

## Epidemiology

### PP-075

#### Short-term Effects of Vitamin-D treatment on Cardiac Systolic and Diastolic Functions

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**Objective:** Novel studies which investigated extraskelatal effects of vitamin D showed that vitamin D plays important role in whole body health, beyond bone health. Vitamin D receptors are present in various cell types including osteoblasts, cardiomyocytes, myocytes, endothelium, immune cells and neurons. Vitamin D deficiency is defined as 25-hydroxy D3 values  $\leq 20$  ng/ml and its prevalence varies from 27% to 55% in different series. Decline in systolic and diastolic functions of the heart has been reported in patients with vitamin D deficiency. In this study, we aimed to investigate short-term effects of vitamin D treatment on systolic and diastolic functions of the heart in patients with vitamin D deficiency.

**Methods:** Fifty patients (3 male/ 47 female, mean age  $46 \pm 12$  years) diagnosed as having vitamin D deficiency and osteoporosis were included in this study. All patients underwent detailed transthoracic echocardiography for evaluation of left ventricular systolic and diastolic functions of the heart. Oral Vitamin D was administered to all study patients for 8 days (a total of 300.000 IU). Transthoracic echocardiography was repeated for all patients at 30th days.

**Results:** After one month treatment with oral Vitamin D, serum 25-hydroxy D3 value increased from  $11 \pm 4$  ng/ml to  $21 \pm 5$  ng/ml,  $p < 0.001$ . After initiation of supplementary vitamin D treatment LVEF ( $62.6 \pm 5\%$  to  $63.8 \pm 4$ ,  $p = 0.025$ ) indicating LV systolic function improved significantly. Also mitral E/A ratio, a measure of diastolic function, improved significantly after treatment with vitamin D treatment ( $1.16 \pm 0.3$  to  $1.2 \pm 0.3$ ,  $p = 0.028$ ). However, IVCT ( $95.2 \pm 15$  to  $96 \pm 13$ ,  $p = 0.54$ ) and EDEC ( $197 \pm 28$  to  $197 \pm 22$ ,  $p = 0.95$ ) were similar to baseline values. Change in serum level of vitamin D ( $\Delta$  Vit D) was correlated with change in LVEF ( $\Delta$  EF,  $r = 0.39$  and  $p = 0.005$ ) and change in mitral E/A ratio ( $\Delta$  E/A,  $r = 0.340$  and  $p = 0.016$ ). Linear regression analysis revealed that change in serum 25-hydroxy D3 level ( $\Delta$  Vit D) was significantly associated with change in LVEF ( $\Delta$  EF) (coefficient  $\beta = 0.36$ ,  $p = 0.013$ ).

**Conclusion:** Results of this study show that supplementary vitamin D treatment leads to improvement in LV systolic and diastolic function in patients with vitamin D deficiency, even at short term follow-up. Our results also show that change in Vitamin D level is significantly associated with improvement in LVEF.

**Table 1.** Change in several echocardiographic indicators of systolic and diastolic function before and after treatment with Vitamin D

	Pretreatment	Posttreatment	P value
LVDd (mm)	44.16 $\pm$ 3.89	44.22 $\pm$ 3.28	0.866
LVSd (mm)	29.26 $\pm$ 3.06	29.14 $\pm$ 2.96	0.674
LVEF (%)	62.62 $\pm$ 4.94	63.88 $\pm$ 4.43	0.025
FS (%)	33.56 $\pm$ 3.62	34.02 $\pm$ 3.19	0.018
E/A	1.16 $\pm$ 0.29	1.20 $\pm$ 0.28	0.028

**Table 2.** Linear regression analysis showing the relation between change in left ventricular ejection fraction and several variables

	Coefficient $\beta$	P value
Change in Vitamin D level	0.364	0.013
Diabetes	-0.091	0.528
Hypertension	0.047	0.786
Age	0.074	0.666
Sex	0.158	0.262

### PP-076

#### Major Adverse Events Rate and Characteristics in Duzce, The Results of Melen Study with 36 Months Prospective Follow-up

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**Objective:** This study includes the results of three years of follow-up data of Melen study which was designed prospectively in 2010. The present study was designed to determine major adverse events rates and characteristics after thirty-six months follow up of Turkish adults. Also we aimed to evaluate the risk associates of adverse events and predisposing factors.

**Methods:** 2298 participants, who joined the study in 2010, were followed. A total of 1495 people were reached via telephone call and included in the study (570 male, 925 female). The individuals were questioned for primary end points of death, ischemic or hemorrhagic cerebrovascular events, decompensated heart failure, acute coronary syndrome, hypertensive crisis, arrhythmia, syncope, peripheral vascular disease, angina attack and hospitalization for non-cardiac reasons.

**Results:** During thirty-six months follow up, sixteen participants died, fourteen participants had cerebrovascular events, thirteen were hospitalized with heart failure, twelve had acute coronary syndrome, thirty-one had hypertensive crisis, eleven had arrhythmia, thirteen had syncope, two had peripheral vascular disease. A number of 23 participants hospitalized for non-cardiac reasons. The most common cause of non-cardiac hospitalization was musculoskeletal diseases. Six patients admitted for this reason. A total of four patients developed cancer.

**Conclusion:** Major adverse event rate and correlates were determined in this epidemiologic study with 4485 participant-year follow-up. Hypertension was the most common risk factor associated with major adverse events. The results are concordant with the general concept that hypertension is one of the biggest mortality and morbidity causes in Turkey.

### PP-077

#### Vitamin D and PTH Levels in Acute Coronary Syndromes

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**Introduction:** Vitamin D and PTH (Parathyroid hormone) are considered important primarily for calcium and phosphorus homeostasis. However, in the recent years, vitamin D and PTH levels have been linked to cardiovascular disease and mortality.

**Material and Methods:** One hundred patients were included in the study. Patient group included 50 patients presented to cardiology clinic with ACS (acute coronary syndrome) and underwent coronary angiography between February 2012 and January 2013. Control group included 50 patients whom coronary angiography revealed normal coronary arteries in the same time period. In order to minimize the confounding effect of seasonal fluctuation of vitamin D levels, we aimed to involve equal number of patients in each month. Depending of the eligible patients presented, table 1 shows the number of subjects included each month. All blood samples were fasting morning samples.

**Results:** 50 patients with ACS (31 male, mean age 57, 2+8, 45) and 50 subjects with normal coronary arteries (31 male, mean age 54, 56+7, 51) included in the study. The characteristics of the participants are summarized in table 2. There was no statistically significant difference between the patients with ACS and controls with respect to age, gender, height, weight, body mass index (BMI) ( $p > 0.05$ ). Diabetes mellitus, hyperlipidemia and history of smoking were more common in the patient group. In the ACS group, 15 (30%) of the patients were diagnosed with anterior myocardial infarction (MI), 20 (40%) were with inferior MI, 8 (16%) with unstable angina, and 7 (14%) with non-ST elevation MI. 25 (OH) D and corrected calcium levels were significantly lower in patients group ( $P < 0.001$ ) (table 3). Despite there were higher levels of PTH in the patient group this result did not reach statistical difference. If 25(OH) levels of  $\geq 20$  considered sufficient, 60% of the control group and 12% of the patient group had adequate levels of vitamin D.

**Discussion:** In the recent years, pleiotropic effects of vitamin D has been increasingly recognized and low 25(OH) vitamin D levels have been tied to hypertension, heart failure, diabetes mellitus, coronary artery disease, stroke and mortality in numerous epidemiologic, observational and experimental studies. Similar to vitamin D, PTH which is a regulator hormone in mineral homeostasis, affects vascular smooth muscle and endothelium and heart besides bone and kidney, and has been associated with hypertension, heart failure and coronary heart disease.

**Conclusion:** Vitamin D and corrected calcium levels were significantly lower in patients with ACS compared with patients with normal coronary arteries independent of seasonal fluctuation. PTH levels were higher in ACS group; however, this result was not statistically significant. Further studies with a larger number of patients are warranted to confirm our results.

**Table 1:** Number of patients included in the study each month

Months	1	2	3	4	5	6	7	8	9	10	11	12
ACS	4	3	3	3	4	4	5	4	5	6	5	4
Controls	4	4	4	5	5	4	2	4	5	4	4	5

ACS: Acute coronary syndrome group

**Table 2:** Baseline Characteristics of the patient and the control group

Parameters	ACS (n=50)	Control (n=50)	P value
Age (mean±SD)	57,2 ± 8,4	54,5 ± 7,5	0,127
Gender (Males/Females)	31/19	31/19	1,000
Diabetes Mellitus	22 (44%)	11 (22%)	<b>0,033</b>
Hypertension	22 (44%)	19 (38%)	0,684
Smoking	24 (48%)	10 (20%)	<b>0,006</b>
Hyperlipidemia	30 (60%)	20 (40%)	0,072
Family History	21 (42%)	19 (38%)	0,838
BMI (kg/m <sup>2</sup> )	<b>28,81 ± 3,31</b>	<b>28,66 ± 3,71</b>	<b>0,841</b>
ACE inhibitor/ARB	16 (32%)	17 (34%)	1,000
B-Blocker	10 (20%)	5 (10%)	0,263
Diuretics	9 (18%)	9 (18%)	1,000
CCB	3 (6%)	4 (8%)	1,000
Statins	6 (12%)	2 (4%)	0,269
ASA	8 (16%)	10 (20%)	0,795
OAD	9 (18%)	5 (10%)	0,253
Insulin	2 (4%)	1 (2%)	1,000

BMI: body mass index, ACE : angiotensin converting enzyme, ARB: angiotensin receptor blocker, CCB: calcium channel blocker, ASA : acetyl salisilic acid, OAD: oral antidiabetic

**Table 3:** Biochemical measurement of the ACS and the control group

Parameters	ACS	Controls	P value
25 (OH) D (ng/ml)	14,77 ± 7,88	23,48 ± 10,82	<b>&lt;0,001</b>
PTH (mIU/mL)	58,78 ± 33,42	46,25 ± 16,21	0,131
Calcium (mg/dl)	8,82 ± 0,35	9,15 ± 0,42	<b>&lt;0,001</b>
Phosphorus (mIU/mL)	3,30 ± 0,71	3,25 ± 0,56	0,537
ALP (mIU/mL)	73,334 ± 16,29	70,55 ± 18,11	0,422

25(OH) D: 25 hydroxy vitamin D, PTH: parathyroid hormone, ALP: Alkaline Phosphatase,

ACS: Acute Coronary Syndrome group, p value &lt;0.05 was considered significant

**PP-078****Predictors of Major Adverse Cardiovascular Events by Combining Clinical Data with Non-Invasive Screening Methods**

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**Aim:** The aim of the study was to evaluate the predictors of major adverse cardiovascular events in a prospective population based study, with the use of bioimpedance analysis, echocardiography, ultrasonography and ECG.

**Methods:** The baseline measurements were conducted on 2230 participants (1427 women, 803 men with a mean age of 49). The follow-up was done 36 months after the baseline admission via telephone call. Major adverse event was defined as cardiovascular mortality or myocardial infarction or stroke. Mean age at entry was 50±15 years (mean±SD). Follow-up data was possible in 1495 participants (65%).

**Results:** During the follow-up of 36 months (4485 patient years), 42 major adverse events occurred. Among them, 16 were death (1 stroke, 2 cancer, 13 cardiac related), 12 were stroke and 14 were myocardial infarction. Age, body mass index and atrial fibrillation were independent predictors of MAE; AF being the most powerful (Risk ratio 10.46; 95% confidence interval [1.73-63.14]; p=0.010).

**Conclusions:** Higher age, lower body mass index and atrial fibrillation were independent predictors of major cardiovascular events in Turkey.

	OR	95% CI	P value
Age	<b>1.05</b>	<b>1.01-1.09</b>	<b>0.009</b>
Hypertension	1.23	0.48-3.16	0.673
Coronary artery disease	3.06	0.98-9.56	0.054
COPD	1.68	0.56-5.05	0.352
Body mass index	<b>0.89</b>	<b>0.82-0.97</b>	<b>0.007</b>
Corrected CIMT	4.28	0.86-21.38	0.076
Ejection fraction	1.01	0.95-1.07	0.805
Diastolic dysfunction	1.89	0.76-4.72	0.172
Corrected QT wave duration	1.01	0.98-1.02	0.919
Atrial Fibrillation	<b>10.46</b>	<b>1.73-63.14</b>	<b>0.010</b>
Creatinine	0.79	0.14-4.31	0.790

Logistic regression for prediction of major adverse events

**PP-079****Intrahospital Mortality at Internal Patients**

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**Introduction:** Accurate information about the cause of death is given by expert teams based on pathological or forensic expertise. Reliable information can be obtained from doctors from clinical-hospital institutions if the deceased person was treated in such an institution and with previously diagnosed disease (hospital mortality). Analysis of hospital mortality provides a lot of data that can be used in planning the hospital beds capacities, the amount of drug procurement, purchasing equipment, organization and creation of highly specialized medical teams (medical team for resuscitation), the number of reanimation techniques, the number of pathologists who are required for autopsy procedures, etc.

**Goal:** The Goal was to determine the total number of deaths, the most common causes of death and the 10 leading diagnoses of deceased patients at the Clinic for Internal Medicine of University Clinical Center in Tuzla during 2012.

**Material-Methods:** We used the material from the archive (medical records and reports on deceased patients, delivered by physicians working at the Clinic for Internal Medicine of University Clinical Center in Tuzla.

**Results:** During 2012 at the Clinic for Internal Medicine hospitalized 6 476, and 349 patients died over this time period. According to the analyzed data leading cause of death and leading diagnosis as cause of death at the Clinic for Internal Medicine in 2012 were as follows: cerebrovascular disease in 68 (19.48%), heart failure (NYHA IV) in 44 (12.60%), acute myocardial infarction and myocardial infarction with rupture 43 (12.32%), cardiogenic shock in 27 (7.73%), sudden cardiac death in 24 (6.47%), multiple organ failure in 23 (6.59%), hepatic coma in cirrhosis 22 (6.30%), respiratory insufficiency in 14 (4.00%), pulmonary embolism in 12 (3.43%), haemorrhagic shock (GIT) in 10 (2.86%), pulmonary edema in 8 (2.29%), cerebral coma (neoplasma) in 6 (1.71%), pulmonary heart in 5 (1.43%), neoplasm liver in 5 (1.43%), pancreatitis 4 (1.14%), renal failure in 4 (1.14%), ventricular fibrillation in 3 (0.85%), neoplasm pancreas in 3 (0.85%), ileus 3 (0.85%), malignant neoplasm of the abdomen 3 (0.85%), diabetes mellitus 3 (0.85%), tumor upper aerodigestive tract 3 (0.85%), thrombosis artery mesenterialis 2 (0.57%), and another deaths.

**Conclusion:** During 2012 at the Clinic for Internal Medicine of University Clinical Center in Tuzla hospitalized 6 476, and died a total of 349 patients. The most common cause of death of patients at the Clinic for Internal Medicine of University Clinical Center in Tuzla are cardiovascular (n=68; 19.48% of deaths), in second place was cerebrovascular disease (n=146; 40.81% of deaths) for a total of 214 (60.29%) of deaths from cardiovascular and cerebrovascular disease.