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Role of intracoronary imaging in STEMI patients undergoing primary PCI

Primer PKG uygulanan STEMİ hastalarında intrakoroner görüntülemenin rolü

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Dear Editor,

I read the case report titled “An under-diagnosed cause of myocardial infarction: Coronary embolism” by Öncel CR et al. with great interest [1]. In their report, the authors presented a successful management of a patient admitted with ST elevation myocardial infarction (STEMI) clinic related to coronary embolism. I appreciate the clinical approach of the authors in the management of this case. On the other hand, I aim to highlight the role of intracoronary imaging in the context of acute coronary syndrome (ACS) patients in differential diagnosis of pathophysiology of myocardial infarction and optimization of coronary intervention during primary percutaneous intervention (pPCI).

The No-reflow phenomenon can be developed in ACS patients following pPCI procedure. Narayanan S et al. reported that the suboptimal coronary flow incidence in ACS patients as 7.2%. The prognostic risk factors related to the development of suboptimal coronary flow were listed as the STEMI clinic, angiographic complex coronary lesion (type B2/C), preprocedural TIMI 0 flow, pre PCI plaque length, positive remodelling of culprit lesion, and post PCI plaque prolapsus [2]. If there is a suspicion about the presence of atherosclerotic plaque and intimal dissection of culprit lesion in a patient taken to the catheterization laboratory with a diagnosis of STEMI, intracoronary imaging (with IVUS or OCT) may be preferred to prevent unnecessary PCI procedures [3]. The 2023 ESC guidelines for the management of acute coronary syndromes define acute coronary syndrome clinic as a working diagnosis and recommend the usage of intracoronary imaging (IVUS or OCT) in performing pPCI after determination of the culprit lesion with a Class IIa recommendation [4]. Recently published 2025 ACC/AHA guideline for the management of patients with acute coronary syndromes recommend the usage of intracoronary imaging in left main disease or complex coronary artery disease with a Class IA recommendation [5]. Intracoronary imaging helps to determine the plaque characterization and thrombus burden of culprit lesion in STEMI patients during pPCI

procedure [6]. It is also possible to implant larger sized coronary stents with balloon dilatation with higher pressures to reach more approriate appositions during the pPCI procedures performed with the guidance of intracoronary imaging [7]. Intracoronary imaging plays a pivotal role not only to perform differential diagnosis but also to optimize the stenting procedure in STEMI patients during the pPCI. Prospective studies continue to search the further place of intracoronary imaging in STEMI patients undergoing pPCI [8]. Intracoronary imaging does also have some disadvantages, such as increassed cost, prolonged procedural time, and the need for procedural experience.

In conclusion, the results obtained from prospective studies on intracoronary imaging methods will provide us more guidance regarding the use of this method in STEMI patients undergoing pPCI.

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