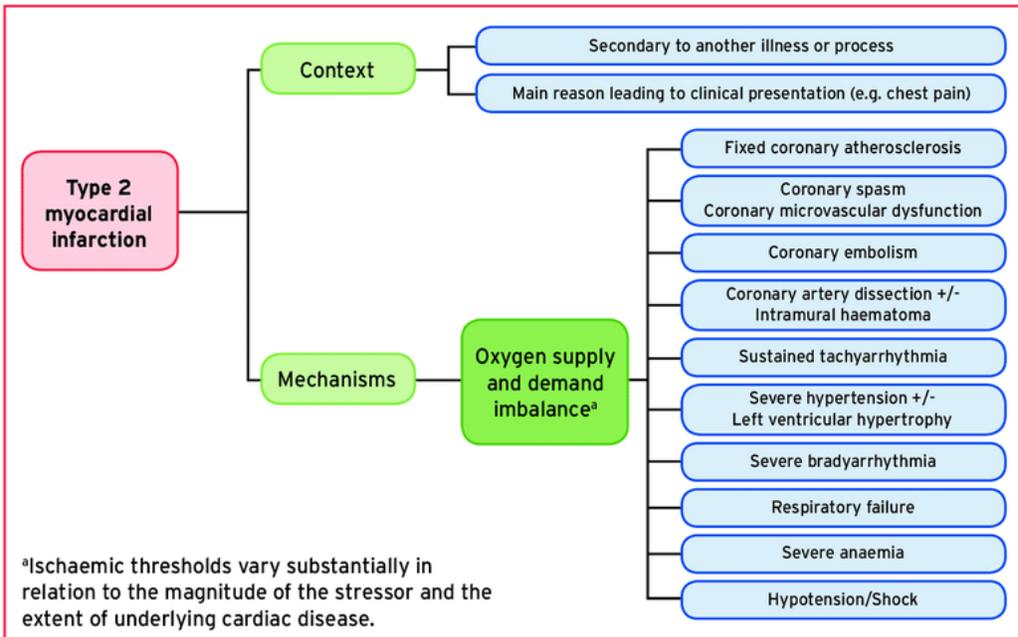




TYPE II MYOCARDIAL INFARCTION

Type 2 MI is defined as myocardial infarction secondary to ischemia due to either increased oxygen demand or decreased supply. It is not due to plaque rupture, and is usually caused by a condition other than coronary artery disease (CAD). A type 2 MI is a relative deficiency in coronary artery blood flow triggered by an abrupt increase in myocardial oxygen demand, drop in myocardial blood supply, or both. In type 2 MI, myocardial injury occurs secondary to an underlying process, and therefore requires correct documentation of the underlying cause as well.

Examples of **underlying causes of type 2 MI** include acute blood loss anemia (e.g. GI bleed), acute hypoxia (e.g. COPD exacerbation), shock states (cardiogenic, hypovolemic, hemorrhagic, or septic), coronary artery vasospasm (e.g. spontaneous), hypertension, hypotension and arrhythmias. Patients with type 2 MI often have a history of fixed obstructive coronary disease, which when coupled with the acute trigger facilitates the type 2 MI; however, underlying CAD is not always present. Type 2 MI is a common entity and is more common in females, older age groups, and in patients with multiple comorbidities: it also tends to result in higher mortality.



The key features to diagnose a type 2 MI are as follows:

- An elevated but changing troponin value
- Clinical features inconsistent with type 1 acute MI
- Clinical conditions known to increase the oxygen demand or decrease the oxygen supply like tachycardia
- Potentially confounding clinical conditions or comorbidities that are potentially associated or known to be associated with myocardial injury
- Symptoms of acute myocardial ischemia such as typical chest pain.
- New ischemic ECG changes.
- Development of pathological Q waves.
- Imaging evidence of new loss of viable myocardium, significant reversible perfusion defect on nuclear imaging, or new regional wall motion abnormality in a pattern consistent with an ischemic etiology.
- Absence of symptoms and/or signs indicating other nonischemic causes of troponin elevations like myocarditis.

Treatment of type 2 MI is to treat the underlying condition. To adequately assess the prognosis and determine appropriate further treatment in patients with type 2 MI, information about whether the patient has (or is likely to have) significant underlying CAD is essential.

The new ICD-10-CM codes available Oct. 1, 2017, included a new diagnosis code for type 2 MI (I21.A1), distinct from NSTEMI (I21.4) based on updated definitions from the American College of Cardiology, American Heart Association, European Society of Cardiology, and World Heart Federation.

CODING INFORMATION

A TYPE 2 MI WILL NEVER BE THE PRINCIPAL DIAGNOSIS

Type 2 myocardial infarction (myocardial infarction due to demand ischemia or secondary to ischemic imbalance) is assigned to code I21.A1, Myocardial infarction type 2 with the underlying cause coded first. Do not assign code I24.8, Other forms of acute ischemic heart disease, for the demand ischemia. If a type 2 AMI is described as NSTEMI or STEMI, only assign code I21.A1. Codes I21.01-I21.4 should only be assigned for Type 1 AMIs.

I21.A Other type of myocardial infarction

I21.A1 M MC HC HR Myocardial infarction type 2



Includes: Myocardial infarction due to demand ischemia :: :: Myocardial infarction secondary to ischemic imbalance

Code first: the underlying cause, such as: :: :: anemia D50.0-D64.9 :: :: chronic obstructive pulmonary disease J44.- :: :: paroxysmal tachycardia I47.0-I47.9 :: :: shock R57.0-R57.9

AHA Coding Clinic[®] for ICD-10-CM and ICD-10 PCS, 4Q 2018, Volume 5, Number 4, Pages 57-74

AHA Coding Clinic[®] for ICD-10-CM and ICD-10 PCS, 4Q 2017, Volume 4, Number 4, Pages 12-14

AHA Coding Clinic[®] for ICD-10-CM and ICD-10 PCS, 4Q 2017, Volume 4, Number 4, Pages 79-92

References:

Optum 360* ICD-10-CM Professional for Hospitals

[When is a troponin elevation an acute myocardial infarction? | The Hospitalist \(the-hospitalist.org\)](#)

[Diagnosing Type 2 Myocardial Infarction - American College of Cardiology \(acc.org\)](#)

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The codes and other information presented in these materials are for educational and training purposes only, and should not be relied upon or used by any person for any other purpose, including any actual coding or billing. Always consult official sources, available from the Centers for Medicare and Medicaid Services (CMS) and the National Center for Health Statistics (NCHS) for applicable currently approved ICD codes and related information concerning their use. NJPR and its instructors expressly disclaim any liability for any reliance upon the codes and other information presented in these materials for unauthorized purposes, or for any other misuse of the same. The information contained in this publication is protected by copyright. All rights reserved. No part of this publication may be reproduced, distributed or transmitted by any person in any form or by any means, now known or hereafter invented or devised, without the express written permission of NJPR.

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