

INFLUENCE OF AGE AND COMORBIDITY ON TREATMENT
STRATEGY IN WOMEN WITH ISCHEMIC HEART DISEASE

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Abstract. *Age-related physiological changes and the accumulation of comorbid conditions play a pivotal role in shaping the clinical presentation and management of ischemic heart disease (IHD) in women. The aim of this study was to evaluate the impact of age and comorbidity burden on disease characteristics and revascularization strategies. A total of 483 female patients with confirmed coronary artery disease were analyzed and stratified according to age and reproductive status. A significant age-dependent increase in major cardiovascular risk factors was identified, including arterial hypertension (up to 86.3%), dyslipidemia (up to 68.6%), carotid artery stenosis (exceeding 70%), and prior myocardial infarction (up to 61.4%) ($p < 0.001$). Severe heart failure (NYHA class III) was present in 77.8–98.0% of patients, with the highest prevalence observed in older age groups. Dyspnea was the predominant clinical manifestation, reflecting the central role of cardiac dysfunction in symptomatology. Treatment strategies differed significantly across age groups: minimally invasive approaches, particularly coronary stenting, were more frequently applied in elderly patients due to increased surgical risk, whereas coronary artery bypass grafting (CABG) was more commonly performed in*

middle-aged patients with complex coronary lesions. These findings highlight the critical importance of age-adapted, personalized clinical decision-making in women with IHD.

Keywords: *coronary artery disease, women, aging, comorbidity, heart failure, revascularization, coronary stenting, CABG.*

Introduction. Ischemic heart disease remains a major contributor to morbidity and mortality among women worldwide. However, its clinical presentation, progression, and treatment outcomes differ significantly from those observed in men. Women more frequently exhibit atypical symptoms, delayed diagnosis, and a higher burden of comorbid conditions, which complicates clinical management [1,3-5,7].

Age and hormonal status are central determinants of cardiovascular risk in women. The transition to menopause is associated with a decline in estrogen levels, leading to endothelial dysfunction, adverse lipid profile changes, and accelerated atherosclerosis. These changes contribute to the progressive increase in cardiovascular risk observed with aging [2-6].

Despite advances in cardiovascular medicine, the interaction between age, comorbidity burden, and treatment strategies in women with IHD remains insufficiently explored. Understanding these relationships is essential for optimizing clinical outcomes.

Materials and methods. This retrospective cohort study was conducted at the Republican Specialized Scientific and Practical Medical Center of Surgery named after Academician V. Vakhidov (Tashkent, Uzbekistan) between 2020 and 2023. A total of 483 women with confirmed coronary artery disease were included and stratified according to age and reproductive status.

A comprehensive evaluation was performed, including:

- demographic characteristics and body mass index;

- assessment of comorbid conditions (arterial hypertension, diabetes mellitus, dyslipidemia, carotid artery stenosis, prior myocardial infarction, cerebrovascular disease);
- clinical symptom analysis;
- functional classification using NYHA and CCS scales;
- echocardiographic assessment of cardiac structure and function;
- analysis of treatment strategies, including percutaneous coronary intervention (PCI) with stenting and CABG.

Statistical analysis was performed using χ^2 test and parametric methods, with $p < 0.05$ considered statistically significant.

Results. The study demonstrated a strong age-dependent increase in comorbidity burden. The prevalence of arterial hypertension rose from 27.8% in younger patients to 86.3% in elderly patients ($p < 0.001$). Dyslipidemia increased from 38.9% to 68.6% ($p = 0.002$), while carotid artery stenosis increased from 38.9% to over 73% ($p < 0.001$), indicating progressive systemic atherosclerosis.

The proportion of patients with a history of myocardial infarction increased to 61.4% ($p = 0.037$), and cerebrovascular events rose to 19.0% ($p = 0.001$), reflecting the accumulation of vascular risk with age.

Clinically, dyspnea was the predominant symptom, observed in up to 90.7% of patients, suggesting a dominant contribution of heart failure to disease presentation. Severe heart failure (NYHA class III) was highly prevalent, increasing from 77.8% in younger patients to 98.0% in elderly groups ($p < 0.001$).

Revascularization strategies varied significantly across age groups. Coronary stenting was more frequently performed in elderly patients (up to 69.3%), reflecting a preference for less invasive procedures in high-risk populations. In contrast, CABG was more commonly performed in middle-

aged patients, particularly those with multivessel coronary artery disease and more complex anatomical lesions.

Discussion. The results of this study confirm that age and comorbidity burden are key determinants of both clinical presentation and therapeutic strategy in women with ischemic heart disease. The progressive increase in cardiovascular risk factors reflects cumulative exposure to metabolic and vascular stressors, as well as the loss of hormonal protection following menopause.

The high prevalence of heart failure highlights the importance of early identification and aggressive management of cardiac dysfunction in female patients. The predominance of dyspnea over classical angina symptoms may contribute to diagnostic delays and underscores the need for increased clinical awareness.

Age-related differences in treatment strategies reflect real-world clinical practice, where less invasive approaches are preferred in elderly patients due to increased operative risk, while surgical revascularization remains an important option in younger and middle-aged patients with more advanced coronary disease.

Overall, these findings support the implementation of personalized, age-specific management strategies in women with ischemic heart disease, integrating comorbidity assessment, functional status, and anatomical considerations.

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