Reviewer’s report

Title: Acute myocardial infarction after amoxicillin - induced anaphylactic shock in a young adult with normal coronary arteries

Version: 1 Date: 7 July 2004

Reviewer: Marco Roffi

Reviewer’s report:

General

Dr. Gikas and colleagues describe the case of a 32-year old man who develops ST elevation myocardial infarction (MI) following treatment of anaphylactic shock secondary to administration of amoxicillin. Their interpretation of the case is that the MI was an epiphenomenon of the anaphylaxis and is therefore worthy publication.

I completely disagree with the interpretation of the case. In my view the pathophysiologic mechanism underlying the MI was prolonged coronary spasm due to epinephrine administration. The patient received 0.3 mg of epinephrine SC and a second dose (how much? not mentioned in the case description but only in the discussion [0.2 mg]) after 20 minutes. ST-elevation developed immediately (seconds? minutes?) after the second dose. While the authors try to argument why this should not be the case, below are listed the reasons for me to think that indeed ST-elevation MI was due to catecholamine-induced coronary spasm.

1. The patients presented with full blown anaphylaxis but normal ECG
2. There is a clear temporal relation between the epinephrine administration and the occurrence of ST-elevation
3. The ECG is characteristic for coronary spasms, since it involves several territories (anterior and inferior). The ECG localization is not inferolateral as the authors suggest.
4. A close analysis of the left coronary angiogram demonstrates that the diameter of the mid-to-distal left anterior descending coronary artery pathologic. Indeed, it is smaller than the marginal branch of the left circumflex. In addition, the very distal portion of the LAD demonstrates a clear tubular narrowing. This angiographic appearance is typical of a state following intense coronary spasm that may persist for several days.

Coronary spasm is a know cause of myocardial infarction. This case elucidates one known serious side-effect of epinephrine. Clearly, the drug was correctly applied and was probably life-saving. Conversely, the administration of thrombolytics should be strongly discouraged if coronary spasm is suspected and an emergent coronary angiography should be preferred in cases of persistent ST-elevation, if available. The management of this patients was of course complicated by the fact that vasodilatory therapy was not possible because of concomitant anaphylaxis and cardiovascular instability.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

Discretionary Revisions (which the author can choose to ignore)

What next?: Reject because scientifically unsound

Level of interest: Too insignificant to warrant publication in any journal

Quality of written English: Not suitable for publication unless extensively edited

Statistical review: No

Declaration of competing interests:

None