



# SACUBITRIL/VALSARTAN TREATMENT MAY BE ASSOCIATED WITH IMPROVED FRONTAL PLANE QRS-T ANGLE AND CARDIAC REPOLARIZATION PARAMETERS

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- **Objective:** In PARADIGM-HF study, Sacubitril/valsartan treatment has been shown to improve mortality and quality of life, as well as a reduction in sudden cardiac death (SCD) due to fatal arrhythmias. Frontal plane QRS-T [f(QRS-T)] angle is a novel marker of myocardial repolarization, and an increased f(QRS-T) angle is associated with adverse cardiac outcomes. We aimed to examine the effect of sacubitril/valsartan treatment on f(QRS-T) angle and cardiac repolarization parameters in order to investigate its potential antiarrhythmic effects.

**Table 1.** Demographic and echocardiographic features of the study group

Parameters	(n=43)
Age, years	54.81 ± 8.81
Female, n (%)	15 (34.9%)
BMI, kg/m <sup>2</sup>	27.6 ± 2.3
Ischemic Etiology, n (%)	32 (74.4%)
Hypertension, n (%)	15 (34.9%)
Diabetes Mellitus, n (%)	14 (32.6%)
Dyslipidemia, n (%)	10 (23.3%)
Smoking, n (%)	13 (30.2%)
Ejection fraction, (%)	28.47 ± 4.10
NYHA Class	2.02 ± 0.63
Beta blocker, (%)	38 (88.4%)
Mineralocorticoid receptor antagonists, (%)	35 (81.4%)
Ivabradine, (%)	12 (27.9%)
Thiazide diuretics (%)	11 (25.6%)
Total furosemide dosage, mg	32.6 ± 25.8

Data are given as mean ± SD, n or median (interquartile range). BMI, Body mass index; NYHA Class, New York Heart Association Classification.

- **Methods:** The study included 43 patients who started Sacubitril /valsartan therapy due to heart failure. The ECG was evaluated before the treatment and on the 90th day of the treatment. ECG repolarization parameters were compared before and after treatment.
- **Results:** A statistically significant decrease has been detected in, Tp-e/QT ratio (p=0.001), Tp-e/corrected QT ratio (p =0.001), Tp-e interval (p =0.005) and f(QRS-T) angle (p <0.001).

**Table 2.** Comparison of ECG parameters before Sacubitril/valsartan treatment and 90. day of the treatment.

Parameters	Before therapy	90. day of therapy	p value
QT interval, ms	348.6 ± 26.1	358.6 ± 33.8	0.059
QTc interval, ms	387.3 ± 37.1	388.4 ± 29.3	0.865
Tp-e interval, ms	85.7 ± 12.5	79.4 ± 11.4	0.005
Tp-e/QT ratio	0.25 ± 0.04	0.22 ± 0.04	0.001
Tp-e/QTc ratio	0.23 ± 0.04	0.21 ± 0.03	0.001
f(QRS/T) (°)	89.39 ± 33.8	63.21 ± 31.3	<0.001

Data are given as mean ± standard deviation. QTc, Corrected QT interval; f(QRS/T), Frontal plane QRS-T angle.

- **Conclusion:** In our study, Sacubitril/valsartan treatment was found to be associated with an improvement in cardiac repolarization parameters. One of the mechanisms of sacubitril/valsartan treatment to prevent SCD may be that it causes improvement in cardiac repolarization. However, our hypothesis should be supported by larger and more comprehensive studies.
- **Key words:** Sacubitril/valsartan, frontal plane QRS-T angle, cardiac repolarization.