

ABSTRACTS

Abstracts Presentation (Oral):

1.

Phase I Cardiac Rehabilitation Program: Experience of a Tertiary Care Center in Taiwan

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Purpose: Phase I cardiac rehabilitation program (CRP) delivers preventive and rehabilitative services to hospitalized patients following acute coronary syndrome or cardiac surgery. In National Taiwan University Hospital (NTUH), a tertiary care center in northern Taiwan, the CRP is provided by the Department of Physical Medicine & Rehabilitation since 1969. Our phase I CRP for patients following cardiac surgery included breathing exercise, cough training, chest mobility exercise, recondition exercise (safe transfer, sit to stand, ambulation with intensity less than 3.5 METS, and stairs climbing). The purpose of this study was to investigate the clinical characteristics and functional outcome of our patients who received phase I CRP in our hospital in 2007.

Materials and Methods: We retrospectively reviewed the medical records of 284 patients who were referred to phase I CRP in NTUH from January to December in 2007.

Results: Our study subjects were 84 female and 200 male patients with mean age of 64.7±16.7 years; weight: 62.7±12.8 kg; height: 161.3±11.1 cm. The average hospitalization duration was 27.0±39.3 day. Their cardiac risk factors included smoking (current smoker 18.7%), diabetes (38.4%), dyslipidemia (50.0%), and hypertension (65.5%). Most of the patients (98.9%) were referred from Department of Surgery. Operative procedures included coronary artery bypass surgery (n=166, 58.5%), valvular surgery (n=33, 11.6%), aortic grafting surgery (n=18, 6.3%), heart

transplantation (n=22, 7.7%), and some combined surgery (n=45, 15.8%). Phase I CRP was performed by physical therapists before and after surgery. Only 16.9% of the study subjects received preoperative intervention. Most study subjects started phase I CRP within 1 week following surgery with 28.2% within 3 days following surgery and 42.6% at 4-7 days following surgery. The average number of physical therapist visit was 6.2±10.2. Most visits were limited less than 7 times (70.8%). Most patients could stand up (77.1%) and walk (67.9%) within 7 days after surgery. Some patients (64.1%) could climb up and go down stairs during their hospitalization. Most patients (94.3%) could return to level walking before discharge. During CRP, only 1.4% of the study subjects reported new-onset of arrhythmia, and 5.9% reported exercise-related hypotension. The study subjects were discharged to home for 93.3%, to other departments for 4.2%, and deceased for 2.5%.

Conclusions: Although CRP was provided for both cardiac patients with or without surgery, this study displayed less referral for the cardiologists than from cardiac surgeons.

2.

A Randomized Controlled Trial of Effectiveness of Cardiac Rehabilitation on Functional Capacity

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Objective: To investigate the effectiveness of individually tailored exercise-based Cardiac Rehabilitation on functional capacity in post cardiac-event coronary artery disease patients (CAD).

Materials and Methods: It was Single blinded, Randomized controlled trial and approved by the ethical committee of the institute. To our knowledge it was the first of such trial in India. Post-cardiac event CAD patients (within one month of hospital discharge) with age group of 35 to 75 years, surgically (CABG or PTCA) or conservatively treated were recruited from Kasturba Hospital; Manipal. Exclusion criteria were high risk group (AACVPR-99) patients and contraindications to exercise testing and training. Recruited subjects were randomized either into Control or Cardiac Rehabilitation (CR) groups by concealed envelope method. CR group (n=37) underwent 12 weeks structured individually tailored CR program (ACSM-2005 guidelines) and control group (n=23) only received the usual cardiac care without any exercise training. Main outcome measure; functional capacity (MET level) was measured by Bruce protocol exercise test before and after 12 weeks CR and compared with control group. Considering intention to treat approach, Between and within group analysis was done using General Linear Model, repeated measures by keeping level of significance at p≤0.05.

Results: A total of 60 patients with mean age of 55.3±9.2 (48 male and 12 female) enrolled in the study having given written, informed consent. At baseline there was no significant difference between groups in respect of demographic, clinical and socioeconomic characteristics as well as the main outcome. There was a significant increase in MET value in CR (8.30±2.2 to 11.25±2.1) group compared to control (8.26±2.4 to 8.53±1.7) group (p=0.009).

Conclusion: A 12 week early (within one month post-discharge) structured individually tailored cardiac rehabilitation program can significantly improve functional capacity in post-cardiac event coronary artery disease patients.

ABSTRACTS

Abstracts Presentation (Oral):

3.

What Can Phase II Cardiac Rehabilitation Program Achieve in Frail and Elderly Patients with Coronary Artery Disease

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Introduction: Physical unfit and fear after treadmill test were addressed as barriers to participation in phase II cardiac rehabilitation program (CRP). A modified rehabilitation program was, therefore, designed and provided for those patients, with an aim to benefit this potential population.

Objective: Eligible cardiac patients were recruited from November 2009 to March 2010 for having this 12-week program. The aim of this study was to examine the preliminary outcome of those patients undergoing training in a regional hospital.

Methods: Exercise tolerance and quality of life were evaluated before and after training by using six-minute walk test, Short Form 36 Health Survey and Hospital Anxiety and Depression Scale, respectively. Paired sample T-test was used for data analysis.

Results: Nineteen patients (9 males, 47%) were recruited into modified phase II CRP. The mean age of those patients was 74.4 (SD±7.6) years. About 80% of them were recruited following acute coronary syndrome, and the rest were patients following completion of cardiac interventions. Reasons for arrangement of modified training including physical unfit (53%), fear of treadmill test (32%) and age ≥80 years (26%). Thirteen patients (68%) completed the 12-week training course. Six cases (32%) defaulted. Financial difficulty and disabling leg pain were major reasons for their non-attendance.

Patients showed improvement in their exercise tolerance before and after training (286.36 m vs. 299.09 m, p=0.022). They also showed significant reduction in their anxiety and depression scores and improvement in some domains in quality of life (p<0.05).

Conclusion: The preliminary findings of our study showed that selected cardiac patients who were physically unfit, afraid of treadmill test and old age could also be recruited for and benefited from outpatient cardiac rehabilitation program. They showed improvement in their exercise tolerance and quality of life, as well as reduction in their anxiety and depression level.

4.

Effects of a Structured Cardiac Rehabilitation Program in Thailand

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Introduction: In Thailand, Acute Coronary Syndrome (ACS) survivors have little access to formal cardiac rehabilitation, thus the effectiveness of such a programme is unknown.

Aims: To determine the effectiveness of a comprehensive cardiac rehabilitation programme in Thai ACS survivors.

Methods: A prospective non-randomised study was conducted on 132 ACS survivors divided into two groups, 65 controls and 67 who were given a six-week comprehensive cardiac rehabilitation programme with 3 and 6 months follow-up. The primary outcomes included fasting total cholesterol, triglyceride, High-density lipoprotein (HDL) cholesterol, Low-density lipoprotein (LDL) cholesterol, fasting blood sugar, blood pressure, Body Mass Index (BMI), smoking status and exercise. All were measured before and after cardiac rehabilitation programmes at 0, 3 and 6 months. The secondary outcomes included all-cause mortality, nonfatal myocardial infarction, and revascularisation.

Results: The intervention and control groups were similar at baseline. At the end of the study, the rehabilitation group showed reduction of total cholesterol of -12.1 mg/dL (95%CI: -8.1 to 32.2, p=0.24), triglyceride of -24.2 mg/dL (95%CI: -21.7 to 70.0, p=0.29), LDL-cholesterol of -8.5 mg/dL (-95%CI: 10.1 to 27.0, p=0.37), FBS of -7.2 mg/dL (95%CI: -33.0 to 18.6,

p=0.58), and BMI of -0.7 kg/m² (95%CI: -2.2 to 0.8, p=0.37). There was an increase in HDL-cholesterol of 2.1 mg/dL (95%CI: -7.1 to 2.8, p=0.39). The frequency of exercise was significantly increased in intervention group (p<0.0001); at 3-month (40 patients (87%) vs 2 patients (5%)) and 6-month (28 patients (61%) vs 2 patients (5%)). Comprehensive cardiac rehabilitation was significantly associated with a reduction in revascularization (OR of 0.22 (0.55-1.00, p=0.05)). However, there were no significant differences in non-fatal MI and CHF events.

Conclusion: A comprehensive cardiac rehabilitation programme was able to reduce primary outcomes in total cholesterol, triglyceride, LDL-cholesterol, increase the frequency of exercise, and reduced revascularisation rates in a 6 month period in Thai ACS survivors.

ABSTRACTS

Abstracts Presentation (Oral):

5.

Effect of Long-Term and Hospital-Based Exercise Therapy on Arterial Stiffness

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Background: Direct effect of long-term exercise therapy for arteriosclerosis was not clear.

Subjects and Methods: We studied 36 subjects with exercise therapy for 3.9 years (2–6 years). Arterial stiffness was assessed by measuring pulse wave velocity (PWV). PWV and cardiopulmonary exercise tests were performed every year. Exercise therapy consisted of supervised aerobic and resistance training performed at least 2–3 times/week. All exercise sessions were controlled by heart rate and intensity. PWV was also performed in 16 subjects without exercise therapy as a control.

Results: There were no significant differences of age, rest systolic blood pressure (BPs), PWV and BMI between the EX and cont groups (59 ± 5.9 vs 60 ± 5.0 yrs, 126 ± 13 vs 126 ± 15 mmHg, 1513 ± 290 vs 1580 ± 200 cm/sec, 22.9 ± 2.9 vs 23.7 ± 4.5) before the exercise therapy. The durations of exercise and observation period did not show significant differences (3.8 ± 1.0 vs 4.0 ± 1.0 years) in both groups. Oxygen consumption at anaerobic threshold and peak level did not change significantly in the EX group. However, PWV increased significantly in the cont group rather than the EX group (1594 ± 269 vs 1760 ± 213 , $p < 0.05$).

Conclusions: These data demonstrate supervised long-term exercise therapy had preventive effects for arteriosclerosis in elderly subjects, even though they had no prior experience of exercise and started exercise in old age. Further more long-term beneficial effect of exercise might be sustainable as long as the subjects continue exercise behavior even without an increase of exercise capacity.

6.

Effect of Passive Cycling on Systemic Endothelial Function in Elderly Patients with Heart Failure: A Pilot Report

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Study objectives: This study was designed to investigate the effect of 2 kinds of exercise training; passive cycling and gait training on systemic endothelial function in elderly patients with heart failure (HF) who have severely reduced exercise tolerance.

Materials and Methods: Twenty-seven patients with HF (mean age 79 ± 6 yrs) were randomized to either passive cycling group or control group. Passive cycling was performed at pedaling frequencies of 30–40 rpm for 15-minute using a servo-dynamically controlled ergometer. Patients in the control group joined 15-minute gait training on a corridor instead of passive cycling. At the beginning and after 2 weeks of exercise training, digital reactive hyperemia peripheral arterial tonometry (RH-PAT) and 6-minute walk distance (6MWD) was measured.

Results: More male patients were allocated to the passive cycling group ($p < 0.01$). Patients in the passive cycling group showed a trend toward increased mean RH-PAT index (1.59 to 1.93, $p = 0.05$), which remained unchanged in the control group (1.68 to 1.66, $p = 0.8$). When adjusted by gender, passive cycling showed significant associations with changes of RH-PAT index ($p = 0.03$). The 6MWD was significantly improved in both groups ($p < 0.01$).

Conclusions: In this pilot study, passive cycling appeared to be well tolerated and have potential efficacy on endothelial function in elderly patients with HF.

ABSTRACTS

Abstracts Presentation (Oral):

7.

Body Weight-Reducing Effects of Daily Life Advice Using Combination of a Web-Based Goal Setting System for Individuals and an Automated Monitoring System

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Objectives: The effects of three interventions in reducing body weight were evaluated in the metabolic syndrome group and the metabolic syndrome precursor group as compared to the control group. The three interventions tested were an intervention with conventional health guidance an intervention through self-monitoring with a Web system and an intervention through self-monitoring with a combination of a Web system and an automated measuring instrument.

Methods: The subjects of this study were divided into four groups: the control group (CG) (n=27), the conventional health guidance group (CGG) (n=15), the Web group (WG) (n=37) and the Web + automated (W+AG) measurement instrument group (n=39). CG was performed only baseline test. CGG received one session of face-to-face counseling and two sessions of mail-based support. In the WG, each subject received one session of face-to-face counseling, practices Web-based self-monitoring subsequently and received mail-based supports. In the W+AG was accompanied by the use of an automated measurement instrument enabling automated Web-based recording by measuring the blood pressure, gait count, and body weight.

Results: When the results were compared among the four groups, body weight and BMI decreased significantly in the W+AG as compared to the CG. Abdominal circumference decreased significantly in the W+AG as compared to the other three groups. Significant elevation of HDL-cholesterol level after intervention from the pre-intervention level was seen only in the W+AG.

Discussion: The results suggest that self-monitoring with the combination of a Web-based system and an automated measuring instrument is useful in facilitation of body weight reduction.

8.

Comparison of Cardiovascular Risks Factors after 14 Years in a Worksite Heart Health Promotion Project

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Purpose: A cardiovascular health promotion project was conducted in a worksite since 1995 for the past 14 years. Screening of the measurable and modifiable cardiovascular risks was compare between the 95/96 group to the 2009 group.

Methods: Screening of cardiovascular risks including blood pressure (BP), waist circumference, hip circumference, waist hip ratio (W/H), weight, body mass index (BMI), blood glucose, total cholesterol, triglyceride (TG), high density lipoprotein (HDL) and low density lipoprotein (LDL) were taken for the participants and the participants were informed of the screening results, given educational pamphlets and Health talk. The mean of the parameters were compared between the 2 groups. Their mean was compared by T-test. Correlation between the parameters was assessed using Pearson correlation. P value of <0.01 was considered significant.

Results: Data of 1780 participants in 95/96 group and 2210 participants in 2009 were analyzed.

Cardiovascular Risks Assessment.

Mean value	1995 +1996	2009	Mean difference	P value
W/ H ratio	0.7933	0.8305	0.03723	<0.001
BMI kg/m ²	22.412	24.231	1.8193	<0.001
Glucose mmol/l	5.065	5.078	0.0133	0.632
Cholesterol mmol/l	5.045	5.212	0.1668	<0.001
TG mmol/l	1.1452	1.1126	0.03228	0.308
HDL mmol/l	1.4730	1.4204	0.05258	<0.001
LDL mmol/l	3.0688	3.3012	0.23240	<0.001

Male sex, increase in age and the 2009 group are independently associated with deterioration of cardiovascular risks HDL, LDL, TG, BMI and W/H ratio by multiple linear regression.

Conclusion: The participants showed a statistical significant deterioration in the risks factors, including W/H ratio, BMI, total cholesterol, HDL and LDL. The effort to control these modifiable cardiovascular risks factors should be enhanced for primary prevention of cardiovascular diseases.

ABSTRACTS

Abstracts Presentation (Oral):

9.

Community-Engaged Health Promotion Program for Improving the General Cardiovascular Risk Profile

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Introduction: Cardiovascular disease (CVD) is the second most common cause of deaths and the prevalence of CVD is increasing. However, format of prevention programs often vary and the effectiveness remains controversial in the Hong Kong community.

Objective: The objective of the project is to promote the prevention of CVD through early identification and control of modifiable risk factors, to investigate the general cardiovascular (CVS) risk profile and to evaluate the effectiveness of this program.

Methodology: Health promotion program – "Eat Healthy and Get Active: a Lifestyle to Start and Keep" with supplementary financing of the bureau (HCPFund) and engagement of the community partners, was launched in 2007 and completed in 2009. General population without history of CVD, were recruited. Assessment of different health domains, efficacy and risks were conducted. Subjects were arranged to attend ten sessions of empowerment workshops on cardiovascular health, healthy diet and exercise training as well as ten sessions of community exercise classes.

Results: 215 subjects, aged 51.07±9.52, were recruited. Lack of exercise (57.7%, n=124), hyperlipidaemia (55.3%, n=119) and central obesity (51.6%, n=111) were found to have the highest prevalence among all the CVD modifiable risk factors. The subjects' 10-year general CVS risk were calculated; 20.2% and 8.9% of the subjects had moderate risk and high risk for CVD respectively. After the program, subjects' volume of vigorous exercise were found to improve significantly by 49.2% (p=0.05); aerobic capacity and level of high-density lipoprotein significantly improved by 11.5% (p<0.001) and 2.9% (p<0.001) respectively. In addition, the self-efficacy score on exercise and diet improved by 14.8% (p<0.001) and 8.4% (p<0.001) respectively. The 10-year general CVS risk for this cohort decreased by 1.5% (p<0.001). Moreover, significant improvements were also found in subjects' muscle power, flexibility and waist circumference.

Conclusion: Increasing risk for CVD was found in the HK population. Subjects had low self awareness of risk factors for CVD. Health promotion program under collaboration between HA and community partners which emphasize on empowerment / peer-support to promote self-management was a feasible service model. It was effective and economical to promote healthy lifestyle and to reduce general CVS risk.

10.

Effects of Exercise Based Cardiac Rehabilitation on Quality of Life in Heart Failure with Reduced Ejection Fraction

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Objectives: To determine the effects of early in-patient phase-1 rehabilitation followed by a structured home-based program on quality of life (QoL) and walking distance in patients having heart failure with reduced ejection fraction (HFREF).

Materials and methods: After obtaining ethical clearance and obtaining written informed consent, a randomized controlled trial was undertaken on 30 admitted patients with HFREF with New York Heart Association (NYHA) class II-IV having an EF <40%. Patients in the experimental group received supervised phase-1 rehabilitation followed by an 8 week, individualised, structured home-based program. The control group did not receive an active rehabilitation program. QoL was assessed using the medical outcomes survey short form (SF-36) and the Minnesota living with heart failure questionnaire (MLHFQ) at admission, discharge and after 8 weeks of training. The six minute walk distance (6MWD) was assessed at discharge and follow up.

Results: Both groups were comparable at baseline (p>0.05). QoL showed a statistically significant difference from admission to follow-up on the SF36 and MLHFQ (p<0.05). A repeated measures ANOVA demonstrated a statistically significant difference (p<0.05) in the SF-36 scores (physical and mental components) but not for the MLHFQ (p>0.05) from admission to discharge to follow-up. At discharge, there was a change in the 6MWD

between the control and experimental group (310m vs 357m respectively; p=0.001). Following the 8 week home based program, there was a statistically significant difference in 6MWD in the experimental group when compared to the control group (514m vs 429m; p<0.001).

Conclusion: Early in-patient phase-1 rehabilitation followed by a structured home based program improves QoL and walking distance in patients with HFREF.

3RD ASIAN PREVENTIVE CARDIOLOGY AND CARDIAC REHABILITATION CONFERENCE CUM 8TH CERTIFICATE COURSE IN CARDIAC REHABILITATION

ABSTRACTS

Abstracts Presentation (Oral):

11.

A Randomized Controlled Trial on Reduction of Blood Pressure Among Hypertensive Patients Using "One Minute Qigong Exercise"

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Background: Data from the Third National Health and Morbidity Survey (NHMS) 1996 reports that national prevalence of hypertension for Malaysian residents' aged 18 and above was 32.2%. Despite many national guidelines on hypertension prescribed regular physical activities for 20 to 60 minutes every day, the current research database is inadequate to validate the optimal exercise intensity for high blood pressure management. This study was conducted to determine the efficacy of "One Minute Qigong Exercise" in reducing blood pressure among hypertensive patients.

Methods and results: A randomized controlled trial was conducted among 46 hypertensive patients. Participants were recruited from Hospital Universiti Sains Malaysia's clinics and randomized into intervention ("One Minute Qigong Exercise") or control (one minute reading session) using block randomization (blocks of 4). The trial was conducted for two weeks, control and intervention for first and second week respectively. Standardization of blood pressure measurement among five assessors was done on ten volunteers (Intra class correlation coefficient 0.87 and 0.77 for systolic and diastolic

blood pressure respectively). The outcome measurement was blood pressure which measured before one minute sessions began for five consecutive days by assigned assessors using mercury sphygmomanometers. The Multifactorial Repeated Measure ANOVA with grouping (intervention and control) and gender (male and female) as factors was used in statistical analysis. Subsequently, Multifactorial Repeated Measure ANCOVA was used to control age covariate. There was a significant difference of systolic blood pressure between 1st and 2nd day in both groups with the mean difference 5.109 (95% confidence interval [CI] 1.630, 8.587). The results for comparison of diastolic blood pressure between two gender groups showed a mean difference of 4.726 (95% CI 0.001, 9.452). Both results were based on Repeated Measure ANOVA analysis. The other results reported no significant difference between groups.

Conclusion: Our study has shown that "One Minute Qigong Exercise" for short duration, which was five consecutive days, offers no additional benefit in reducing blood pressure among hypertensive participants. However, it could be used as an alternative and complementary measure to standard medical management in those who prefer to practice it as a form of nonpharmacological management of hypertension. More methodologically strict studies are needed to prove the optimal dosage of the "One Minute Qigong Exercise" in reducing blood pressure among hypertensive patients, and to explore its potential clinical benefits and mechanism. The benefits of qigong exercises are sufficiently well established to provide trustworthiness and reliability for clinicians to shift the focus from fighting the disease to cultivating health.

Table 1 Comparison of blood pressure within treatment groups based on time

Comparison	Both groups		Intervention		Control	
	Mean difference (95% CI)	p value ^a	Mean difference (95% CI)	p value ^a	Mean difference (95% CI)	p value ^a
SYSTOLIC						
D1 - D2	5.109 (1.630, 8.587)	0.005	5.238 (-0.804, 11.280)	0.086	5.000 (0.663, 9.337)	0.026
D1 - D3	5.109 (1.294, 8.923)	0.010	6.905 (0.251, 13.559)	0.043	3.600 (-1.035, 8.235)	0.122
D1 - D4	4.891 (1.357, 8.426)	0.008	6.190 (0.003, 12.378)	0.050	3.800 (-0.508, 8.108)	0.081
D1 - D5	3.478 (-2.50, 7.207)	0.067	5.714 (-5.31, 11.959)	0.071	1.600 (-3.118, 6.318)	0.491
D2 - D3	0.000 (-3.415, 3.415)	1.000	1.667 (-3.639, 6.972)	0.520	-1.400 (-6.111, 3.311)	0.545
D2 - D4	-0.217 (-3.631, 3.197)	0.8999	0.952 (-4.697, 6.602)	0.729	-1.200 (-5.670, 3.270)	0.585
D2 - D5	-1.630 (-5.528, 2.267)	0.404	0.476 (-5.957, 6.910)	0.879	-3.400 (-8.446, 1.646)	0.177
D3 - D4	-0.217 (2.981, 2.546)	0.875	-0.714 (-5.504, 4.075)	0.759	.2000 (-3.247, 3.647)	0.906
D3 - D5	-1.630 (-5.439, 2.178)	0.393	-1.190 (-5.850, 3.469)	0.600	-2.000 (-8.134, 4.134)	0.507
D4 - D5	-1.413 (-4.600, 1.774)	0.377	-0.476 (-3.767, 2.815)	0.766	-2.200 (-7.598, 3.198)	0.409
DIASTOLIC						
D1 - D2	0.870 (-1.581, 3.320)	0.479	-1.190 (-5.192, 2.811)	0.542	2.600 (-0.503, 5.703)	0.097
D1 - D3	0.978 (-2.431, 4.388)	0.566	1.905 (-3.738, 7.548)	0.489	0.200 (-4.728, 4.678)	0.927
D1 - D4	0.543 (-2.397, 3.484)	0.711	0.476 (-4.183, 5.135)	0.833	0.600 (-3.455, 4.655)	0.763
D1 - D5	1.087 (-1.963, 4.137)	0.477	2.857 (-2.107, 7.821)	0.244	-0.400 (-4.393, 3.593)	0.838
D2 - D3	0.109 (-2.424, 2.642)	0.932	3.095 (-0.878, 7.069)	0.120	-2.400 (-5.559, 0.759)	0.130
D2 - D4	-0.326 (-2.819, 2.166)	0.793	1.667 (-2.672, 6.005)	0.432	-2.000 (-4.919, 0.919)	0.170
D2 - D5	0.217 (-2.702, 3.136)	0.881	4.048 (-0.596, 8.691)	0.084	-3.000 (-6.474, 0.474)	0.087
D3 - D4	-0.435 (-3.013, 2.143)	0.736	-1.429 (-4.965, 2.108)	0.409	0.400 (-3.503, 4.303)	0.834
D3 - D5	0.109 (-2.424, 2.642)	0.932	0.952 (-2.545, 4.450)	0.576	-0.600 (-4.430, 3.230)	0.749
D4 - D5	0.543 (-1.675, 2.762)	0.624	2.381 (-0.553, 5.315)	0.106	-1.000 (-4.317, 2.317)	0.540

Multi-factorial repeated measure ANOVA within group, followed by multiple paired t-test applied.

^aBonferroni correction applied by correcting level of significance (α / number of pairs = 0.05 = 0.005)

ABSTRACTS

Abstracts Presentation (Oral):

12.

A Randomized Controlled Trial of Effectiveness of Cardiac Rehabilitation on Myocardial Contractility: An Indo-Iranian Study

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Objective: To determine the efficacy of 12 weeks individually tailored cardiac rehabilitation (including exercise training and Life-style modification education) on myocardial contractility by measuring left ventricular ejection fraction (LVEF) in early post-event coronary artery disease (CAD) patients in India & Iran.

Materials and Methods: This is a part of larger ongoing prospective longitudinal single blinded multicenter randomized controlled trial which as to our knowledge is the first of such study. After obtaining the ethical approval from both countries Post-event CAD patients (CABG, PTCA, MI) were recruited from one center in India (C1: Kasturba Hospital) and one center in Iran (C2: Golsar Hospital). Patients with given written informed consent were randomly allocated into study or control group using concealed envelope method. Exclusion criteria were high risk group (AACVPR-99) patients and contraindications to exercise testing and training. Patients in the study group (n=68) underwent 12 weeks of structured individually tailored Cardiac Rehabilitation (CR) including exercise training and life style modification educational program, and Control group (n=35) only received the usual cardiac care without any CR. Main outcome measure;

LVEF was measured by echocardiography before and after 12 weeks of CR and compared with control group. Analysis was done by Intention to treat approach. We compared between and within group differences of outcome by using Repeated Measures ANOVA, keeping level of significance at $p \leq 0.05$.

Results: A total of 103 patients given informed consent enrolled in the study. In C1, 60 patients with mean age of 55.3 ± 9.2 years randomly divided into Study (n1=23) group and Control (n2=37) group. In C2, 43 patients with mean age of 60.5 ± 8.9 years randomly divided into study (n3=31) group and control (n4=12) group. There was no demographic or socioeconomic difference between groups in each center as well as the base line outcome measure between centers. Center-wise pre-post analysis showed there was a significant increase in LVEF in Study group in in C1 (55.3 ± 10.8 to 66.1 ± 7.7) compared to control (56.3 ± 11.2 to 56.2 ± 9.5) group ($p=0.05$). In C2 also there was a significant increase in LVEF in study group (46.9 ± 5.9 to 61.5 ± 5.3) compared to control (47.9 ± 7.0 to 47.7 ± 6.7) group ($p=0.001$).

Conclusion: A 12 weeks structured individually tailored cardiac rehabilitation program can significantly improve the myocardial contractility in post-event CAD patients regardless of the ethnicity, diet habits and age.

13.

Abnormal Vascular Function in PR Interval Prolongation: Novel Insights into Mechanisms of Adverse Cardiovascular Outcomes

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Background: PR interval has long been thought to have a benign nature and carry no adverse prognostic implications. However, recent study showed that it is associated with increased risk of atrial fibrillation and all-cause mortality, mechanisms of which remained unclear.

Methods: Healthy subjects (n=88, mean age 58 ± 10 years, 46% male) free of any history of cardiovascular disease or diabetes mellitus were randomly recruited from a community-based health screening programme. PR interval length was determined from resting 12-lead electrocardiogram. Vascular function was non-invasively assessed by flow-mediated dilatation (FMD) using high-resolution ultrasound (Agilent Sonos 5500, USA) and brachial-ankle pulse wave velocity (baPWV) was using vascular profiling system (VP-2000, Colin Corp, USA).

Results: Only 3 subjects had PR interval length longer than the conventional cut-off of 200 ms. PR interval length was associated inversely with FMD (Pearson $R = -0.30$, $P = 0.004$) and positively with baPWV (Pearson $R = 0.40$, $P < 0.001$). Adjusting for potential confounders including age, sex, smoking history, body-mass index, physical activity, and the use of antihypertensive medications, increased PR interval length by each 20ms was independently associated with reduced FMD by -1 units (absolute %, $B = -0.05$ [95%CI: 0.08 - 0.01], $P = 0.027$) and increased baPWV by +78 cm/s ($B = +3.9$ [95%CI 0.3 - 7.6], $P = 0.035$).

Conclusion: This study presents novel findings that increased PR interval length is independently associated with endothelial dysfunction and increased arterial stiffness in healthy subjects, even in the conventionally normal range. This suggests a potential need to redefine the "normal range" of PR interval and gives novel insights into the potential mechanisms by which PR interval prolongation may give rise to adverse cardiovascular outcomes.

ABSTRACTS

Abstracts Presentation (Oral):

14.

Effects of a 6-Month Weight Reduction Program in Cardiac Rehabilitation

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Introduction: The rising prevalence and incidence of overweight and obesity globally with the significant health impacts of weight gain, weight control is one of the major risk factors control in cardiac rehabilitation.

Objectives: The objectives of the program were 1) to evaluate the effects of a 6-month aerobic exercise training (plus 3-session nutrition consultation) for obese individuals with heart disease after 6-week self-efficacy enhancing cardiac rehabilitation phase II program, on weight loss, waist circumference reduction, 18-month long term weight loss, 1-year weight maintenance and 2) to retrospectively study the effects on lipid profile changes.

Method: Totally 69 (69% male, mean age=56±9, mean BMI=29±4, 93% with waist circumference above normal range) cardiac rehabilitation graduates joined the program. The weight reduction program is multidisciplinary consisted of aerobic exercise training & physical activity education, lifestyle consultation, dietetic group counseling, nursing & medical advice; with 1-year telephone follow-up on body weight. Strategies for enhancing exercise behavior were implemented.

Results: Results showed that there were statistically significant weight loss ($t=10.39$, $p<0.001$, mean loss 4%) and waist circumference reduction ($t=9.42$, $p<0.001$, mean loss 4%). The rate of successful weight loss (>5%) was 41%, successful long term (18-mth) weight loss was 28%, 1-year successful weight maintenance (± 2.3 kg) was 88%. There were statistically significant lipid changes ($n=35$; LDL $t=2.27$, $p<0.05$, -13%; HDL $t=2.21$, $p<0.05$, +8%) and triglycerides reduction ($t=4.23$, $p<0.001$, -26%). Lifestyle changes were also significant with improvement in diet knowledge ($t=3.79$, $p<0.001$), diet behavior ($t=6.77$, $p<0.001$) and 89% participants after 6 months, 96% (out of 89%) after 18 months adopted minimally active lifestyle.

Conclusion: The weight reduction program in cardiac rehabilitation demonstrated positive effects on risk factors control of obesity, central obesity, sedentary lifestyle, lipid profile, and hyperglycemia.