist. Procedure time was the time from the draping of the patient to the completion of povidone dressing after the catheterization. In our center, the Angio Lab nurse takes records, including procedure time and method for every procedure. All the patient records were retrospectively tracked through electronic medical record review. The primary outcome was procedure time and the secondary outcomes were complications and cost-effectiveness. **Results:** There were no significant differences between the two groups regarding patients' demographic data. However, procedure time was significantly shorter in the Angiocath group than in the Micropuncture group (12.4 ± 3.5 vs 17.6 ± 6.9 min, $p$=0.001); there were no serious complications such as hemorrhage, pneumothorax, or hematoma in both groups. Moreover, cost-effectiveness was better in the Angiocath group than in the Micropuncture group (0.34 vs 52 USD, $p$<0.01). **Conclusions:** Using the Angiocath IV catheter can reduce procedure time and cost with no severe complications. However, inexperienced practitioners do not recommend using this catheter because of the higher risk of complications.

**Table 1.** Baseline characteristics of patients according to the method of puncture.

| | Overall | Method of puncture | | p |
|---|---|---|---|---|
| | | Micropuncture | Angiocath | |
| Number of patients | 62 | 31 | 31 | |
| Age (years) | 60±6 | 60.8±13.8 | 60.4±16.4 | 0.914 |
| Male, n (%) | 33 (53.2) | 15 (48.4) | 18 (58.1) | 0.306 |
| Body mass index (kg/m²) | 22.4±3.5 | 22.3±3.7 | 22.4±3.3 | 0.889 |
| Primary renal disease, n (%) | | | | |
| Diabetes mellitus | 29 (46.8) | 13 (41.9) | 16 (51.6) | 0.611 |
| Hypertension | 42 (67.7) | 20 (64.5) | 22 (71.0) | 0.786 |
| Co-morbidity, n (%) | | | | |
| Angina | 3 (4.8) | 3 (9.7) | 0 (0) | 0.238 |
| Stroke | 10 (16.1) | 5 (16.1) | 5 (16.1) | 1.000 |
| Hyperlipidemia | 2 (3.2) | 1 (3.2) | 1 (3.2) | 1.000 |
| Miocardial infarction | 3 (4.8) | 1 (3.2) | 2 (6.5) | 1.000 |
| First dialysis, n (%) | 54 (88.5) | 27 (87.1) | 26 ( 83.8) | 0.519 |
| Past renal replacement therapy, n (%) | | | | |
| Kidney transplantation | 4 (6.6) | 3 (9.7) | 1 (.3) | 0.481 |
| Peritoneal dialysis | 4 (6.6) | 2 (6.5) | 2 (6.5) | 0.255 |
| Temporary catheter, n (%) | 7 (11.5) | 4 (12.9) | 3 (10.3) | 0.519 |
| Systolic BP, mm Hg | 125.8±21.6 | 122.9±22.2 | 128.7±20.9 | 0.294 |
| Diastolic BP, mm Hg | 75.6±15.7 | 73.8±13.3 | 77.4±17.8 | 0.380 |
| Hemoglobin, g/dL | 10.2±2.3 | 10.3±2.3 | 10.1±2.4 | 0.770 |
| Serum sodium, mEq/L | 135.2±5.9 | 134.0±6.9 | 136.4±4.5 | 0.109 |
| Serum potassium, mEq/L | 4.8±1.0 | 4.6±1.1 | 5.0±0.8 | 0.164 |
| Serum $CO_2$, mg/dL | 18.4±6.2 | 14.9±4.5 | 20.6±6.2 | 0.026 |
| Serum BUN, mg/dL | 73.2±40.6 | 70.1±39.0 | 76.3±42.6 | 0.551 |
| Serum creatinine, mg/dL | 7.0±5.6 | 7.3±6.1 | 6.6±5.1 | 0.649 |
| Serum protein, g/dL | 6.4±0.8 | 6.4±0.7 | 6.3±0.9 | 0.454 |
| Serum albumin, g/dL | 3.6±0.6 | 3.7±0.5 | 3.4±0.7 | 0.039 |
| Serum glucose, mg/dL | 133.1±60.1 | 131.9±66.5 | 134.2±55.0 | 0.881 |
| Serum AST, IU/L | 49.8±140.3 | 55.7±175.5 | 43.9±99.2 | 0.744 |
| Serum ALT, IU/L | 28.8±61.2 | 35.7±83.1 | 22.0±24.7 | 0.387 |
| Serum calcium, mg/dL | 8.3±0.9 | 8.5±1.0 | 8.1±0.9 | 0.165 |
| Serum phosphorus, mg/dL | 5.4±2.8 | 5.2±2.6 | 5.7±2.9 | 0.481 |
| Serum TC, mg/dL | 168.9±64.2 | 159.0±57.2 | 178.8±70.0 | 0.228 |
| Serum LDL, mg/dL | 94.1±50.0 | 86.3±38.9 | 101.8±58.7 | 0.227 |
| hsCRP, mg/dL | 5.1±8.5 | 4.0±5.6 | 6.3±10.6 | 0.300 |
| Serum intact PTH pg/mL | 259.4±175.9 | 288.9±187.7 | 229.8±161.0 | 0.188 |
| HbA1c, % | 6.2±1.2 | 6.1±1.4 | 6.2±1.0 | 0.792 |
| Time, min | 15.0±6.1 | 17.6±6.9 | 12.4±3.5 | 0.001 |

BP, blood pressure; AST, aspartate aminotransferase; ALT, alanine aminotransferase; TC, total cholesterol; LDL, low-density lipoprotein; hsCRP, high sensitivity C-reactive protein; PTH, parathyroid hormone.
Values for continuous variables are given as means ± standard deviation and variables not normally distributed are given as median and interquartile range; values for categorical variables are given as numbers (percentages).

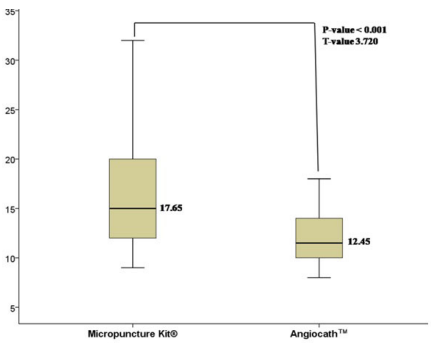


**Table 2.** Frequency according to time and cost according to the method of puncture.

| | Overall | Method of puncture | |
|---|---|---|---|
| | | Micropuncture | Angiocath |
| Number of patients | 62 | 31 | 31 |
| 0–9 min (%) | 5 (8.2) | 1 (3.2) | 4 (6.5) |
| 10–19 min | 44 (70.9) | 18 (58.1) | 26 (83.8) |
| 20–29 min | 9 (14.5) | 8 (25.8) | 1 (3.2) |
| 30–40 min | 4 (6.4) | 4 (12.9) | 0 (0) |
| Cost | | 52 US$/person | 0.34 US$/person |