Women with unstable angina received fewer cardiac procedures than did men but were less likely to develop other cardiac events


**Question**
Are men and women who present to the emergency department (ED) with unstable angina investigated and treated differently and are their long-term outcomes different?

**Design**
Inception cohort study with mean follow-up of 6 years.

**Setting**
Olmsted County, Minnesota, United States.

**Patients**
All patients living in Olmsted County who presented to the ED with chest pain for the first time from 1982 to 1992 and who met the criteria for unstable angina: symptoms of angina at rest for > 20 minutes, new-onset exertional angina (Canadian Cardiovascular Society criteria for ≥ class 3 angina), variant angina, or angina after myocardial infarction (MI). Exclusion criteria were ongoing MI and other causes of chest pain. 1306 men (mean age 60 y) and 965 women (mean age 67 y) were included. Follow-up for mortality was complete.

**Assessment of Prognostic Factors**
At presentation to the ED, data were collected on sex; age; diabetes mellitus; history of hypertension, hypercholesterolemia, or MI; familial coronary artery disease; typical angina; prolonged pain; electrocardiographic findings; and U.S. Agency for Health Care Policy and Research risk category (high, intermediate, or low).

**Main Outcome Measures**
Use of cardiac procedures within 90 days of diagnosis, all-cause mortality, and cardiac events (cardiac death, nonfatal MI, nonfatal cardiac arrest, and congestive heart failure). Data are presented as relative risks (RRs) for men compared with women and adjusted for baseline characteristics.

**Main Results**
At diagnosis, women were older (P < 0.001) than men, and fewer were smokers (16% vs 26%, P = 0.001); women had higher rates of history of hypertension (55% vs 39%, P = 0.001), history of hypercholesterolemia (51% vs 40%, P = 0.001), typical angina (81% vs 75%, P = 0.001), abnormal electrocardiographic findings (59% vs 53%, P = 0.001), and other ST-T changes (33% vs 26%, P = 0.001). In the category of use of cardiac procedures within 90 days of ED visit, men were less likely than women to have noninvasive diagnostic tests only (RR 0.85, 95% CI 0.74 to 0.98) and more likely to have any noninvasive test (RR 1.21, CI 1.09 to 1.35), stress testing (RR 1.43, CI 1.26 to 1.63), coronary angiography (RR 1.59, CI 1.38 to 1.82), or combined noninvasive tests and angiography (RR 1.80, CI 1.53 to 2.12). After adjustment for baseline characteristics, men had a higher risk for cardiac events (RR 1.21, CI 1.03 to 1.42) and showed a trend toward increased all-cause mortality (RR 1.23, CI 0.99 to 1.54, P = 0.07).

**Conclusion**
Among patients who were diagnosed for the first time with unstable angina after presenting to the emergency department with chest pain, women received fewer cardiac procedures than did men within 90 days; after adjustment for baseline characteristics, men experienced worse outcomes during follow-up.

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What are the implications for clinical practice? We still do not know what rate of invasive procedures for unstable angina best serves women and men. Fortunately, data have become available for better risk assessment incorporating cardiac markers and quantitative evaluation of ST-segment shift. The importance of risk assessment coupled with enhanced medical and revascularization strategies provides new cause for optimism in the care of such patients (3).

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References