

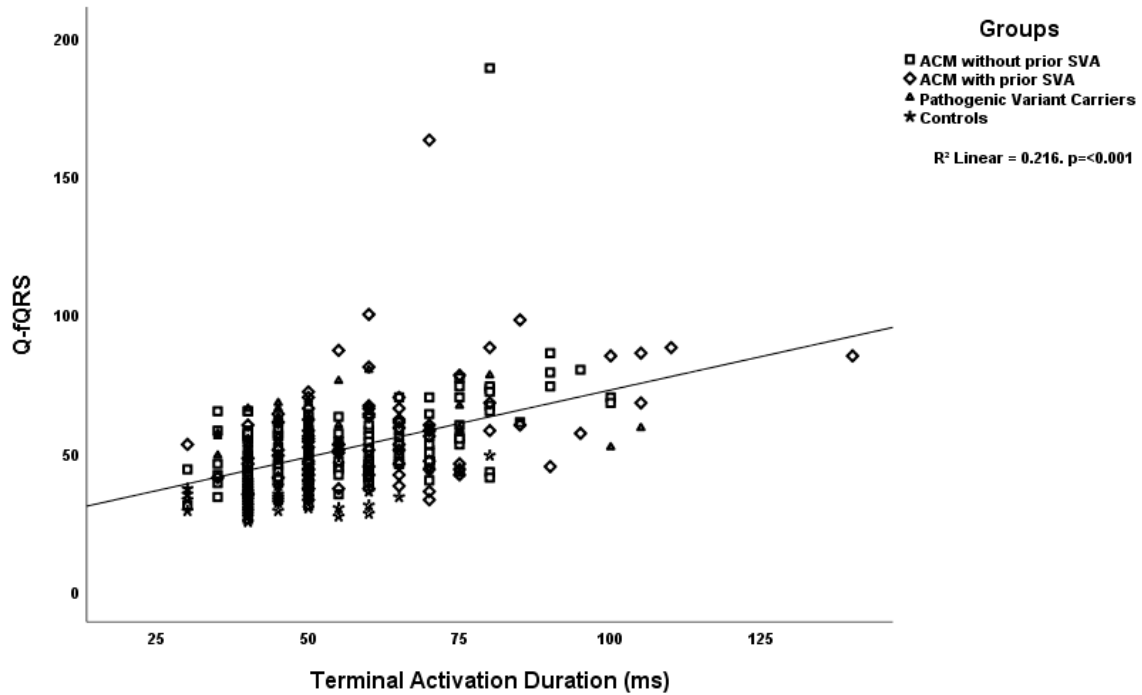
Supplementary material

Supplementary Table 1. Correction using multivariate linear regression for age difference between groups.

	Unstandardized B	Coefficients Std. Error	Standardized Coefficients Beta	t	P value
Age	0.007	0.60	0.007	0.123	0.903
ACM without prior SVA	17.588	2.507	0.519	7.014	<0.001
ACM with prior SVA	22.377	2.717	0.574	8.235	<0.001
Pathogenic variant carriers	20.064	2.830	0.451	7.091	<0.001

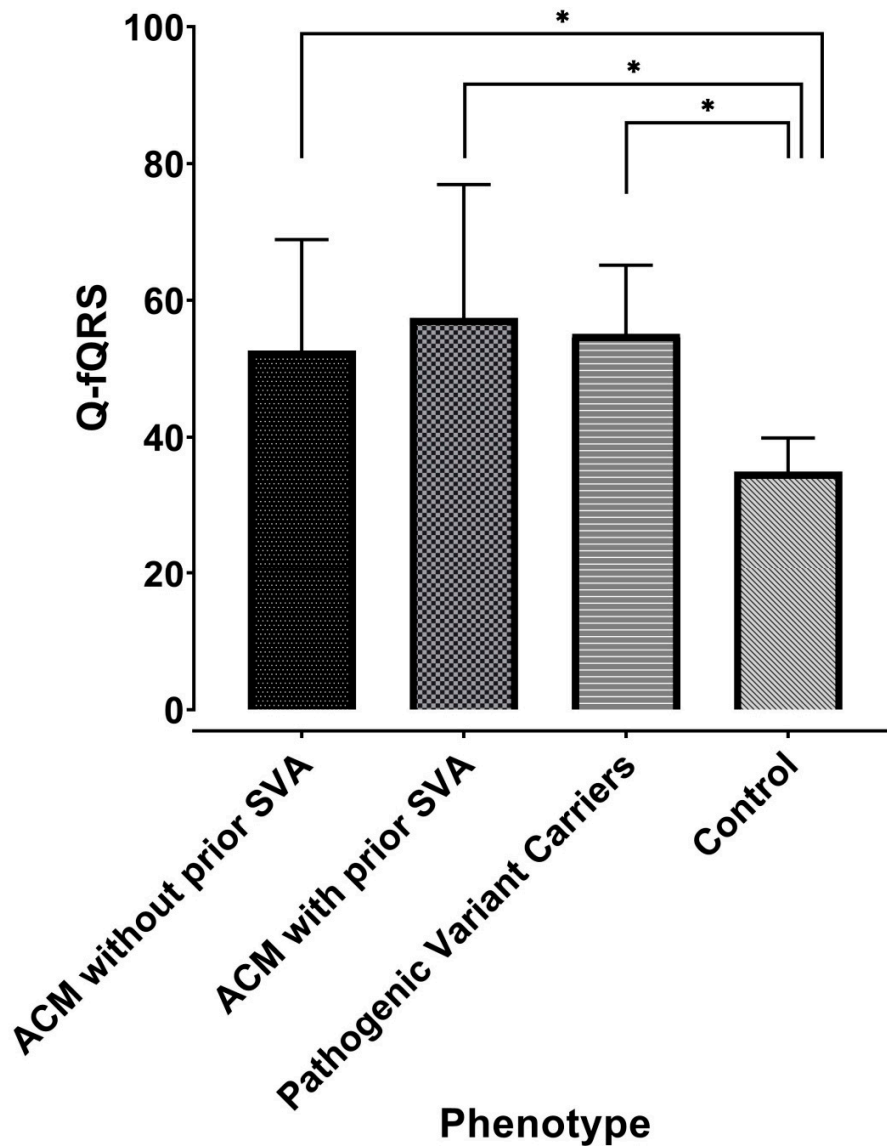
**Legend Table 1:** ACM = arrhythmogenic cardiomyopathy; Q-fQRS = mean quantitative fragmented QRS count.

Supplementary Figure 1. Correlation between Terminal Activation Duration and Q-fQRS.



Legend supplementary Figure 1: Q-fQRS = mean quantitative fragmented QRS count.

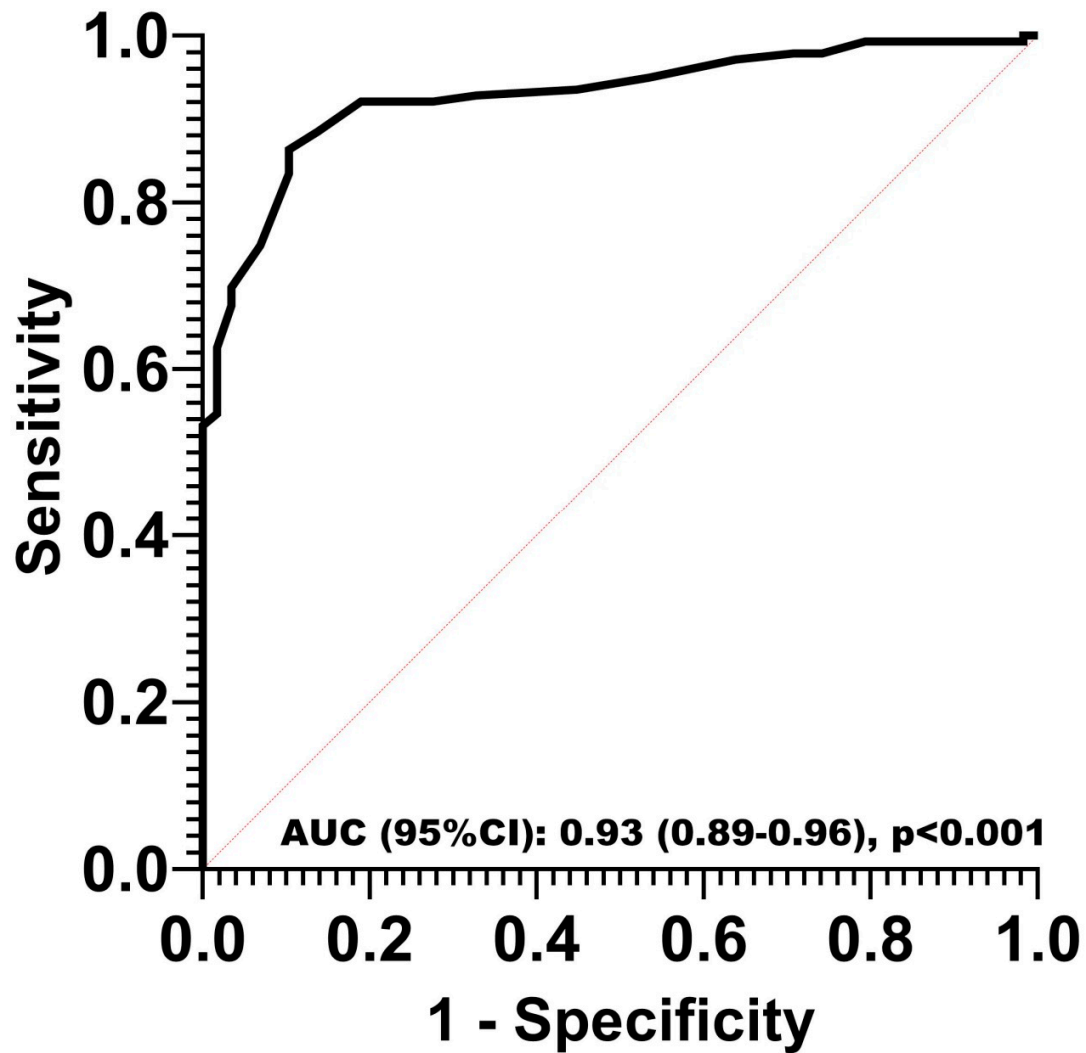
Supplementary figure 2. Q-fQRS count according to Phenotype.



Legend supplementary figure 2: ACM = arrhythmogenic cardiomyopathy; Q-fQRS = mean quantitative fragmented QRS count. Differences in Q-fQRS: ACM patients without prior SVA vs. ACM patients with previous SVA  $p=0.081$ , ACM patients with prior SVA vs. pathogenic variant carriers  $p=0.883$ , pathogenic variant carriers vs. controls  $p=0.0001$ , ACM patients

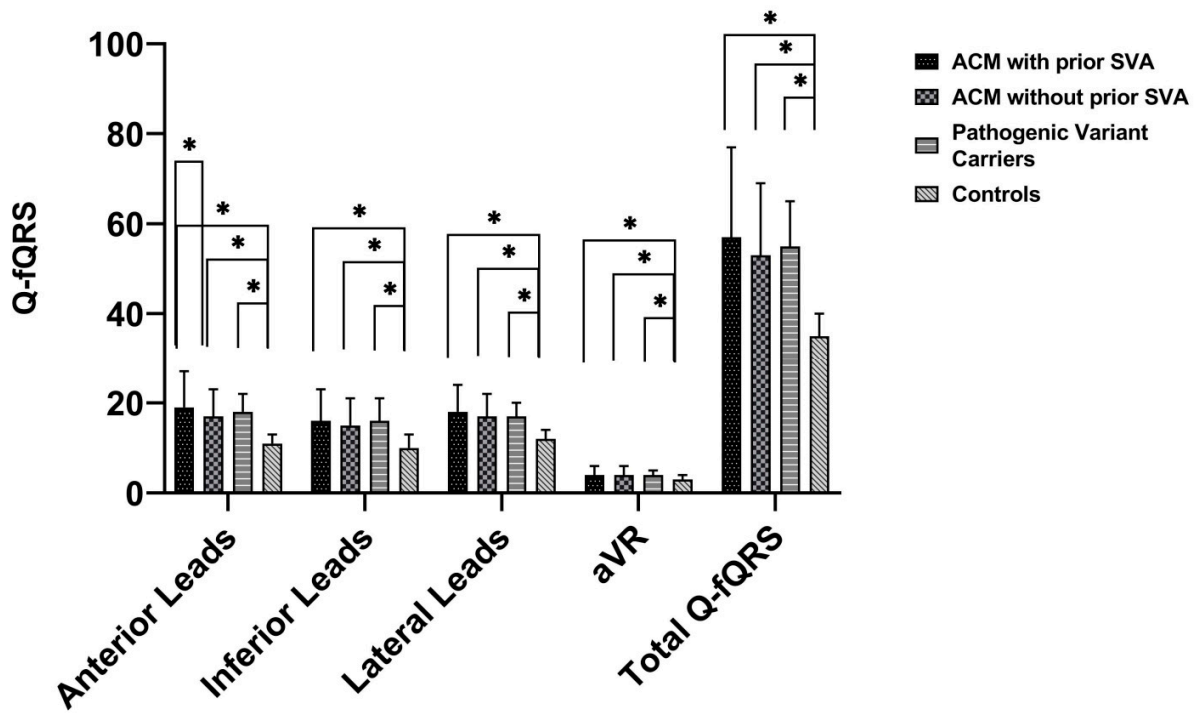
without prior SVA vs. pathogenic variant carriers  $p=0.64$ , ACM patients with prior SVA vs. controls  $p=0.0001$ , ACM patients without prior SVA vs. controls  $p=0.0001$ .

Supplementary Figure 3. Receiver operating characteristics (ROC) curve Q-fQRS.



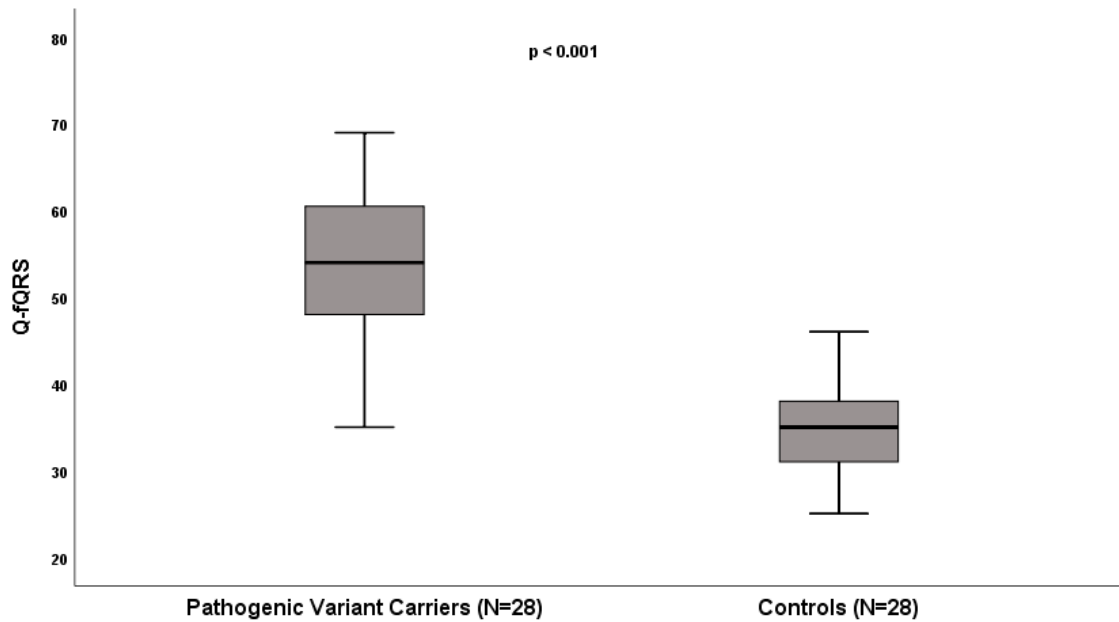
Legend supplementary Figure 3: receiver operator characteristics (ROC) curve for Q-fQRS as predictor of definite ACM diagnosis.

Supplementary Figure 4. Differences between Q-fQRS per Phenotype and ECG leads.



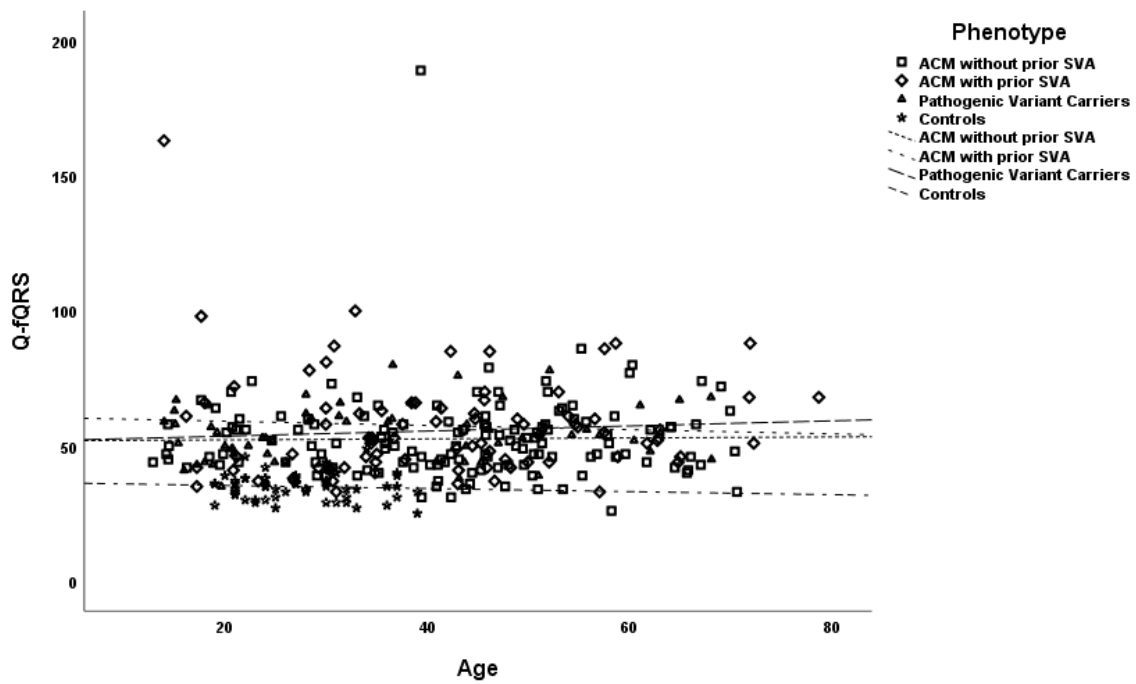
Legend supplementary Figure 4: ACM = arrhythmogenic cardiomyopathy; SVA = sustained ventricular arrhythmia; Q-fQRS = mean quantitative fragmented QRS count. \* significant difference between groups.

Supplementary Figure 5. Boxplots of Q-fQRS after age and sex matching between pathogenic variant carriers and control subjects.



Legend supplementary Figure 5: Q-fQRS = mean quantitative fragmented QRS count.

Supplementary Figure 6. Correlation age and Q-fQRS according to phenotype.



**Legend supplementary Figure 6:** Q-fQRS = mean quantitative fragmented QRS count; ACM without prior SVA =  $R^2$  Linear:  $< 0.001$ ,  $p = 0.851$ ; ACM with prior SVA:  $R^2$  Linear =  $0.004$ ,  $p = 0.599$ ; Pathogenic Variant Carriers:  $R^2$  Linear =  $0.024$ ,  $p = 0.254$ ; Controls:  $R^2$  Linear =  $0.004$ ,  $p = 0.628$ .