## C260

### BODY MASS INDEX PREDICTS QTc VALUE IN OBESE PATIENTS

Manuela Lombardi (a), Pietro Cugini (b), Silvia Amato (a), Cristina Maglio (c), Silvia Da Ros (a), Andi Tego (a), Maria Lucia De Luca (c), Diego Panetti (a), Rosa Asprino (c), Frida Leonetti (c), Mario Curione (a)

*(a) Department of Clinical Sciences, Cardiology Service, (b) Department of Clinical Sciences, (c) Department of Clinical Sciences, Day Hospital of Endocrinology, "Sapienza" University of Rome*

**Background.** An increase of QTc length corrected by heart rate (QTc) represents a risk factor for sudden death and life-threatening arrhythmias. The QTc is increased in obese patients.

**Aim.** To verify whether the QTc increase in obesity follows a linear or non linear progress as a function of BMI by defining the equation for its prediction.

**Materials and methods.** We enrolled 144 individuals classified as a function of BMI. Anthropometric parameters, QTc and subdivision in subgroups of obese patients are reported in Table I.

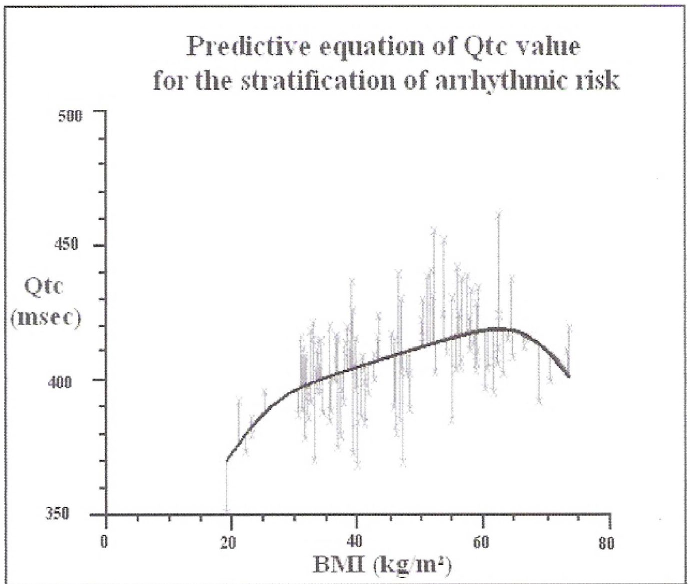
**Statistical analysis.** First step: to verify whether there was a significant effect of BMI on the distribution of QTc values as stratified by groups. Such a statistical control has been performed by means of Tukey' s one-way ANOVA. Second step: to detect whether there was a linear or non linear trend fitting model that was reliable in predicting QTc value as a function of BMI. Data are expressed mean ±SD.

**Results.** We found, as expected, an increased QTc, sign of bioelectrical instability, in obese patients as compared with normoponderal subjects. However, the QTc increase was found not to be proportional to BMI, vanifing all the linear fitting methods. The trend of QTc as function of BMI was found to be not linear and described by the polynomium:

$$Y=a+(a1*x)+(a2*x^2)+(a3*x^2)+(a4*x4). \text{ (Fig.1)}$$

**Conclusion.** This study confirms an increased risk for arrhythmias in obese patients because of a significant increase in their QTc values. However, the relationship which links QTc to BMI is not linear. The equation that describes such relation is a non linear forth order polynomium that can be used to predict QTc via BMI before performing the ECG. Such a formula however has to be validated via a Bayesian study on obese population.

| Groups | A control | B Class I obesity | C Class II obesity | D Class III obesity | E Class III obesity | F Class III obesity |
|---|---|---|---|---|---|---|
| BMI (kg/m²) | 22±2 | 33±1 | 38±1,5 | 44±3 | 54±3 | 63±4 |
| Sex (F/M) | 15/9 | 17/7 | 17/7 | 15/9 | 17/7 | 14/10 |
| Smokers (n) | 10 | 10 | 12 | 10 | 10 | 6 |
| Age (yr) | 39±14 | 45±15 | 41±13 | 43±3 | 47±14 | 39±11 |
| SBP (mmHg) | 110±5 | 123±13 | 129±22 | 134±15 | 130±10 | 131±11 |
| DBP (mmHg) | 60±7 | 78±7 | 82±12 | 87±13 | 80±8 | 83±8 |
| HR (bpm) | 67±10 | 74±10 | 73±9 | 74±9 | 80±13 | 81±12 |
| QTc (msec) | 392±15 | 402±14 | 402±18 | 404±21 | 424±17 | 413±18 |




$$QTc=173+(19.2*BMI)+(-0.6*BMI^2)+\ldots$$
$$\ldots+(0.009*BMI^3)+(0.00005*BMI^4)$$

Fig. 1

## C261

### COMMON TRUNK OF THE INFERIOR PULMONARY VEINS DETECTED BY MRI: USEFULNESS OF ANATOMICAL LEFT ATRIAL MEASURES PERFORMED ON CARTOMERGE WORKSTATION BEFORE ABLATION

Raffaele De Lucia (a), Ezio Soldati (a), Giulio Zucchelli (a), Luca Segreti (a), Andrea Di Cori (a), Gianluca Solarino (a), Francesco Bandera (a), Lorenzo Faggioni (b), Giovanni Coluccia (a), Francesco De Caro (a), Maria Grazia Bongiorni (a)

*(a) Malattie Cardiovascolari II, (b) U.O. Radiodiagnostica I, Azienda Ospedaliero Universitaria Pisana, Pisa*

Knowledge of individual pulmonary vein (PV) anatomy is a prerequisite for effective and safe catheter ablation of atrial fibrillation (AF). In larger series, the incidence of the common inferior PV trunk ranges from 0 to 0.9% in patients with AF and the presence of this anomaly poses a problem for an ablation procedure of AF. We describe the case of this highly unusual anatomic variant of a 63-year-old man with drug refractory paroxysmal AF, referred for pulmonary vein isolation. The procedure was performed under the guidance of the CARTO-MERGE electroanatomical mapping system (Biosense Webster, Inc., Diamond Bar, Calif.). After creation of a 3-dimensional (3D) anatomic construct from a contrast-enhanced magnetic cardiac imaging, the cardiac structures were segmented obtaining the left atrial chamber (LA) with PVs and appendage (LAA). This demonstrated 2 large superior PVs (LSPV and RSPV) and a posterior common trunk with early division of the right and left posterior veins (RIPV and LIPV) (Figure 1a). The superior PVs had got a sloping direction while the right and left posterior veins an horizontal one (Figure 1b). There was also a voluminous pluri-lobate appendage (Figures 1a, 1b). Before the procedure we study the possible tailored ablation approach supported by anatomical measures of PV ostium, LAA ostium, mitral anulus ostium and the LA critical ridges of this case (right PV ridge, LSPV-LAA ridge, and the LIPV-LA ridge) (Figure 2) in relation of the Navistar Thermocool tip. Integration of the magnetic resonance images with real-time intraprocedural electroanatomical mapping was performed by registration of the corresponding anatomic points using as landmark the junction between LSPV and LA (violet flag in figures 1 and 2). Electrical PV isolation was successfully performed without complications. Off antiarrhythmic medication, the patient has remained free of AF during 12-month follow-up. Reliable recognition of this anomaly was facilitated by 3D imaging, based on preprocedural MRI scan. The resulting image recognized beforehand and anatomical left atrial measures performed on CartoMerge workstation before ablation allowed reliable virtual navigation of the ablation catheter inside 3D accurate anatomic LA chamber and a tailored ablation approach. Probably without these implements the procedure could have been prolonged and possibly compromised in efficacy and safety.

Fig. 1a

Fig. 1b

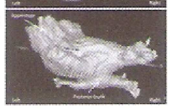


Fig. 2

## C262

### HEART RATE TURBULENCE IS INDEPENDENT BY CRITERIA EVALUATING SIMPATHO-VAGAL IMBALANCE TO DETECT THE ARRHYTHMIC RISK OF ISCHEMIC PATIENTS?

Andi Tego (a), Stephanie Salvatore (a), Silvia Amato (a), Elona Dautaj (a), Diego Panetti (a), Silvia Da Ros (a), Manuela Lombardi (a), Camillo Cammarota (b), Sergio Matteoli (a), Mario Curione (a)

*(a) Department of Clinical Sciences, Cardiology Service, (b) Department of Mathematics "Guido Castelnuovo", "Sapienza" University of Rome*

**Background.** Ischemic patients present an elevated risk of arrhythmias and sudden cardiac death. In order to prevent the aforementioned complications several clinical, electrocardiographic and echocardiographic parameters, are available to detect high risk patients. Recently heart rate turbulence (HRT) has been indicated, as index of sympatho-vagal imbalance, useful to detect and stratify patients with high arrhythmic risk.

**Aim.** To assess the independence of HRT criteria in risk stratification of ischemic patients, from each others criteria widely employed in clinical practice.

**Material and methods.** 51 ischemic patients (62.7±9.7 years old) were studied. 24h Holter ECG and echocardiogram were performed. Variables listed on Table I (Panel A) usually utilized in clinical practice, have been employed for stratifications of patients in Low, Intermediate and High arrhythmic risk. Statistical Chi-Square ($\chi^2$) test was run to evaluate the independence of HRT (Panel B) from all other variables (Panel A).

**Results.** HRT shows independence from all other criteria (for each $\chi^2$ result, see Table I), except for heart rate ($\chi^2 = 0.022$).

**Conclusion.** Our study reveals independence of HRT from other parameters commonly used for arrhythmic risk stratification in ischemic