

PROGNOSTIC VALUE OF STRESS ECHOCARDIOGRAPHY IN PATIENTS WITH ANGINA PECTORIS

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Abstract:

IHD continues to be one of the main problems of modern medicine. This leads to an increase in the percentage of coronary deaths among men and women. In the diagnostic algorithm for coronary artery disease, stress echocardiography (stress echocardiography) is required before selective coronary angiography. at the moment this is the best (cheapest and safest) imaging method among non-invasive methods for detecting coronary heart disease (CHD). It has similar diagnostic accuracy and predictive value to radionuclide loading methods, but is much less expensive, safer for the environment, and has less radiation exposure to the patient and physician.

Keywords: coronary heart disease (CHD), angina pectoris, stress echocardiography, left ventricular myocardial ischemia, coronary artery disease.

ПРОГНОСТИЧЕСКОЕ ЗНАЧЕНИЕ СТРЕСС-ЭХОКАРДИОГРАФИИ У БОЛЬНЫХ СТЕНОКАРДИЕЙ.

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Аннотация:

ИБС продолжает оставаться одной из основных проблем современной медицины. Это приводит к увеличению процента коронарной смертности среди мужчин и женщин. В диагностическом алгоритме ИБС перед селективной коронарографией обязательна стресс-эхокардиография (стресс-эхокардиография). на данный момент это лучший (самый дешевый и безопасный) метод визуализации среди неинвазивных методов выявления ишемической болезни сердца (ИБС). Он имеет аналогичную диагностическую точность и прогностическую ценность с методами загрузки радионуклидов, но гораздо дешевле, безопаснее для окружающей среды и меньше радиационного воздействия на пациента и врача.



Ключевые слова: ишемическая болезнь сердца (ИБС), стенокардия, стресс-ЭхоКГ, ишемия миокарда левого желудочка, заболевания коронарной артерии.

STENOKARDIYASI BO'LGAN BEMORLARDA STRESS EKOKARDIYOGRAFIYASINING PROGNOSTIK AHAMIYATI.

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Annotatsiya:

YuIK zamonaviy tibbiyotning asosiy muammolaridan biri bo'lib qolishda davom etmoqda. Bu esa erkaklar va ayollar orasidagi koronar o'limlar foizi ortib borishiga sabab bo'lmoqda. YuIK ni diagnostik algoritmda selektiv koronaroangiografiya o'tkazishdan oldin stress-exokardiografiyani (stress-exoKG) o'tkazishni talab qiladi. Hozirgi vaqtda Yurak ishemik kasalligini (YuIK) aniqlashning invaziv bo'lmagan usullari orasida yeng yaxshi (eng arzon va xavfsiz) ko'rish usuli. Radionuklidli yuklama usullari bilan o'xshash diagnostika aniqligi va prognostik qiymatiga yega, ammo narxi ancha past, atrof-muhit uchun xavfsiz va bemor va shifokor uchun radiatsiya ta'siriga ega emas.

Kalit so'zlar: Yurakning ishemik kasalligi (YuIK), stenokardiya, stress- ExoKG, chap qorincha miokardining ishemiyasi, koronar arteriya kasalligi

Introduction:

Ischemic heart disease is the largest cause of mortality in the United States, with angina pectoris being a prevalent symptom. "Angina" refers to clinical symptoms such as soreness in the chest, jaw, shoulder, back, or arms caused by physical activity or mental stress that resolves with rest or nitroglycerin. Some people report no discomfort but do complain of shortness of breath or fatigue during activities. These symptoms are caused by underlying myocardial ischemia and are also known as anginal counterparts.

Ischemic heart disease (IHD) is the largest cause of mortality and lost life years in people worldwide, especially among women under the age of 55. Angina pectoris (from the Latin word 'angere' to strangle) is a kind of chest pain caused by the heart. It is a frequent clinical symptom of IHD, with an estimated frequency of 3% to 4%



in UK adults. Every year, around 250000 invasive coronary angiograms are conducted, resulting in over 20000 new instances of angina.

Stress echocardiography has developed as an effective noninvasive approach for detecting coronary artery disease. The accuracy of exercise echocardiography, employing treadmill or bicycle stress, and pharmaceutical stress echocardiography, utilizing dobutamine or vasodilators, has been validated in a large number of patients. Its accuracy in detecting coronary artery disease is higher than that of an exercise ECG and looks to be equivalent to that of SPECT perfusion imaging. Furthermore, stress echocardiography is beneficial for localizing and quantifying coronary artery disease. Stress echocardiography is unique in that it can identify different types of cardiac disease that may cause chest discomfort. These properties make it suitable for use in the examination of patients suffering from chest discomfort (1). The use of stress echo to predict prognosis is less well understood. Several recent studies have been reported that employ stress echocardiographic methods to assess prognosis in the general population of patients submitted for echocardiographic stress testing. These results demonstrate that both exercise and pharmacologic stress echo may stratify a referral group into low, high, and intermediate risk subsets. More research is needed to evaluate whether these early findings are supported by prolonged follow-up and whether stress echocardiography will have a role in therapeutic treatment by assessing outcomes (2).

Materials and Methods:

In the Fergana region, we conducted a retrospective and inferential study of 30 angina pectoris patients checked with stress echocardiography. We identified the prognostic value of stress echocardiography data in our first report for the cardiology department of Fergana Regional Multidisciplinary Medical Center in Fergana. Because there was no examination or diagnosis by stress echocardiography for angina pectoris before. Therefore, we have learned that these patients are in the three different groups:

Group 1 included 10 conditionally healthy patients aged 40 to 55 years (49.1 ± 2.98) without clinical manifestations of ischemic heart disease and without risk factors.

Group 2 included 10 patients aged 38 to 56 years (48.8 ± 2.93) with complaints of cardiac, patients without typical clinical manifestations of ischemic heart disease and without its main risk factors.



Group 3 included 10 patients aged 39 to 64 years (49.5 ± 3.01) who had two risk factors for the development of ischemic heart disease, usually had an inpatient angina attack.

Total distribution of patients with age group shows that majority of patients were found in the age group of 50-59 (43.7%), 40-49 (33.9%), 60-69 (16.8%), 30-39 (5.6%) , were represented in pie chart:

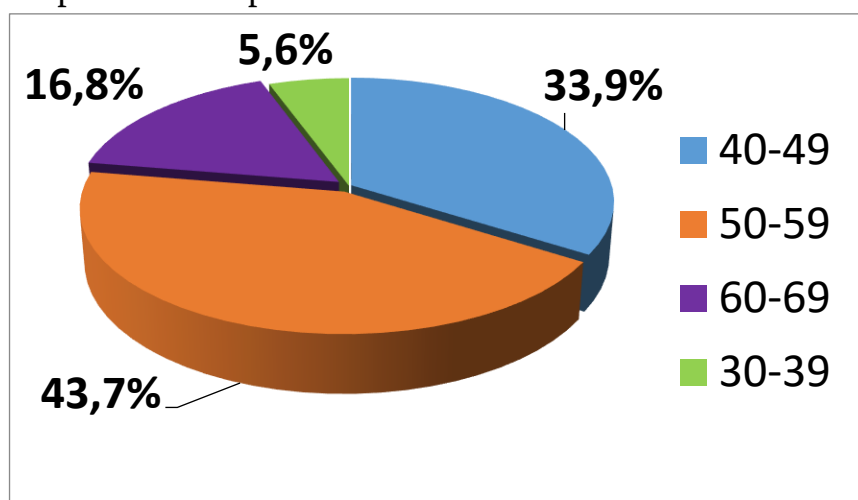


Figure 1. Age Distribution of patients of angina pectoris diagnosed by stress echocardiography

A total of 30 patients are treated as inpatients in the cardiology department of Fergana Regional Multidisciplinary Medical Center, the percentage distribution of study population showed that (42.60%) females and (57.40%) males are affected, which are represented in figure

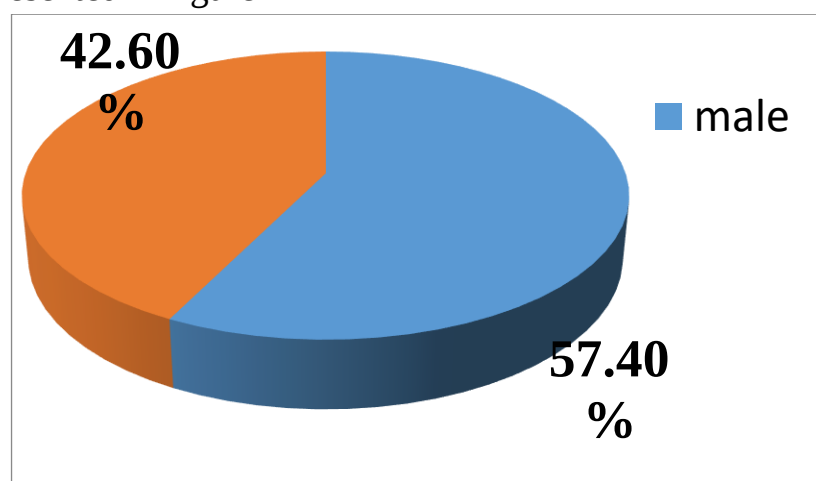


Figure 2. Gender Distribution of patients of angina pectoris diagnosed by stress echocardiograph



Result:

We retrospectively analyzed the patients with angina pectoris diagnosed by stress echocardiograph who were treated in the cardiology department of Fergana Regional Multidisciplinary Medical Center during our study. We divided all patients into 3 groups and examined their clinical and anamnestic indicators.

Figure 3. Clinical and anamnestic indicators in groups

Indicator	examined groups		
	I group	II group	III group
Age, years	49,1	48,8	49,5
Active lifestyle	18	21	15
Frequency of heart contractions, ud/min	78	81	85
BMI, kg/m2	29,4 (25,0; 32,8)	25,5 (20,5; 27,0)	27,5 (22,1; 29,8)
SABP, mm. St.	115,3 (108,0; 120,0)	120,9 (109,0; 130,0)	128,1 (120,0; 136,5)

The stress-ECG is the most widely used and cost-effective first diagnostic tool for assessing myocardial ischemia in individuals with suspected coronary artery disease (CAD). Prerequisites for stress-ECG diagnostic usefulness include a clearly interpretable ST-segment, the capacity to attain the expected work load, an intermediate pretest likelihood of CAD ranging from 10% to 90%, and the lack of any contraindications for dynamic exercise(4). A negative stress ECG cannot exclude hemodynamically significant CAD due to its low diagnostic sensitivity of roughly 70% and the large number of patients who are unable to exercise. As a result, stress imaging methods such as myocardial scintigraphy, stress echocardiography, and stress magnetic resonance imaging play an important role in the step-by-step diagnostic work-up of patients with suspected CAD(3).

As a result, we identified that during the examination, depending on the impact of the myocardium on stress, four variants of stress echocardiography were identified: normal
ischemic
cicatricial,
vital.



Discussion: In this study, we assessed the value of exercise echocardiography in the risk stratification of patients with angina pectoris. During the examination, 5 (12%) normal variants of stress echocardiography were revealed, in which in 3 patients (7%) the normokinetic segments at rest remained normokinetic, and in 2 (5%) they became hyperkinetic during the test. And also, 21 (52.5%) variants of the ischemic response were identified. The contractile function of the left ventricular (LV) segments worsened during exercise in 2 cases, hypokinesis in 15 cases, and akinesia in 4 examined cases. In 6 cases, a negative T-shaped variant of stress echocardiography response was detected. At the same time, segments 1-2 of the affected area, which had dysfunction during rest, remained unchanged on the background of loading. In 8 cases, a viable response was detected. In this case, the segments with dysfunction at rest showed a continuous improvement in function during the test, of which in 2 cases the improvement in function in the initial stages of the test was replaced by a subsequent deterioration at the highest level of load.

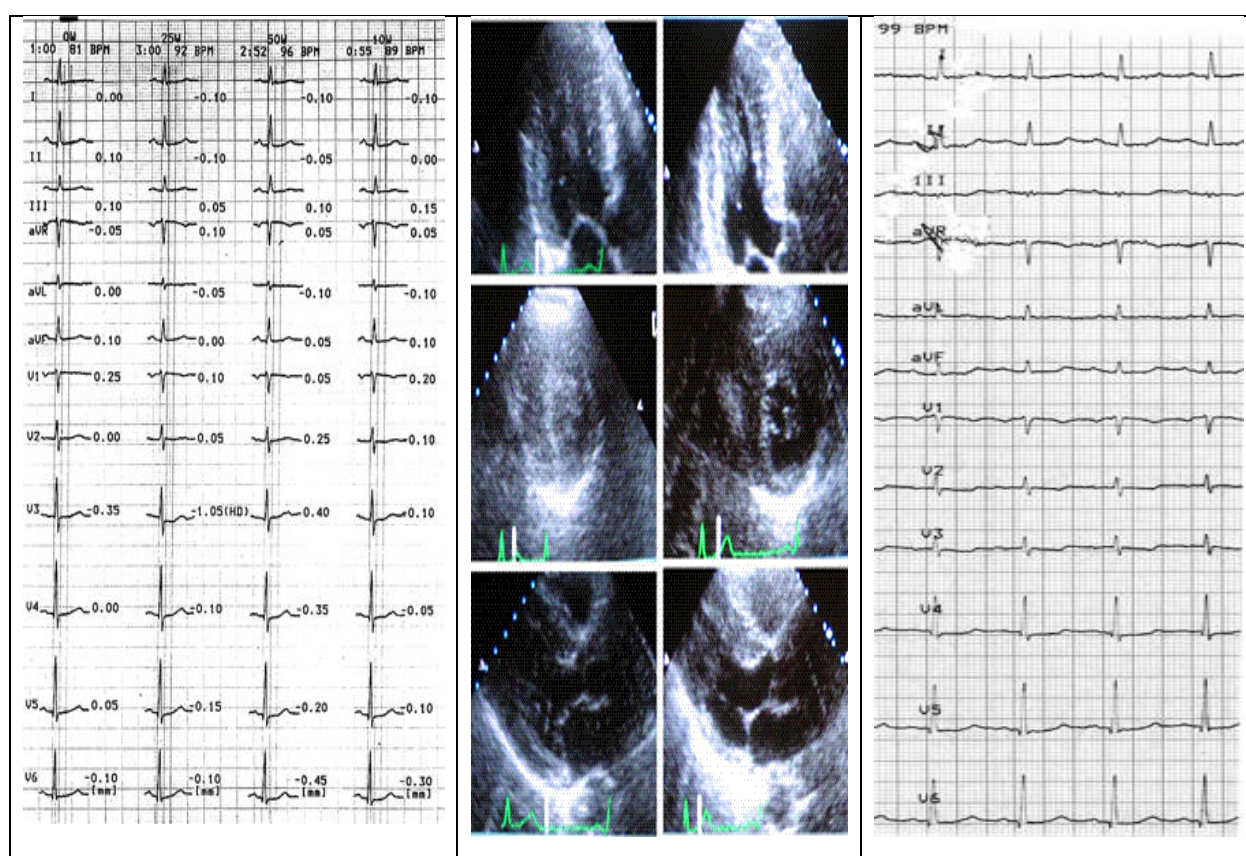


Figure 4. A clinical pattern of false-negative ExoCG results in a patient with typical Angina. During stress echocardiography against the background of the highest level

of physical activity, contractility disorders were noted in the middle and basal segments of the posterior and lower part of the LV wall(5).

Conclusion: During the study, 40 patients with an average age of 48.3 years were examined, male gender predominated among those examined (57.4%). All patients were divided into negative and positive, positive and negative ECG stress tests. During the examination, depending on the stress of the myocardium, 4 variants of stress echocardiography were identified: normal, ischemic, cicatricial, vital. Normal variant of stress echocardiography was 12%, ischemic variant was 52.4%, cicatricial variant was 15.8% and vital variant was 19.8% of all examined cases.

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