Kako elevacija ST-segmenta u aVR korelira s okluzijom debla lijeve koronarne arterije

How ST-segment elevation in aVR corelates with occlusion in the left main coronary artery

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Uvod: Akutni infarkt miokarda (AIM) predstavlja najčešći uzrok smrti, napose kod onih koji razviju kardiogeni šok (KŠ). Elektrokardiogram (EKG) je glavno sredstvo u postavljanju dijagnoze lokalizacije infarkta miokarda (IM) i moguće lokalizacije odgovorne lezije. Elevacija ST-segmenta (STE) u odvodu aVR je važan elektrokardiografski znak jer predstavlja okluziju debla lijeve koronarne arterije (LM), okluziju proksimalne lijeve anteriorne descedentne arterije (LAD) ili proksimalne cirkumfleksne arterije (ACx). STE u aVR > STE u V1 govori u prilog okluzije LM. Obrnuti omjer govori u prilog okluzije proksimalne LAD. Dodatni EKG znakovi okluzije LM uključuju difuznu ST depresiju u prekordijalnim i inferiornim odvodima. Takvi bolesnici zahtijevaju hitnu reperfuziju miokarda uglavnom perkutanom koronarnom intervencijom (PCI) ili iznimno rijetko kardiokiruškom revaskularizacijom (CABG). CABG čini < 5% primarnih intervencija kod AIM[1-3].

Prikaz slučaja: 70-godišnja bolesnica je inicijalno zaprimljena u Kliniku za kirurgiju gdje joj je zbog okluzije desne arterije femoralis superficijalis učinjena femoropoplitealna premosnica. Drugi dan bolesnica razvija tipične stenokardije te se premješta u Koronarnu jedinicu. EKG prikaže STE u aVR > STE u V1, uz depresiju ST-segmenta u svim ostalim odvodima te povišene vrijednosti troponina. Ehokardiografski se verificira hipokinezija anteroseptolateralne stijenke lijeve klijetke s redukcijom sistoličke funkcije lijeve klijetke (EF 45%). Ubrzo po dolasku u Koronarnu jedinicu bolesnica razvija kliničku sliku kardiogenog šoka, s klasičnim prikazom hemodinamskog urušaja i porastom laktata. Nakon tek neznatnog poboljšanja hemodinamike uz inotropne lijekove učini se koronarografija koja prikaže subokluziju LM i subokluziju ostijalne LAD i Acx te subtotalnu stenozu proksimalnog segmenta desne koronarne arterije (RCA). Bolesnica se odmah premjesti na Kardijalnu kirurgiju gdje joj je učinjeno trostruko aortokoronarno premoštenje, LIMA na LAD i venu safenu magnu na marginalni ogranak ACx i RCA. Postoperativno klinički stabilna s urednom sistoličkom funkcijom lijeve klijetke.

Zaključak: Dosadašnje studije ukazuju da STE u aVR > STE u V1 govori u prilog okluzije LM što nismo našli kod naše bolesnice, a nove smjernice za definiciju infarkta miokarda govore da je STE u aVR >1 mm ekvivalent infarkta miokarda sa STE.

Introduction: Acute myocardial infarction (AMI) is one of the most common causes of death, especially in those who develop cardiogenic shock (CS). The ECG is a main tool in making a diagnosis of the localization of myocardial infarction (MI) and the possible location of the culprit lesion. ST-segment elevation (STE) in lead aVR is of great importance because it is a sign of either left main coronary artery (LM) occlusion or of proximal left anterior descending artery (LAD) or left circumflex artery (ACx) occlusion. STE in aVR > V1 STE suggests of the LM occlusion. The opposite ratio suggests of proximal LAD occlusion. Other ECG features of LM obstruction include diffuse ST-segment depression in precordial and inferior leads. Such patient demands an urgent myocardial reperfusion either via percutaneous coronary intervention (PCI) or, extremely rare, a coronary artery bypass grafting (CABG). CABG accounts < 5% of primary interventions after AMI[1-3].

Case report: 70-years-old female patient was initially admitted to Clinic for Surgery, where femoropopliteal bypass was done, due to right superficial femoral artery occlusion. Postoperatively the patient developed stenocardia and was transferred to Coronary Care Unit. The ECG showed STE in aVR > STE in V1 and ST depression in other leads. Laboratory tests showed high troponin levels. Echocardiography showed hypokinesis of anteroseptolateral left ventricular wall with mild reduction in LV systolic function (EF 45%). Meanwhile, the patient developed CS, with high lactate levels. After patient stabilization by inotropes, an urgent coronarography was performed. It showed subocclusion of LM, as well as subocclusion of ostial LAD and left circumflex artery (ACx) which is additionally significantly stenosed in proximal segment, and proximal significant stenosis of right coronary artery (RCA). The patient was immediately transferred to cardiac surgery where triple CABG was created, LIMA with LAD and obtuse marginal branch (OM1) and RCA with vein saphena magna. Postoperatively, the patient was hemodynamically stable with normal LVEF.

Conclusion: Previous studies showed that STE in aVR > STE in V1 suggest LMCA occlusion which we did not find in our patient. New recommendations for universal definition of myocardial infarction suggest that STE in aVR >1 mm is equivalent to myocardial infarction with STE.

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LITERATURE

1. Caceres M, Weiman DS. Optimal timing of coronary artery bypass grafting in acute myocardial infarction. Ann Thorac Surg. 2013 Jan;95(1):365-72. https://doi.org/10.1016/j.athoracsur.2012.07.018
2. Joo JH, Liao JM, Bakaeen FG, Chu D. Surgical revascularization for acute coronary syndromes: a narrative review. Vessel Plus. 2018;2:2. https://doi.org/10.20517/2574-1209.2017.36