

✓ Pathology of fatal perioperative myocardial infarction: implications regarding pathophysiology and prevention

Moniz M. Dawood^b, Dinesh K. Gutpaa, James Southern^b, Ann Walia^a, James B. Atkinson^a and Kim A. Eagle^{c, *}

Int J Cardiol 1996;57:37-44.

Abstract

The aim of this study was to determine the pathology of fatal postoperative myocardial infarction (MI) and compare it with that of non-operative myocardial infarction. Histopathological analyses of coronary arteries and myocardium were performed on autopsy heart specimens ($n=67$), and clinical attributes were studied. Findings of perioperative MI ($n=42$) were compared to those of non-perioperative MI ($n=25$). Significant atherosclerotic obstruction (>50% cross-sectional narrowing) was observed in the majority of patients (93%). Left main (>50% cross-sectional narrowing) and/or three-vessel coronary artery disease were especially common (44%) in this group. Evidence of unstable plaques with **disruption** was noted **in 55% of perioperative MI patients** ($n=23$); plaque hemorrhage was found in 45% ($n=19$). **Predicting** the site of infarction based on **severity of underlying stenosis** would have been **unsuccessful in more than half** the patients in both perioperative and nonoperative MI groups. Clinical profiles of the patients in the two groups were similar in terms of prior cardiac history, gender and age. Fatal perioperative MI occurs predominantly in patients with **multivessel coronary disease, especially left main and three-vessel disease**. The severity of preexisting underlying stenosis did **not** predict the resulting infarct territory. Evidence of acute plaque disruption in the infarct-related artery is common. Perioperative MIs have **similar** coronary artery pathology to **non**-operative MIs with regard to coronary plaque hemorrhage, rupture, and thrombus formation and probably occur by a similar mechanism.