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The Delay Of Minimum R-T Interval Compared To Minimum R-R Interval Assessed At The Acme Of Stress Test In Normal Subjects. What Is The Meaning Of This Phenomenon?

Silvia Da Ros (a), Andrea Quaresima (b), Marisa Varrenti (a), Silvia Lanna (a), Stephanie Salvatore (a), Camillo Cammarota (b), Sergio Matteoli (a), Mario Curione (a)

(a) Department of Internal Medicine and Medical Specialities, University "Sapienza" Rome, (b) Mathematics Department, University "Sapienza" Rome

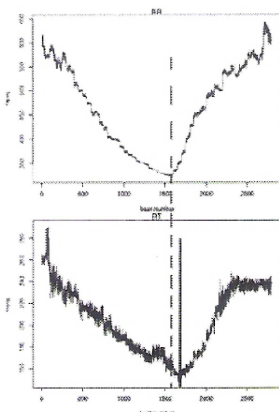


Fig.1 The R-R (top) and R-T (bottom) time series of normal subjects during exercise test. The distance between dashed and solid line represents RT delay.(1).

compensatory mechanism to ejection fraction due to a rate. Diastolic volume can be area as demonstrated in i.e. stress test, haemodialysis of the observed RR- RT

simultaneously monitoring RR, RT and QRS area profiles in normal subjects.

Method: 20 healthy subjects (15 males, 5 females, mean age 38 years) underwent to ECG stress test

RR-RT mean delay (beats number)	p-value	RT-QRS mean delay (beats number)	p-value	RR-QRS mean delay (beats number)	p-
67	1.567e-06	6	0.6228	73	9.8

Tab.1 Statistical difference in RR-RT delay. No statistical difference in RT-ORS area minimum

means has been used to test the delay hypothesis. Generalized linear model to check the relationship between delay and the other variables (age, gender, hr, bp, mets, RR and RT slope).

Results: See Tab.1 and Fig. 2.

Conclusion: RT minimum coincides with the minimum of QRS area (expression of maximum ventricular filling), both appear delayed respect RR minimum. It seems indicate that chronotropic effect of catecholamines on sinus node stops immediately after suspension of effort while hemodynamic effects on ventricular myocytes continues. Further studies are needed to verify if this physiologic mechanism disappears or changes its characteristics in ischemic patients.

References: 1). Cammarota C, Curione M.: Fluctuation and Noise Letters; Vol. 11, No. 4, 2012 2) Curione M., Cammarota C et al., Archives of Medical Sciences, vol. 4; p. 51-56, 1922, 2008

Background: In a previous report (1) it has been demonstrated that the abrupt increase in RR interval immediately after the end of the effort is not followed by an immediate increase in RT interval in normal subjects. RT interval decreases progressively after the end of effort (Fig.1). The hypothesis to explain this phenomenon could be the different effect of catecholamines on pace-maker cells in sinus node (able to modify R-R interval) and on ventricular myocytes (able to

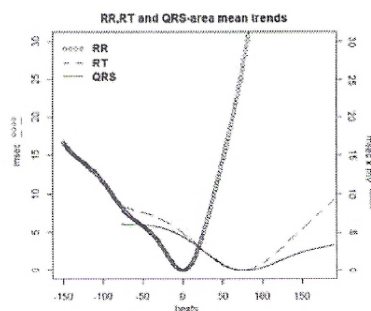


Fig.2 RT and QRS minimum coincide and occur 67 beats after RR minimum indicating the delayed hemodynamic effect of catecholamines on ventricular myocytes respect their effect on sinus node cells. Chronotropic and hemodynamic effects of catecholamines seem to be split.

modify R-T interval and ventricular filling). This last effect during stress test allows a more rapid relaxation of myocardial fibres with an increase in ventricular filling and in ejection fraction. Persisting of this effect for a short period after the suspension of effort, represent prevent sudden reduction in sudden decrease in heart assessed by a change in QRS several clinical conditions (2). **Aim:** Clarify mechanism minimum delay by

performed according to Bruce protocol. RT interval has been adopted instead of QT interval as the latter is not reliable at rapid heart rates as T wave fuses with the ensuing P wave. We estimate the minimum location from the trend of RR, RT and QRS area time series. Standard paired t-test of comparison of the