

## Editorial / Editöryal Yorum

### Serum gamma-glutamyltransferase activity and acute coronary syndromes

#### Serum gama-glutamilttransferaz aktivitesi ve akut koroner sendrom

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Gamma-glutamyltransferase (GGT) is an antioxidant enzyme involved in the extracellular catabolism of glutathione. Many studies have been carried out regarding the importance of oxidative stress and its relation with GGT. A large body of evidence from these studies has shown that independent of hepatic disease and alcohol consumption, high serum GGT concentrations were associated with atherosclerotic vascular disease and related conditions (coronary artery disease [CAD], stroke, diabetes mellitus, and metabolic syndrome).<sup>[1-3]</sup>

As GGT may have a role in the process of low density lipoprotein (LDL) oxidation, it is thought that elevated levels of this enzyme may help in risk stratification of patients with atherosclerotic vascular disease. It was shown that GGT has prognostic significance. Independent of the traditional atherosclerotic risk factors, GGT has been identified as a determinant of total and cardiovascular mortality.<sup>[4]</sup> Although not clearly shown, the close relation between GGT and cardiovascular events might be explained by the fact that GGT is a marker of oxidative stress and inflammation. Serum GGT has been demonstrated in atherosclerotic plaques from coronary arteries, which can have a role in the progression/course of vascular disease.<sup>[5]</sup>

In recent studies, the relation between GGT and acute coronary syndrome (ACS) was evaluated.<sup>[6-8]</sup>

Lazzeri et al.<sup>[7]</sup> from Italy showed that GGT level was an independent predictor of early mortality in patients

with ST elevation myocardial infarction. Doğan and colleagues<sup>[8]</sup> evaluated serum GGT levels in patients with non-ST elevation ACS. They found higher serum GGT concentrations in these patients compared to controls. They also analyzed ACS patients regarding coronary angiographic findings. Higher serum GGT levels were detected in patients with significant coronary stenosis (luminal narrowing of least 50% in any major coronary artery) compared to those with non-significant coronary lesions. Significantly, in 12 months of follow-up, GGT levels were identified as a determinant of major cardiac events.

In this journal issue, Duran and colleagues<sup>[9]</sup> evaluated the relation between serum GGT and burden of coronary atherosclerosis in patients presenting with ACS (non-ST elevation myocardial infarction and unstable angina pectoris). It is known that the more severe/diffuse the coronary lesions, the worse the prognosis in patients with CAD. To define the severity of coronary lesions, they used both Gensini and Syntax scoring systems. They found that serum GGT concentration increases as coronary lesions become more severe in accordance with each of these classifi-

#### Abbreviations:

ACS	Acute coronary syndrome
CAD	Coronary artery disease
GGT	Gamma-glutamyltransferase

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cations. That is, patients with high Syntax and Gensini scores (high atherosclerotic burden) had higher serum GGT levels compared to those with low scores (low atherosclerotic burden). This is an interesting study evaluating a relation between serum GGT and coronary lesion severity in ACS patients, and it adds to the existing literature showing that serum GGT has a prognostic role in ACS patients and is correlated with disease burden.

In conclusion, serum GGT, which is a widely available and low-cost parameter, can assist in determining the risk in patients with various forms of cardiovascular diseases, including ACS. Further studies with larger numbers of patients will provide more informative data on this subject.

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**Anahtar sözcükler:** Akut koroner sendrom; koroner arter hastalığı; gama-glutamiltransferaz.