The Influence of Sex Hormone, Body Mass Index and Exercise on ST Levels in Healthy Young Subjects

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Background: Early repolarization syndrome is most commonly seen in young men and athletes. The influence of exercise or physique on ST segment and sex hormone has not been fully assessed. Methods: Twelve-lead ECGs recorded in 225 healthy subjects (130 men, mean age: 24.7 years) were studied. The 3 ST levels were automatically measured in the precordial leads. The plasma concentration of Sex hormones, and body mass index (BMI) were evaluated. And we also evaluated J waves. Exercise custom was divided into 3 levels. Results: All ST levels were significantly higher in men than in women (p<0.0001). ST levels showed a significant positive correlation with testosterone and a negative correlation with estradiol in both sexes. BMI and ST showed a significant negative correlation in men, but a positive correlation in women. Constant exercise (>5days/week) was positively related to ST levels in both sexes (p<0.05). Multivariate logistic regression analysis revealed that the constant exercise was independently associated with ST elevation (p=0.012, OR: 4.8) in men. The incidence of J waves in any leads was 35% in men and 15% in women. J wave showed no significant correlation with sex hormones and BMI. Conclusion: Exercise is the important factors to modulate ST segment in the young healthy men.

Keywords: ECG, sex hormone, ST segment