LETTER TO THE EDITOR

Temporal Trend Might Be Better Than Instant Occurrence of fQRS as a Noninvasive Prognostic Marker in STEMI Patients Undergoing Primary PCI

Uğur Canpolat, M.D., Dursun Aras, M.D., Serkan Topaloğlu, M.D.,
and Sinan Aydoğdu, M.D.

From the Cardiology Clinic, Türkiye Yüksek İhtisas Training and Research Hospital, Ankara, Turkey

Ann Noninvasive Electrocardiol 2015;20(2):198–199

Dear Editor,

In the recent issue of your journal, we read with great pleasure an interesting article by Uslu et al.¹ which included 542 patients with ST-segment elevation myocardial infarction (STEMI) undergoing primary percutaneous coronary intervention (PCI) and reported that wall motion score index (WMSI) as another indicator of left ventricular systolic function found to be significantly higher in on-admission fQRS (+) patients and WMSI was significantly predicted the presence of fQRS. Additionally, the presence of on-admission fQRS was found to be significantly associated with both in-hospital and long-term cardiovascular outcomes.

It has been proved that the presence of fQRS on admission has been linked to poor outcomes in STEMI patients undergoing primary PCI.^{2–5} In a recent study, Lorgis et al.⁵ showed that the presence of fQRS was associated with a significantly lower left ventricular ejection fraction, increased left ventricular volumes, a larger infarct size, and a larger peri-infarct zone in patients who underwent cardiac magnetic resonance imaging during the week after acute myocardial infarction. Also microvascular obstruction was more frequent and larger in patients with fQRS (+). So, this study findings confirmed that fQRS

is a reliable marker of infarct size and acute ventricular remodeling. However, the occurrence of fQRS in patients with STEMI was known as a dynamic rather than a constant process.^{4,6,7} In a study by Ozcan et al.,⁴ the evolution of fQRS on admission and post-PCI electrocardiography and their relation with myocardial reperfusion parameters were investigated in a total of 401 STEMI patients undergoing primary PCI. New-onset or persistence of fQRS after primary PCI has been found as significantly associated with myocardial blush grade of <3, peak CK-MB level, pre-PCI fQRS at anterior localization, and smoking. Additionally, the number of leads with fQRS was negatively correlated with left ventricular ejection fraction which might be associated with inadequate myocardial reperfusion and increased myocardial injury. Also, Lorgis et al.⁵ reported that persistent fQRS was associated with decreased survival in STEMI patients during a mean follow-up of 846 ± 297 days. So, Uslu et al.¹ may also comment on the evolution of fQRS rather than only the presence of fQRS on admission and its association with WMSI and cardiovascular outcomes. Because of the successful myocardial reperfusion, in some of the patients fQRS on admission may disappear in whom in-hospital and

Address for correspondence: Uğur Canpolat, M.D., Cardiology Clinic Türkiye Yüksek İhtisas Training and Research Hospital Sıhhiye, Ankara, Turkey. Fax: +90-312-306-1134; E-mail: dru_canpolat@yahoo.com

long-term prognosis might be better than persistent fQRS. Furthermore, some of the STEMI patients without fQRS on admission might develop fQRS after primary PCI which might increase the risk of in-hospital and long term event rate.

As a conclusion, fQRS on-admission, as a simple, available and cheap parameter, may be useful in stratification of patients with higher risk for increased ischemic jeopardized or infarcted myocardium and associated with both in-hospital and long term adverse outcomes. However, the evolution of fQRS (either persistent/newly developed or absence/resolution) may also predict poor prognosis and should be considered during follow-up of STEMI patients undergoing p-PCI.

REFERENCES

1. Uslu N, Gul M, Cakmak HA, et al. The assessment of relationship between fragmented QRS complex and left ventricular wall motion score index in patients with ST elevation myocardial infarction who underwent primary percutaneous coronary intervention. *Ann Noninvasive Electrocardiol* 2014 Jul 17 [Epub ahead of print].
2. Akgul O, Uyarel H, Pusuroglu H, et al. Predictive value of a fragmented QRS complex in patients undergoing primary angioplasty for ST elevation myocardial infarction. *Ann Noninvasive Electrocardiol* 2014 Jul 7 [Epub ahead of print].
3. Stavileci B, Cimci M, Ikitimur B, et al. Significance and usefulness of narrow fragmented QRS complex on 12-lead electrocardiogram in acute ST-segment elevation myocardial infarction for prediction of early mortality and morbidity. *Ann Noninvasive Electrocardiol* 2014;19:338–344.
4. Ozcan F, Turak O, Canpolat U, et al. Myocardial tissue perfusion predicts the evolution of fragmented QRS in patients with ST-segment elevation myocardial infarction undergoing primary percutaneous coronary intervention. *Ann Noninvasive Electrocardiol* 2014;19: 454–461.
5. Lorgis L, Jourda F, Hachet O, et al. Prognostic value of fragmented QRS on a 12-lead ECG in patients with acute myocardial infarction. *Heart Lung* 2013;42: 326–331.
6. Kocaman SA, Cetin M, Kiris T, et al. The importance of fragmented QRS complexes in prediction of myocardial infarction and reperfusion parameters in patients undergoing primary percutaneous coronary intervention. *Turk Kardiyol Der Ars* 2012;40:213–222.
7. Cetin M, Kocaman SA, Kiris T, et al. Absence and resolution of fragmented QRS predict reversible myocardial ischemia with higher probability of ST segment resolution in patients with ST segment elevation myocardial infarction. *Korean Circ J* 2012;42:674–683.