showed myocardial hypertrophy and granular appearance of the myocardial fibers should be considered in the diagnosis of CA. Cardiac magnetic resonance imaging is valuable in the diagnosis of CA.

**GW26-e2244**

**Gene Mutations in Chinese with Arrhythmogenic Right Ventricular Dysplasia/Cardiomyopathy-a cohort registry study**

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**OBJECTIVES** Arrhythmogenic right ventricular dysplasia/cardiomyopathy (ARVD/C) is an inherited cardiac disease associated with an increased risk of arrhythmic sudden death. Mutations in desmosomal genes and some extra-desmosomal genes have been identified to associate with ARVD/C. Previously we identified 5 novel plakophilin (PKP2) mutations in a cohort of Chinese patients with ARVD/C. Our present study is to determine the prevalence of other associated gene mutations in this ARVD/C registry study and explore the potential genotype-phenotype relationship.

**METHODS** Genotypic and phenotypic profiles were studied in a cohort of 52 symptomatic Han Chinese with a clinical or suspected diagnosis of ARVD/C according to modified international Task Force criteria in 2010. Direct sequencing of 5 desmosomal genes and 3 extra-desmosomal genes was performed with a 3730XL DNA Analyzer.

**RESULTS** 22 mutations including 13 novel (13/22, 59.1%) in 5 desmosomal genes PKP2, Desmoplakin (DSP), Desmoglein-2 (DSG2), Desmocollin-2 (DSC2), Plakoglobin (JUP) were identified in 20 (20 of 32, 62.5%) patients in our cohort. No mutations were found in extra-desmosomal genes. Among 32 patients, 11 (11 of 32, 34.4%) patients have PKP2 mutations, 3 (9.4%) DSP, 3 (9.4%) DSG2, 6 (18.8%) DSC2 and 4 (12.5%) JUP. Multiple mutations were found in 6 subjects (6 of 32, 18.8%). 13 novel mutations, 3 DSC2, 3 DSP and 3 JUP. Genotype-phenotype analysis indicates compound multiple mutations may predict major structural abnormalities.

**CONCLUSIONS** PKP2 mutation is the most common gene mutations in our ARVD/C cohort. A higher percentage of DSC2 and JUP mutations were identified in the cohort compared with previous reports. Compound multiple mutations are common and may indicate major structural abnormalities. Extra-desmosomal gene mutations are rare in our Chinese ARVD/C cohort.

**GW26-e2283**

**Incremental Value of Contrast Echocardiography in the Diagnosis of Left Ventricular Noncompaction**

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**OBJECTIVES** Contrast echocardiography with left ventricular opacification (LVO) can improve endocardium definition and potentially becomes supplement of conventional two-dimensional echo (2DE) in the diagnosis of noncompaction of the ventricular myocardium (NCVM). This study aimed to access the feasibility, accuracy, reproducibility of LVO & its incremental value than 2DE in NCVM diagnosis.

**METHODS** NCVM was performed in 85 patients (54 men, mean age 40±20 years) with suspected NCVM (NCVM Gp), and 2DE were performed in 40 healthy volunteers (Normal Gp, 20 men, mean age 40±23 years). The LV chamber size and LV ejection fraction derived from Biplane Simpson’s formula were compared among LVO-NCVM Gp, 2DE-NCVM Group & 2DE-Normal Gp. The location and extent of NCVM were evaluated based on AHA/ACA 16 segment model for LV segmentation, and the thickness ratio of noncompacted to compacted myocardium (NCR) was assessed on LVO & 2DE by 2 independently blinded experienced echo-cardiologists.

**RESULTS** (1) Compared with the Normal Gp, the NCVM Gp showed larger LVEDV (5.8±1.16mm) vs. 4.5±1.15mm, LVEDV (121±11.5ml) vs. 95±14.8, LVESD (43.0±3.44mm) vs. 33.4±4.0mm), LVESV (74.3±3.94ml vs. 44.±4.4ml), lower LVEF (40.8±13.2% vs. 65.6±7.1%), and E/a ratio (0.8±0.32 vs. 1.62±0.5) using 2DE method (p<0.05).

(2) Within the NCVM Gp, compared with the values from 2DE method, LVEDV (65.2±7.8mm vs. 58.9±11.6mm), LVEDV (162±14.8ml vs. 121±11.5ml), LVESV (47.8±5.67mm vs. 43.0±3.44mm), LVESV (84.7±12.46ml vs. 74.3±3.94ml) derived from LVO method were larger and LVEF (38.2±12.4 vs. 40.8±11.3) on LVO was slightly lower (p<0.05).

(3) Among the whole 1360 LV segments in NCVM Gp, there were more segments adequately visualized for analysis on LVO than on 2DE (1278 vs. 1183, 93.97% vs. 86.99%). There were more noncompaction areas detected on LVO than on 2DE (314 vs. 239.99%, of the 921 segments interpreted as normal on 2DE, 52 segments (5.65%) were noncompacted on LVO. NCVM on LVO were majorly located in middle (53.18%), apical (46.18%) segments and lateral wall (9.81%); rarely involved in basal segment (0.64%).

(4) LVO on LVO was greater than that on 2DE (4.2±1.1 vs. 3.3±1.2, P<0.0001), but they are highly related and both showed excellent interobserver consistency. The coefficient of inter-variance observer of NCR was slightly smaller using LVO than 2DE (5.2% vs. 6.6%).

**CONCLUSIONS** Contrast echocardiography can clinically improve the diagnosis of NCVM in accuracy, sensitivity & reproducibility, and act as a useful supplement to the routine two-dimensional transthoracic echo.
associated genes have been identified, including the gene encoding cardiac tropomyosin T type-2 (TNNT2). We examined polymorphisms of the TNNT2 gene in a Kazak family from Xinjiang, China, and in idiopathic DCM (IDCM) patients of both Kazak and Han ethnicity.

**METHODS** Perioperative blood samples were collected from 9 members of the FDCM, from 180 patients with IDCM (90 Kazak and 90 Han), and 180 healthy controls (90 Kazak and 90 Han). PCR was used to amplify 5 exons and nearby introns of the TNNT2 gene. The amplified products were sequenced and compared to the standard sequence in PubMed by BLAST and CHROMOSOME software, to identify mutation sites.

**RESULTS** IDCM from Kazak and Han were compiled for Hardy-Weinberg equilibrium. There was a significant difference in the genotype distribution (χ² = 6.67, P = 0.015) and allele frequency (χ² = 5.17, P = 0.007) between FDCM and Kazak controls of SNP rs3729547. Meanwhile, it also has a difference in the genotype distribution (χ² = 7.62, P = 0.022) and allele frequency (χ² = 6.73, P = 0.009) between Han with IDCM and Han controls, but the rate of IDCM was descend. A novel variant (c.67G>C) was identified in one FDCM patient at exon 13, this mutation caused an amino acid substitution.

**CONCLUSIONS** The TNNT2 SNP rs3729547 is not only a possible independent risk factor for Han ethnicity, but also for Kazak ethnicity.

**GW26-e4659**
Treatment for hypertrophic obstructive cardiomyopathy by coil embolization of a targeted septal artery
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**OBJECTIVES** To investigate the immediate and short-term therapeutic efficacy and feasibility of coil embolization of a targeted septal artery in patients with hypertrophic obstructive cardiomyopathy (HOCM).

**METHODS** Four patients with hypertrophic obstructive cardiomyopathy refractory to medication were chosen, and treated with coil embolization of a targeted septal artery. Preoperative, intraoperative and postoperative left ventricular outflow tract pressure gradient (LVOTPG), septal thickness and systolic anterior motion of mitral (SAM) phenomenon were compared. Postoperative complications and improvement of clinical symptoms were observed.

**RESULTS** Embolization of the targeted septal branch was successfully performed in 4 patients. Compared with preoperative LVOTPG of patients after balloon pressure and complete occlusion were significantly lower (92.50±26.30 vs. 38.00±6.93 and 28.25±6.24 mmHg; P < 0.05, respectively). The average septal thickness of patients at one month after operation was not statistically significant difference compared with the preoperative value (18.40±2.36 vs. 18.68±2.42 mm; P > 0.05, respectively). Follow-up of the 4 cases at 1 month after operation revealed remarkable attenuation of SAM phenomenon. We did not detect ventricular tachycardia and atrioventricular block. Postoperative NYHA classification were significantly lower than baseline (3.00±0.82 vs. 1.50±0.58; P < 0.05, respectively).

**CONCLUSIONS** The study showed treatment for hypertrophic obstructive cardiomyopathy by coil embolization of a targeted septal artery is feasible. In the treatment of HOCM, coil embolization of a targeted septal artery can significantly reduce LVOTPG and improve clinical symptoms.

**GW26-e4624**
The effects of smoking and drinking on all-cause mortality in patients with dilated cardiomyopathy: a single-center cohort study
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**OBJECTIVES** Recent studies have shown that smoking and drinking are associated with poorer outcomes in patients with cardiomyopathy. The purpose of this study was to determine all-cause mortality in dilated cardiomyopathy (DCM) associated with smoking and drinking.

**METHODS** An observational cohort study was undertaken in DCM patients from November 2003 to September 2011. A total of 1118 patients were enrolled, with a mean follow-up of 3.5±2.3 years. Standard demographics were obtained, and transthoracic echocardiography and routine blood testing were performed shortly after admission. Outcome assessment was based on the all-cause death after admission.

**RESULTS** The patients were divided into three groups: non-smokers (n = 950), moderate smokers (n = 158) and heavy smokers (n = 366). The all-cause mortality rates showed no differences between the three groups (23.8%, 20.8% and 24%, respectively; log-rank χ² = 1.281, P = 0.527). There was also no significant difference in mortality between non-drinkers (n = 97), mild drinkers (n = 142) and moderate drinkers (n = 229) (23.2%, 23.2% and 22.3%, respectively; log-rank χ² = -2.342, P = 0.310). In the Cox analysis, neither the smoking (HR 0.971, P = 0.663) nor the drinking status (HR 0.891, P = 0.140) was a significant independent predictor of all-cause mortality in patients with DCM.

**CONCLUSIONS** In conclusion, there were no significant differences in mortality between the smoking- and drinking-related patient groups, indicating no effect of smoking and drinking on all-cause mortality in patients with DCM in the present large-scale study.

**GW26-e0787**
Correlation between Tei index and B-natriuretic peptide in dilated cardiomyopathy patients
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**OBJECTIVES** The growing number of heart failure patients is becoming an important issue in cardiology. B-natriuretic peptide (BNP) is a recognized marker of heart failure, including in patients with dilated cardiomyopathy. The Tei index is an indicator of left ventricular function. The aim of the study was to evaluate the relationship between Tei index and the concentration of plasma BNP in dilated cardiomyopathy patients.

**METHODS** Fifty patients with dilated cardiomyopathy were enrolled in the study. Fifty healthy individuals were assigned to the control group. BNP was measured by enzyme linked immunosorbent assay (ELISA). Echocardiography was performed to calculate Tei index.

**RESULTS** Median value of BNP in patients with dilated cardiomyopathy was 108.61 pg/ml, and 42.8 pg/ml in control group (p < 0.05). The median value of the Tei index was 0.80 in patients with dilated cardiomyopathy, 0.30 in individuals with control group. LVEDD, LVEDV were significantly higher in dilated cardiomyopathy patients than also. All the differences were statistically significant (p < 0.05). A significant positive correlation (R = 0.401, p < 0.05) between BNP and the Tei index was found. The stepwise regression analysis showed closer relationship existing in BNP and Tei index.

**CONCLUSIONS** Tei index, BNP was significantly increased in dilated cardiomyopathy patients. There was a significant positive correlation between them. Tei index was a better index to estimate ventricular global function than other conventional indices.

**GW26-e4626**
Percutaneous transluminal coil embolization of septal artery for ablation of septal hypertrophy in hypertrophic obstructive cardiomyopathy
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**OBJECTIVES** To evaluate the feasibility and the safety after nonsurgical septal myocardial reduction by coil embolization in hypertrophic obstructive cardiomyopathy (HOCM).

**METHODS** Thirteen patients (pts) (male: 5 pts; mean age: 48 (10 years) with HOCM and drug-refractory symptoms underwent ablation of septal hypertrophy by coil embolization with detachable coils. The Torqued® coils (Cook Inc, Bloomington, IN, USA), wires with 2 mm in diameter and 2 or 3 cm in length, were delivered through a 3F RenegadeTM Hi-Flo microcatheter (Boston Scientific Scimed, Maple Grove, MN, USA) positioned inside the target vessel as distally as possible. One or more straight coils were used for each target vessel until complete flow obstruction was noted. The intraventricular pressure gradient