**Results:**

Heart rate was 71±7 bpm before and 72±8 bpm after apnoea (change: +3±13%, p<NS). Systolic and diastolic BP were 123±12 mm Hg and 78±7 mm Hg before, and 118±15 mm Hg (<4±9%, p<NS) and 78±10 mm Hg (+1±14%, p<NS) after apnoea. Main echocardiographic findings are reported in table underneath.

**Conclusions:**

Findings from the present study suggest that breath-hold submersion in professional sea divers induces mild but statistically significant diastolic dilatation of the left ventricle with weak reduction of systolic diameter, likely due to increased systolic function. In fact, septal and infero/lateral wall motion improve, as well as circumferential fractional shortening, irrespective of significant changes in BP. The most likely explanation is a transient blood shift phenomenon, as already demonstrated in deepest submersion activities.

### Table 1

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### Table

#### MYOCARDIAL VELOCITY IMAGING (DMI) – LV FUNCTION

#### LV FUNCTION – OTHER

**965**

**Impact of leptin upon cardiac systolic, diastolic, global myocardial and autonomic function in patients with noninsulin dependent diabetes**

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**Purpose:** The increased cardiovascular burden, associated with diabetes mellitus (DM), is due to structural or functional abnormalities induced by DM only or by hyperinsulinemia and insulin resistance associated with metabolic disorders. Recent studies have shown that leptin increases in insulin-resistant states, such as obesity and hypertension. On the basis of evidence of plasma leptin effects on cardiovascular system, we assessed possible impact of leptin upon cardiac function whether systolic or diastolic, also the impact upon global myocardial function assessed by a Doppler-derived myocardial performance index (Tei index) as well as cardiac autonomic function (CAN) in type 2 diabetic patients.

**Methods:** Twenty four type 2 diabetic patients aged 51.1±7.2 years with LV functional changes defined as fasting plasma glucose ≥126 mg/dl without hypertension. Twenty four type 2 diabetic patients without LV functional changes, aged 47.6±9.0 years, were the controls. ECG was performed and QTc dispersion (QTd) was calculated for detection of CAN. Ejection fraction (EF), fractional shortening (FS), blood pressure and serum glucose control in this specific group of patients. Significant differences were measured as follows: Aortic root distensibility (cm²/dyn/10³)=2x (AoS-AoD)/PPxAoD; Aortic stiffness index (ASI)=ln (SBP/DBP)/(AoS-AoD)/AoD; Aortic strain (%): AoS-AoD/AoDx100; where: AoS, Aort systolic diameter; AoD, Aort diastolic diameter; PP, pulse pressure; SBP, systolic blood pressure; DBP, diastolic blood pressure.

**Results:** Compared to control subjects, the ratio of LV diastolic abnormalities measured by CE and TDE were found higher in patients with type 2 diabetes (36% and 73.6%, p<0.001, respectively, and 52%, and 89.4%, p<0.001, for septal annulus; 48%, and 89.4%, p<0.001 for septal basal, respectively). The aortic stiffness index was significantly higher (p=0.001), aortic distensibility and aortic strain were also significantly lower in patients with type 2 diabetes than control subjects (p<0.001 and p<0.001, respectively). In the multivariate linear regression analysis, Ao distensibility was correlated with age (β=0.310, p=0.006), septal basal Em/Am ratio (β=0.606, p<0.001). ASI was also correlated with the presence of diabetes mellitus (β=0.395, p=0.005) and lateral basal Em/Am ratio (β=0.443, p=0.001).

**Conclusions:** Aortic elastic function is impaired in asymptomatic patients with type 2 diabetes. Increased ASI and decreased Ao distensibility are closely associated with diastolic filling indices measured by TDE.

#### MYOCARDIAL VELOCITY IMAGING (DMI) – LV FUNCTION

#### 966

**Microalbuminuria does not cause additional left ventricular dysfunction in patients with type 2 diabetes.**

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**Background:** Microalbuminuria (MA) has long been known as a risk factor for macrovascular disease in patients with type 2 diabetes. It is however not known whether MA causes left ventricular (LV) regional systolic and diastolic dysfunction, whose assessment is of paramount importance for the management of these patients.

**Objective:** The main purpose of this study was to investigate the association between diabetic retinopathy and left ventricular diastolic function measured by tissue Doppler echocardiography (TDE) in asymptomatic type 2 diabetes mellitus.

**Methods:** Fifty asymptomatic patients with type 2 diabetes without clinical coronary artery disease (33 women, 24 men, mean age: 49±6 years) and 25 healthy control subjects (19 women, 6 men, mean age: 46±7 years) were included in present study. Diastolic filling indices were measured by conventional (CE) and tissue Doppler echocardiography. Aortic elastic properties were measured as follows; Aortic root distensibility (cm²/dyn/10³)=2x (AoS-AoD)/PPxAoD; Aortic stiffness index (ASI)=ln (SBP/DBP)/(AoS-AoD)/ AoD; Aortic strain (%): AoS-AoD/AoDx100; where: AoS, Aort systolic diameter; AoD, Aort diastolic diameter; PP, pulse pressure; SBP, systolic blood pressure; DBP, diastolic blood pressure.

**Results:** Compared to control subjects, the ratio of LV diastolic abnormalities measured by CE and TDE were found higher in patients with type 2 diabetes (36% and 73.6%, p<0.001, respectively, and 52%, and 89.4%, p<0.001, for septal annulus; 48%, and 89.4%, p<0.001 for septal basal, respectively). The aortic stiffness index was significantly higher (p=0.001), aortic distensibility and aortic strain were also significantly lower in patients with type 2 diabetes than control subjects (p<0.001 and p<0.001, respectively). In the multivariate linear regression analysis, Ao distensibility was correlated with age (β=0.310, p=0.006), septal basal Em/Am ratio (β=0.606, p<0.001). ASI was also correlated with the presence of diabetes mellitus (β=0.395, p=0.005) and lateral basal Em/Am ratio (β=0.443, p=0.001).

**Conclusions:** Aortic elastic function is impaired in asymptomatic patients with type 2 diabetes. Increased ASI and decreased Ao distensibility are closely associated with diastolic filling indices measured by TDE.