The declining prognostic value of a negative stress echo based on regional wall motion abnormalities. Is the "low risk" really low in contemporary patients?

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Background. Cardiology guidelines identify the low-risk response during stress echocardiography (SE) as the absence of regional wall motion abnormalities (RWMA), but the contemporary population referred to the SE lab is different from early years: more often under therapy, with inappropriate indications, atypical or absent symptoms, and concomitant heart failure - all conditions which may negatively affect the prognostic value of a negative test.

Aim. To assess the temporal trends in event rate in patients with negative SE lab evaluated in the last 3 decades.

Methods. From 1983 to 2016, we enrolled 5,817 patients (age 63±12 years; 2,830 males) with suspected coronary artery disease, normal regional and global left ventricular function at rest and during stress (exercise in 692, dipyridamole in 4,291, dobutamine in 834). Based on timing of enrollment, 4 groups were identified in chronological order of recruitment: years 1983-1989, Group 1 (n=211); years 1990-1999, Group 2 (n=1,491); years 2000-2009, Group 3 (n=3,285); years 2010-2016, Group 4 (n=830). All patients were followed-up for a median of 39 months (1st quartile 18, 3rd quartile 70). Only hard end-points (death and non-fatal myocardial infarction) were considered.

Results. There were 459 (8%) events (267 deaths and 192 infarctions) in the follow-up. The 3-year hard event-rate was clearly lower in the first (2.5%) and second group (3.5%) when compared to the third (6.1%) and fourth groups (7.2%); see figure.

Conclusion. Over the last 3 decades, we observed a progressive decline in the prognostic value of a negative test based on RWMA. Better integration of imaging result with clinical data and an upgrade of test response with criteria of proven prognostic value beyond RWMA are needed as a countermeasure to the observed declining predictive value of a negative SE test.