usages) on prevention of contrast-induced acute kidney injury (CI-AKI) and long-term clinical outcome after coronary angiography (CAG) or percutaneous coronary intervention (PCI).

METHODS Overall, 1319 patients were enrolled in the final analysis who were administered with peri-procedural double-dose (40 mg/d, n=334) or usual-dose atorvastatin (20 mg/d, n=985) (1–3 days before and 2–3 days after procedure), who were stratified into baseline CRP tertiles. The primary endpoint was CI-AKI (≥50% or >0.3 mg/dl increase of serum creatinine in 48 hours).

RESULTS 76 (5.8%) patients developed CI-AKI (double vs usual-dose: 7.9% vs 5.1%, P < 0.061). Multivariable logistic regression analysis showed that double dose may be associated with increased risk of CI-AKI (adjusted odds ratio, OR: 2.43, 95% CI: 1.00–5.94, P < 0.050), especially in patients with high CRP tertiles (OR: 4.95, 95% CI: 1.16–21.04, P < 0.030). Notably, highest (vs lowest) CRP tertiles was an independent risk factor of CI-AKI (adjusted OR: 3.67, P < 0.034), while IGF-1 was slightly increased in patients with late CKD (P < 0.036), so did females, contrast volume, emergency PCI and IABP. Median follow-up was 2.43 years, double-dose atorvastatin did not reveal a beneficial in mortality in Kaplan-Meier curves analysis (P > 0.271) or multivariate Cox regression analysis (adjusted hazard ratio: 0.47, 95% CI: 0.10 to 2.18; P > 0.27, P = 0.42, respectively).

CONCLUSIONS Our observational data suggested that double-dose (vs usual-dose) atorvastatin may be associated with increased risk of CI-AKI without benefit in long-term clinical prognosis, even in patients with high CRP level.

GW26-e1572
Relationship of Vascular Growth Factors to Arterial Stiffness in Chronic Kidney Disease Patients
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OBJECTIVES Chronic kidney disease (CKD) is characteristically accompanied by changes in arterial stiffness, and related to increased occurrence of cardiovascular disease. The links between arterial stiffness and circulating vascular growth factors are not well described.

METHODS Patients with CKD stages 2-5 who were not on dialysis (n=156, male/female=91/65; age=61.4±10.9 years) were included. Brachial-ankle pulse wave velocity (baPWV) was used as a measure of arterial stiffness. Blood samples to measure hepatocyte growth factor (HGF), vascular endothelial growth factor (VEGF), insulin-like growth factor 1 (IGF-1) were obtained.

RESULTS Serum levels of HGF and VEGF were correlated with estimated glomerular filtration rate (eGFR) in patients with chronic renal diseases. Compared with patients with early CKD (stages 2-3), patients with late CKD (stages 4-5) had elevated serum levels of HGF (P = 0.026) and VEGF (P < 0.034), while IGF-1 was slightly increased in patients with late CKD (P = 0.057). In univariate analysis, PWV positively correlated with HGF (r = 0.27, P = 0.016), VEGF (r = 0.30, P = 0.035), and negatively with eGFR (r = -0.29, P = 0.028). In a multivariate analysis only HGF was independent determinant of higher PWV.

CONCLUSIONS Circulating levels of HGF may be a new marker of cardiovascular damage in patients with CKD.

GW26-e1347
High central venous pressure is associated with acute kidney injury and mortality in patients underwent cardiopulmonary bypass surgery
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OBJECTIVES The pathophysiology of AKI after cardiovascular surgery is multifactorial. The relative importance of high central venous pressure (CVP) has not been addressed previously. We sought to investigate the relationship between high CVP, AKI, and mortality in patients undergoing cardiac surgery with cardiopulmonary bypass.

METHODS All patients aged 18 years or older who underwent cardiac surgery with CPB between July 1, 2013, and May 31, 2014, were prospectively reviewed. Patients were excluded when renal artery were involved before and during surgery. Patients were dichotomized into 1) High CVP group: CVP value was higher than 10 mmHg, and 2) Low CVP group: CVP value was lower than 10 mmHg. CVP measurement was referred to the fourth intercostal level at the end of surgery. All patients were followed by telephone. The primary outcome was AKI and mortality. AKI was defined according to the Kidney Disease Improving Global Outcomes (KDIGO) criteria.

RESULTS A total of 1941 patients were included in this prospectively observed study between July 1, 2013, and May 31, 2014 in AnZhen Hospital. Mean age was 51.92±11.65 years, and 46.26% patients were male. Valve surgery (1232, 63.47%) was the major surgery type. 30-day mortality was 1.86% overall. Of all patients, 433(22.31%) developed AKI. In high CVP group, the KDIGO stage1 (34.33 %), stage 2 (5.74%), and stage3 (0.31%) were respectively higher than that in low CVP group with stage 1 (5.53 %), stage 2 (0.96%), and stage 3 (1.05%). In a median follow-up time of 9.2 months, 89(4.59%) patients died. In multivariate analysis, CVP remained the independent predictor of survival (hazard ratio=1.2 per mmHg increase, 95% confidence interval: 1.11-1.29, P < 0.0001).

CONCLUSIONS High level of CVP is associated with the development of AKI, which suggests a role of venous congestion in developing. High CVP was independently related to all-cause mortality in patients undergoing cardiovascular surgery with cardiopulmonary bypass. Further studies will need to assess whether or not CVP at the end of surgery could be used to guide intervention and improve outcomes.

GW26-e2237
Assessment of Left Ventricular Dissipative Energy Loss by Vector Flow Mapping in End Stage Renal Disease Patients
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OBJECTIVES To assess left ventricular dissipative energy loss (EL) by vector flow mapping in subjects with end-stage renal disease (ESRD), and to evaluate the connection between blood flow efficiency and asymptomatic changes in cardiac function.

METHODS ESRD patients with preserved left ventricular ejection fraction that consisted of group on peritoneal dialysis (PD group), group on hemodialysis (HD group) and group on preparation for dialysis session (PRE group) were examined by echocardiography as well as normal subjects. Vector flow mapping analysis was then performed from the apical 4-chamber view to calculate the EL value during diastole and systole in the left ventricle (LV).

RESULTS Conventional transthoracic echocardiography and left ventricular EL calculation were successfully performed in 63 cases and 50 controls. Mean diastolic EL were 90.18±61.11 versus 25.14±11.57 mW/m (P < 0.001) and mean systolic EL 26.85±10.66 versus 13.30±5.26mW/m (P < 0.001) in cases and controls, respectively. Significant difference between PD group and PRE group in diastolic EL was found (66.98±40.59 versus 114.22±70.52 mW/m, P = 0.035). The diastolic EL had a significant correlation with E/e’ ratio (r = -0.746, P < 0.001), and the systolic EL was positively related with the diastolic EL (r = -0.617, P < 0.001).

CONCLUSIONS Impaired blood flow efficiency was detected in ESRD patients using dissipative EL derived from vector flow mapping. The EL value could be used to evaluate therapeutic effects of dialysis upon cardiac function in ESRD patients.

GW26-e3230
Serum cystatin C is associated with reverse-dipper pattern of blood pressure in hypertensive patients
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OBJECTIVES The relationships between deterioration and prognosis of chronic kidney disease and circadian variations of blood pressure...
(BP) have been reported before. Recently, reverse-dipper pattern of BP, one of short-term BP variability, was gradually recognized as an emerging risk factor for cardiovascular, metabolic and renal diseases. However, the association of serum cystatin C (s-CC), a marker of early kidney injury, with reverse-dipper BP pattern remains unknown.

**METHO**ds A total of 718 hypertensive patients were eventually included and evaluated with 24 hours ambulatory BP monitoring (ABPM). Peripheral venous blood samples were collected to evaluate the s-CC levels by sandwich enzyme-linked immunosassay. According to the range of the nocturnal decline of systolic BP (SBP), circadian BP variations can be classified as 1. normal dippers (10%-20% SBP fall), and dippers (0%-10% SBP fall), and reverse-dippers (<0% SBP fall). Exclusion criteria were <18 or >90 years old, under antihypertensive treatment, night workers, acute stroke or myocardial infarction within the past 6 months, sleep apnea syndrome, secondary hypertension, or other chronic diseases. The distribution of hypertensive patients with different levels of s-CC among each circadian BP pattern group was analyzed using analysis of variance. Multinomial logistic regression analysis was applied to explore the relationship between the relevant variables and ABPM results.

**RESULTS** S-CC level in reverse dipper group (1.18±0.52) was increased significantly when compared with dipper group (1.05±0.36) (P<0.021). In addition, after multinomial logistic regression analysis, s-CC (OR 1.723; 95% CI 1.060-2.800; P=0.028) and diabetes (OR 2.033; 95% CI 1.249-3.308; P=0.004) were significantly different between reverse-dipper group and dipper group. On the other hand, the decline rate of nocturnal SBP was negatively correlated with s-CC level (R=-0.117; P=0.002).

**CONCLUSIONS** Our study suggested that s-CC was associated with reverse-dipper pattern of BP examined with 24h ABPM. The hypertensive patients with higher s-CC level were more frequently found to be reverse dippers. Moreover, the lower nocturnal decline rate of SBP might increase the risk of s-CC and early renal injury in hypertensive patients probably.

**GW26-e3834**

The combined detection of serum uric acid and ankle brachial index to screen for chronic kidney disease

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**OBJECTIVES** It has been identified that elevated serum uric acid (SUA) is independently associated with increased risk of chronic kidney disease (CKD), and abnormal higher or lower ankle brachial index (ABI) value has been reported to be independent risk factors of CKD. However, to our knowledge, no publication has estimated the combined detection of SUA and ABI to screen for CKD. The purpose of this study was to evaluate the association of SUA and ABI with CKD, and investigate the combined detection of SUA and ABI to screen for CKD in Chinese hospital inpatients.

**METHODS** A total of 3732 inpatients aged over 35 years and at high risk of atherosclerosis were enrolled from 8 university-affiliated hospitals located in Beijing and Shanghai. Complete baseline data were obtained from 3577 of them. Logistic regression analysis was utilized to assess the association of SUA and ABI with CKD and ROC curves were performed to evaluate the combined detection of SUA and ABI to screen for CKD compared to SUA alone.

**RESULTS** After multivariable adjustment for age, gender, and other confounders, patients with the second, third and fourth quartile of SUA had the ORs of 2.274 (95% CI, 1.666-3.049), 2.770 (95% CI, 2.383-5.015) and 8.523 (95% CI, 6.435-11.312) when the lower quartile selected as reference. Compared to the individuals with an ABI ≥1.00, the ORs for patients with ABI: 0.91-0.99, 0.41-0.96, < 0.40 were 1.499 (95% CI, 0.922-2.411), 1.996 (95% CI, 1.206-3.306) and 2.656 (95% CI, 1.641-4.236) after multivariable adjustment. AUCs of ROC curves for combined SUA and ABI to screen for CKD were 0.731, 0.734, and 0.755 in all population, males and females. And the corresponding AUCs for SUA alone were 0.702, 0.698 and 0.741 (all P < 0.01).

**CONCLUSIONS** A high SUA level was independently associated with a high risk of CKD. SUA was an independent factor for CKD and the combination of a detection of SUA and ABI evaluation can constitute a more efficient means to screen for CKD among the people at heightened risk in Chinese.

**GW26-e6015**

Role of Akt/mTOR signal pathway in iodine contrast agent-induced apoptosis in diabetic rat kidneys

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**OBJECTIVES** The risk of contrast-induced acute kidney injury (CIAKI) is significantly increased in patients with diabetes mellitus. This study aimed to investigate molecular mechanisms of contrast media induced apoptosis in diabetic rat kidneys, especially the involvement of Akt/mTOR signal pathway.

**METHODS** Diabetic Sprague-Dawley rats were induced by intraperitoneal injection of streptozotocin. Ten weeks later the normal and diabetic rats were administered high-osmolar contrast media (HOCM; meglumine diatrizoate) or normal saline (10 ml/kg) injection for two consecutive days. At 24h after the operation, the rats were sacrificed, the blood samples were collected for examining serum creatinine and the kidneys were collected for determining the expression of caspase-3 by immunohistochemistry and the expression of Bcl-2, Bax, upstream signal molecule p-Akt and p-mTOR by western blotting.

**RESULTS** The serum creatinine was significantly increased in diabetes + contrast media group (DCG) after operation compared with normal saline (NS) group (103.89±9.01 μmol/L vs 71.52±7.03 μmol/L, P<0.05). While creatinine clearance rate (CCR) was significantly decreased in DCG after operation (1.49±0.33 ml/min vs 2.60±0.54 ml/min, P<0.05). Especially in the diabetic kidney, the expression of caspase-3 was also significantly increased after intravenous injection of HOCM compared with normal saline. And the expression of anti-apoptosis Bcl-2 protein was significantly decreased in DCG after the induction of DTZ, while the expression of promoting apoptosis protein Bax was significantly increased (0.90±0.13 vs 1.30±0.16; 0.92±0.04 vs 0.51±0.05, both P<0.05). The activity of upstream signal molecule p-Akt and p-mTOR was significantly decreased (0.46±0.08 vs 0.68±0.07; 0.19±0.04 vs 0.50±0.07, both P<0.05).

**CONCLUSIONS** The efficacy of CCIAP can be improved by the simultaneous blocking of caspase-3 and autophagy pathway, which might be mediated by upstream Akt/mTOR (inhibiting p-Akt and p-mTOR expression) signal pathway.

**GW26-e1237**

Lovastatin attenuates cyclosporine inhibition of ROMKI channels by liberating PI(4,5)P2 from microvilli

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**OBJECTIVES** Cyclosporine A (CsA), an immunosuppressant drug which can causes hyperkalemia. However, the mechanism remains unclear. As a member of Kir channel superfamily, ROMK1 plays an important role in potassium secretion of distal nephron. We have validated that CsA can elevates intracellular cholesterol and inhibits ROMK1 activity in renal collecting duct epithelial cells. Interestingly, it has been shown that cholesterol inhibits Kir channels including ROMK1 channel. Therefore, investigating how cholesterol regulates ROMK1 becomes emphasis.

**METHODS** We used cultured mouse cortical collecting duct principal cells (mpkCCDc14, line) combined with a variety of experimental methods, especially with patch-clamp(cell-attached and inside-out), confocal and scanning ion conductance microscopy (SICM) techniques to illuminate the pathway of ROMKI regulation by cholesterol-dependent distribution of PI(4,5)P2.

**RESULTS** Patch-clamp data demonstrated that a small conductance Kir (ROMK1) channel in mpkCCDc14 cells was inhibited by cholesterol and activated by extraction of cholesterol with methyl-β-cyclodextrin (MβCD), implying a possible association between cholesterol and ROMK1. However, confocal microscopy data showed that ROMKI was not in the microvilli where cholesterol-rich lipid rafts are located, but rather in planar regions of the apical membrane of mpkCCDc14 cells, and that phosphatidylinositol-4,5-bisphosphate (PI(4,5)P2), a well-known activator of ROMK channels,