Table 1. Precipitating Factors Identified in PAPRICA-2

Precipitant	Definition	Patients, No. (%)
Infection	Fever or infection requiring antibiotics	1369 (39)
Rapid atrial fibrillation	HR > 120 bpm	636 (18)
Anemia	Hemoglobin < 100 g/L	263 (7)
Hypertensive emergency	SBP > 160 mmHg requiring treatment	255 (7)
Dietetic-therapeutic transgression	Attending physician criteria	167 (5)
ACS without ST elevation	If concurrent with ADHF episode	112 (3)

ACS, acute coronary syndrome; ADHF, acute decompensated heart failure; bpm, beats per minute; HR, heart rate; SBP, systolic blood pressure.

Most patients were NYHA functional class I or II at baseline. About 78% of all patients included in the study were admitted to the hospital. At least 1 precipitating factor was identified for 72% of patients (2562 of 3535). Multiple factors were identified in 6% (228 of 3535) of patients. Infection was the most common precipitant, followed by rapid atrial fibrillation (HR > 120 beats per minute; Table 1).

Overall 90-day mortality among the study participants was 12%. The overall rate of 90-day ED reconsultation for ADHF was 43%. Non–ST elevation acute coronary syndrome (NSTE-ACS) was associated with significantly higher 90-day mortality ($P < .001$). Infection was associated with a significant lower probability of 90-day ED readmission ($P < .01$), whereas rapid AF as a precipitant of ADHF was associated with a significantly lower probability of 90-day ED readmission and death. Anemia, hypertensive emergency, and dietetic therapeutic transgression had no significant association with 90-day outcomes.

Current CDVs for cTn Produce Misdiagnosis of AMI

Written by Phil Vinall

According to Karin Susanne Wildi, MD, Basel, Switzerland, about 20% of patients presenting to the emergency department (ED) with acute myocardial infarction (AMI) receive an inconsistent diagnosis when using the approved clinical decision values (CDVs) for cardiac troponin (cTn).

Of the 10% of ED patients with symptoms suggestive of AMI, only 10% to 20% are diagnosed with AMI. Misdiagnosis of AMI may significantly harm patients and may result from inappropriate CDVs for cTn because of limitations in the current regulatory process. Manufacturers are asked to establish the 99th percentile for cTn in a healthy reference population. Because there is a lack of consensus regarding the term "healthy," and the effects of age and gender have not been determined, the current regulatory process is under scrutiny.

Dr Wildi presented the results of a study designed to quantify inconsistencies in the diagnosis of AMI related to limitations in the definition of CDVs for high-sensitivity cTn assays (cardiac troponin T, hs-cTnT; and troponin I, hs-cTnI). This was a prospective international multicenter study of 2300 consecutive patients presenting to the ED with suspected AMI. All patients had a routine clinical assessment and cTn measurement performed at presentation; cTn was measured serially as long as clinically indicated. Final diagnosis was adjudicated over by 2 independent cardiologists.

AMI was the adjudicated diagnosis in 473 of 2300 (21%) patients. Among these, 86 patients (18.2%) had inconsistent diagnoses using the approved uniform CDV. Nearly all of these inconsistencies were related to underdiagnosis of AMI with hs-cTnI. Using gender-specific CDVs, 14.1% of female and 22.7% of male patients with AMI had inconsistent diagnoses, again nearly all of them related to underdiagnosis of AMI with hs-cTnI. Use of biologically equivalent CDVs, calculated by regression analysis, reduced inconsistencies to 10% ($P < .001$).

These findings were confirmed with parallel measurements of other hs-cTn assays. The incidence of inconsistencies was only 7.0% for assays with CDVs that were nearly biologically equivalent. Dr Wildi concluded that currently approved CDVs are not biologically equivalent and contribute to major inconsistencies in the diagnosis of AMI. One of 5 AMI patients will receive a diagnosis other than AMI if managed with the alternative hs-cTn assay.