Article/Review

Ishemik kardiomiopatiya bilan kasallangan bemorlarda teri orqali koronar aralashuvni takomillashtirish: sistematik adabiyotlar sharhi

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Annotatsiya:
Maqsad. Ishemik kardiomiopatiya bilan kasallangan bemorlarda teri orqali koronar aralashuv (TOKA) samaradorligini baholash va uni takomillashtirish imkoniyatlarini aniqlash, shuningdek aorto-koronar shuntlash (AKSh) bilan qiyosiy tahlili.
Materiallar va usullar. 2017-2025 yillarda chop etilgan tibbiy adabiyotlar PubMed, Scopus, Web of Science va Google Scholar ma'lumotlar bazalaridan foydalangan holda amalga oshirildi. Yuqori impakt-faktorli jurnallardagi 110 ta manba, shu jumladan asosiy randomizatsiyalashgan nazorat ostidagi tadqiqotlar (STICH, REVIVED-BCIS2), meta-tahlillar va ishemik kardiomiopatiya hamda revaskulyarizatsiya usullari bo'yicha tizimli sharhlar tahlil qilindi.
Natijalar. Ishemik kardiomiopatiya global miqyosda yurak yetishmovchiligining asosiy sababi bo'lib, uni davolashda to'rt komponentli farmakoterapiya bilan birga revaskulyarizatsiya muhim o'rin tutadi. TOKA AKSh ga nisbatan insult xavfini kamaytirish bo'yicha ustunlik ko'rsatsa, AKSh qayta revaskulyarizatsiya ehtiyojini kamaytirish va uzoq muddatli yashovchanlikni yaxshilash bo'yicha afzaldir. To'liq revaskulyarizatsiyaga erishgan bemorlarda o'lim xavfi 34% ga, qayta revaskulyarizatsiya xavfi esa 33% ga kamayadi.
Xulosa. Ishemik kardiomiopatiya bilan kasallangan bemorlarda TOKA va AKSh o'rtasida tanlov qilishda bemorning klinik xususiyatlari, koronar anatomiyasi va qo'shimcha kasalliklari hisobga olinishi zarur. Revaskulyarizatsiya darajasi va miokard hayotiyligi klinik natijalarni belgilovchi muhim omil hisoblanadi.

Kalit so'zlar: Ishemik kardiomiopatiya, teri orqali koronar aralashuv, aorto-koronar shuntlash, yurak yetishmovchiligi, revaskulyarizatsiya, miokard hayotiyligi.

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Improvement of percutaneous coronary intervention in patients with ischemic cardiomyopathy: a systematic literature review

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Abstract:
Aim. To evaluate the effectiveness of percutaneous coronary intervention (PCI) in patients with ischemic cardiomyopathy and identify opportunities for its improvement, as well as to conduct a comparative analysis with coronary artery bypass grafting (CABG).
Materials and methods. A systematic search of medical literature published from 2017 to 2025 was conducted using PubMed, Scopus, Web of Science, and Google Scholar databases. 110 sources from high-impact factor journals were analyzed, including key randomized controlled trials

(STICH, REVIVED-BCIS2), meta-analyses, and systematic reviews on ischemic cardiomyopathy and revascularization methods.
Results. Ischemic cardiomyopathy is the leading global cause of heart failure, in the treatment of which revascularization plays an important role alongside quadruple pharmacotherapy. PCI demonstrates superior stroke risk reduction compared to CABG, while CABG excels in reducing repeat revascularization needs and improving long-term survival. In patients achieving complete revascularization, mortality risk decreased by 34% and repeat revascularization risk by 33%.
Conclusion. When choosing between PCI and CABG in patients with ischemic cardiomyopathy, patient clinical characteristics, coronary anatomy, and comorbidities must be considered. The degree of revascularization and myocardial viability are important factors determining clinical outcomes.

Keywords: Ischemic cardiomyopathy, percutaneous coronary intervention, coronary artery bypass grafting, heart failure, revascularization, myocardial viability.

Kirish

Yurak ishemik kasalligi (YuIK) dunyo miqyosida eng keng tarqalgan yurak-qon tomir kasalliklaridan biri bo'lib, hozirda butun dunyo bo'yicha taxminan 126 million kishini (dunyo aholisining 1.72%) qamrab olgan. Bu kasallik yiliga 9 milliondan ortiq o'limga sabab bo'lmoqda, bu esa barcha o'limlarning 16% ini tashkil qiladi [1] . Chap qorincha otish fraksiyasi (ChQOF) 40% dan past bo'lgan yurak yetishmovchiligi bor bemorlar o'ziga xos muammo bo'lib, bunday bemorlarda bir yillik o'lim ko'rsatkichi 15-20% gacha yetadi. Zamonaviy davolash usullarining rivojlanishiga qaramay, bu ko'rsatkich oxirgi o'n yillikda sezilarli darajada kamaymaganligi tashvishli bo'lib qolmoqda [2]. Ishemik kardiomiopatiya (IKMP) bilan og'rigan bemorlarda teri orqali koronar aralashuv (TOKA) yoki aorto-koronar shuntlash (AKSh) kabi revaskulyarizatsiya usullarini qo'llash optimal davolash usulini tanlashda muhim ahamiyat kasb etadi [3]. Zamonaviy tadqiqotlar IKMP bilan kasallangan bemorlarda koronar arteriya revaskulyarizatsiyaning klinik natijalarni yaxshilashdagi ahamiyatini ta'kidlamoqda, ammo optimal revaskulyarizatsiya usulini tanlash bo'yicha qarama-qarshi tafovutlar mavjud [4,5]. Ushbu adabiyotlar sharhi so'nggi 7 yildagi chop etilgan ishemik kardiomiopatiyaning epidemiologiyasi, patofiziologiyasi, diagnostikasi, davolash usullari, xususan teri orqali koronar aralashuvni takomillashtirish istiqbollari haqidagi yangi ma'lumotlarni umumlashtiriga qaratilgan.

1. Ishemik kardiomiopatiya: ta'rifi va epidemiologiyasi

Ishemik kardiomiopatiya (IKMP) — yurak ishemik kasalligi tufayli koronar arteriyalardagi qon oqimining kamayishi yoki to'liq to'xtab qolishi (masalan, miokard infarkti) natijasida yurak mushaklarining shikastlanishi, uzoq davom etadigan ishemiya natijasida kelib chiqadigan miokard kasalligidir [6]. IKMP — bu yurak mushaklarining struktura va funksiyasida yuzaga keladigan o'zgarishlar bilan xarakterlanuvchi, koronar arteriya kasalligi (KAK) natijasida yuzaga keladigan yurak yetishmovchiligi holatidir [7]. Zamonaviy tadqiqotlar natijalari ko'rsatishicha, IKMP tashxisini qo'yish uchun quyidagi uchta asosiy mezon muhim ahamiyatga ega:

- ChQOF 40%;
- Kamida bitta koronar arteriyada 75% stenoz yoki oldingi koronar arteriyada 50% stenoz mavjudligi;
- Avval o'tkazilgan MI yoki miokard hayotiyligining yo'qotilganligi haqidagi ma'lumotlar [6].

Ma'lumotlarga ko'ra, IKMP bilan og'rigan bemorlar yurak-qon tomir kasalliklarining (YuQTK) taxminan 5-8% ni tashkil qiladi. Bundan tashqari, kardiomiopatiyaning barcha holatlari orasida ishemik kardiomiopatiya taxminan 11-13% ni tashkil qiladi. Kasallik ko'pincha 45-55 yoshdagi erkaklarda uchrab, barcha holatlarning taxminan 90% ni tashkil qiladi [7]. IKMP dunyo miqyosda yurak yetishmovchiligining asosiy sababi hisoblanadi. Global Burden of Disease tadqiqotiga ko'ra, dunyo bo'ylab yurak yetishmovchiligi bilan og'rigan bemorlarning 35-50% da asosiy sabab IKMP hisoblanadi [7]. Tsao hamkasblari tomonidan 2022 yilda chop etilgan AHA Heart Disease and Stroke Statistics hisobotiga ko'ra, AQShda har yili taxminan 915,000 nafar yangi yurak yetishmovchiligi holati qayd etiladi, ularning taxminan yarmi ishemik etiologiyaga ega ekanligi tasdiqlangan [8]. Prognozlarga ko'ra, 2030 yilga kelib YuIK tarqalishi 1845 holatga (har 100,000 aholi) yetishi kutilmoqda. Sharqiy Yevropa mamlakatlari eng yuqori ko'rsatkichlarni saqlab qolmoqda [9].

Efiopiyaning shimoliy hududida joylashgan ACSH shifoxonasida o'tkazilgan tadqiqot natijalariga ko'ra, yurak-qon tomir kasalliklari bilan kasalxonaga yotqizilgan bemorlarning 36.8% ini (767 ta) yurak ishemik kasalligi (YuIK) tashkil etgan [10]. Prognozlarga ko'ra, Markaziy Osiyoda 2050-yilgacha bo'lgan davrda YuIK (416/100,000), insult (167/100,000) va gipertoniya kasalligi (65/100,000) yurak-qon tomir kasalliklaridan o'limining asosiy sabablariga aylanishi prognoz qilinmoqda. 2050-yilga kelib, yurak-qon tomir kasalliklari tufayli aholi orasida o'lim ko'rsatkichi 91.2% ga oshishi kutilmoqda [11].

2. Ishemik kardiomiopatiyaning patofiziologiyasi

Ishemik kardiomiopatiya patofiziologiyasi murakkab bo'lib, uning asosida miokardning strukturaviy va funksional o'zgarishlari yotadi. Miokardning strukturaviy o'zgarishlari orasida fibroz o'zgarishlar, miokard to'qimasining proliferatsiyasi va gipertrofiyasi asosiy ahamiyatga ega. Bu esa hujayra mexanizmlarining buzilishi, kalsiy almashinuvi buzilishi va CD36 (Cluster of Differentiation 36) yog' kislotasi transporterining ekspressiyasi, PKC (Protein Kinase C) oksidlanishga sezgir bo'lishi, oksidativ stress, MMP-2 (Matrix Metalloproteinase-2) faolligi oshishi kabi mexanizmlar orqali amalga oshadi. Patologik o'zgarishlar esa diastola funksiyasining buzilishiga olib keladi [12]. IL-1, IL-6, CRP (C-Reactive Protein) va TNF- (Tumor Necrosis Factor-alpha) kabi yallig'lanish biomarkerlari yurak yetishmovchiligi og'irligi, simptomlar darajasi, o'lim va exokardiografik ko'rsatkichlar yoki MRT orqali aniqlangan o'ng qorincha disfunksiyasi bilan korrelyatsiya qiladi [13]. Yallig'lanish biomarkerlari yurak ishemik kasalligining rivojlanishida muhim diagnostik va prognostik ahamiyatga ega. Miyeloperioksidaza, interleykinlar, selektinlar (E-selektin, P-selektin), matriksning metalloproteinazalari, tomir adgeziya molekulasi-1 VCAM-1 (Vascular Cell Adhesion Molecule 1), o'sma nekrozi faktori TNF-alfa va C-reaktiv oqsil kabi yallig'lanish markerlarining qonda ko'tarilishi, yurak ishemik kasalligi rivojlanishi va kuchayishini ko'rsatadi [14]. Ishemiya natijasida yuzaga kelgan yurak yetishmovchiligi surunkali davridagi yallig'lanish holati doimiy miokard zararlanish va yallig'lanish markerlarining uzluksiz faollashuvi natijasida davom etishi mumkin [15].

3. Surunkali yurak yetishmovchiligi bor bemorlarni zamonaviy davolash tamoyillari

2021-yilda Amerikan Kardiologiya Kolleji (ACC) tomonidan berilgan tavsiyalarga ko'ra, ARNi, AO'Fi yoki ARB o'rniga afzal dori vositasi sifatida va SGLT2i qo'shimcha komponent sifatida tavsiya etilgan. Bu tavsiyalar 2022-yilgi Amerika Yurak Assotsiatsiyasi, Amerikan Kardiologiya Kolleji va Amerikaning yurak yetishmovchiligi jamiyati (ACC/AHA/HFSA) ko'rsatmalarida rasmiy shaklga kiritilgan. 2022-yildagi klinik tavsiyalarga ko'ra, yurak yetishmovchiligini davolashda "quadruple therapy" ya'ni to'rt komponentli dori terapiyasi tavsiya etiladi. Bu terapiya angiotenzin retseptor-neprilizin ingibitori (ARNi), natriy-glyukoza kotransporter-2 ingibitori (SGLT2i), mineralokortikoid retseptor antagonisti va beta-blokatordan iborat [16]. Yevropa Kardiologiya Jamiyati (ESC) tavsiyasiga ko'ra, yurak yetishmovchiligi va chap qorincha qon otish fraksiyasi pasaygan bemorlarning barchasi to'rtta asosiy farmakoterapiyani (Kvadroterapiya) qabul qilishlari kerak:

- renin-angiotenzin-aldosteron tizimi ingibitori (RAATi),
- beta-blokatorlar (BB),
- mineralokortikoid retseptor antagonistlari (MRA),
- natriy-glyukoza kotransporter-2 ingibitorlari (SGLT2i) [17].

4. Ishemik kardiomiopatiya bilan kasallangan bemorlarda miokardning revaskulyarizatsiyasi

STICH (Surgical Treatment for Ischemic Heart Failure) va STICHES (Surgical Treatment for Ischemic Heart Failure Extension Study) tadqiqotlarida AKSh jarrohlik amaliyoti faqat dori terapiyasiga nisbatan kardiovaskulyar sababli o'lim darajasini pasaytirishi va 10 yillik omon qolish darajasini oshirishi ko'rsatilgan, ammo bu tadqiqot zamonaviy dori vositalari bilan yurak yetishmovchiligi terapiyasi qo'llanilishidan oldin o'tkazilgan va TOKA guruhi kiritilmagan edi [18]. STICH surunkali ishemik yurak yetishmovchiligi va chap qorincha funksiyasi jiddiy pasaygan 1212 bemorlarida AKSh rolini o'rganishda birinchi bo'ldi. 56 oy davomida o'limda sezilarli farq bo'lmasada, kengaytirilgan tadqiqot (STICH-ES) davomida 10 yildan so'ng AKSh amaliyoti optimal dori terapiyadan ustun bo'lib chiqqan [19]. REVIVED-BCIS2 (Revascularization for Ischemic Ventricular Dysfunction) tadqiqotida esa TOKA bilan dori terapiyasi orasida 3 yillik omon qolish darajasida farq topilmagan [20]. Tadqiqotda, ishemiya natijasidagi chap qorincha sistolik disfunksiyasi bo'lgan

bemorlarda standart dori terapiyaga qo'shimcha ravishda TOKA bilan revaskulyarizatsiya qilish, dori terapiyasi bilan davolashga nisbatan bemorlarning o'rtacha yashovchanligini yaxshilashi taxmin qilingan. Biroq, o'rtacha 3-4 yil davomidagi kuzatuvda, birlamchi natijada guruhlar o'rtasida farq aniqlanmadi [21].

Avstraliya va Yangi Zelandiya ko'p tarmoqlik jarrohlik markazi va TOKA registrlaridan olingan ma'lumotlarga ko'ra, AKSh bilan davolangan bemorlar TOKA bilan davolanganlarga qaraganda 4 yillik kuzatuv davrida uzoq muddatli yashab qolish ko'rsatkichi 41% ga nisbiy yaxshilanishini ko'rsatdi. TOKA bilan solishtirganda, AKSh bilan davolash uzoq muddatli yashab qolish xususiyati yaxshilanishi bilan bog'liq, ammo amaliyot vaqtida insult xavfi yuqori va kasalxonada qolish davri uzayishi kuzatilgan [22]. AKSh va TOKA usullarining samaradorligini solishtirganda, AKSh uzoq muddat davomida yashash darajasini oshirishi, MI va qayta revaskularizatsiya holatlarini kamaytirishi aniqlangan. Bu natijalar oktogenarian (80 yosh va undan katta) bemor aholisida ham kuzatilgan [23]. Tadqiqot natijalariga ko'ra, AKSh amaliyoti TOKA ga nisbatan qayta revaskulyarizatsiya va miokard infarkti holatlarini kamaytirish bo'yicha yuqori samaradorlikka ega. Revaskularizatsiyaning umumlashtirilgan Mantel-Haenszel (M-H) ko'rsatkichi 1.85 (95% ishonch oralig'i CI: 1.65 - 2.07) tashkil etgan, bu esa AKSh ning afzalligini ko'rsatadi. TOKA insultni kamaytirish bo'yicha AKSh dan samaraliroq ekanligi aniqlangan Mantel-Haenszel M-H = 0.80, 95% CI: 0.60 - 1.10 ko'rsatkichi bilan [24]. AKSh usuli operatsiya davridagi o'lim xavfini biroz oshirishiga qaramasdan, 21.5 oydan so'ng hayot davomiyligi TOKA ga nisbatan sezilarli darajada yuqori bo'lgan. Kaplan-Meier tahlili orqali AKSh ning uzoq muddatli natijasi muhim ahamiyatga ega ekanligi (HR: 1.08, 95% CI 1.02-1.41, p=0.005) aniqlangan [26]. Meta-analiz natijalariga ko'ra, erkak bemorlarda chap asosiy koronar arteriya kasalligida AKSh, TOKA ga qaraganda yurak-qon tomir asoratlarining past xavfi bilan bog'liq, ayollarda esa bu ikki usul o'rtasida sezilarli farq kuzatilmagan [27]. Tadqiqotda umumiy o'lim ko'rsatkichi bo'yicha TOKA va AKSh o'rtasida jinsga qarab farq topilmagan, ammo takroriy revaskulyarizatsiya xavfi ikkala jinsda ham TOKA bilan davolanganda sezilarli darajada yuqori bo'lgan [28]. Yurak ishemik kasalligi bo'lgan bemorlarda, ayniqsa chap asosiy koronar arteriyada stenoz va qandli diabet bilan og'rigan bemorlarda, TOKA va AKSh amaliyotlari o'rtasidagi taqqoslama natijalar muhim ahamiyatga ega. Qandli diabeti bor bemorlar qandli diabeti yo'q bemorlarga qaraganda 5 yil ichida yuqoriroq o'lim darajasini (14.7% va 9.3% mos ravishda), spontan MI (6.7% va 3.7%), qayta revaskulyarizatsiya (18.5% va 13.2%) va insult (3.8% va 2.5%) kabi yurak-qon tomir asoratlarini boshdan kechirgan [[9]. TOKA va AKSh jarrohlik amaliyotlari chap asosiy koronar arteriya stenozida o'z afzalliklari va kamchiliklariga ega. Meta-analiz tadqiqotida TOKA ning AKSh bilan taqqoslanishi 1611 bemorni o'z ichiga olgan 4 ta randomizatsiyalangan tadqiqotlar natijalarini ko'rsatdi. TOKA guruhida AKSh guruhiga nisbatan insult xavfi sezilarli darajada past bo'lgan (0.12% vs. 1.90%, OR (Odds Ratio) 0.14, 95% CI [0.04-0.55], p=0.004), lekin qayta revaskularizatsiya zarurati yuqoriroq (11.03% vs. 5.45%, OR 2.17, 95% CI [1.48-3.17], p<0.001) bo'lgan. O'lim darajasi (OR 0.72, 95% CI [0.42-1.24], p=0.23) va miokard infarkti (OR 0.97, 95% CI [0.54-1.74], p=0.91) ikkala guruhda ham bir xil bo'lgan [30]. Boshqa meta-analiz tadqiqotida TOKA va AKSh amaliyotlarining ko'p tomirlarda (multivessel) yoki LMCA (chap asosiy koronar arteriya) kasalligida 10 yillik natijalarini taqqoslagan. Umumiy o'lim ko'rsatkichi bo'yicha TOKA va AKSh o'rtasida sezilarli farq aniqlanmagan (OR 1.03 95% 0.89 to 1.19), biroq yurak bilan bog'liq o'limlar ko'rsatkichi AKSh amaliyotida TOKA ga nisbatan pastroq bo'lgan (OR 0.76 [95% CI 0.65 to 0.90]) [31].

5. Revaskulyarizatsiya darajasining klinik natijalarga ta'siri

Chap qorincha qon otish fraksiyasi sezilarli kamaygan bemorlarda (chap qorincha qon otish fraksiyasi 35%), to'liq anatomik yoki hayotiyligi boshqariladigan revaskulyarizatsiya qilish, to'liqsiz revaskulyarizatsiya yoki faqat dori terapiya bilan davolash bilan taqqoslaganda, o'lim yoki yurak etishmovchiligi tufayli kasalxonaga yotqizilish chastotasini kamaytirmadi [32]. Koreyada o'tkazilgan prospektiv kohorta tadqiqotida, AKSh bilan davolangan bemorlarning 72.4% ida to'liq revaskulyarizatsiyaga erishilgan, TOKA bilan davolangan bemorlarning esa faqat 43.5% ida to'liq revaskulyarizatsiya amalga oshirilgan [33]. REVIVED-BCIS2 tadqiqoti natijalariga ko'ra, ishemik kardiomiopatiyada revaskulyarizatsiya darajasi bilan chap qorincha funksiyasining tiklanishi o'rtasida bog'liqlik topilmadi, bu yurak funksiyasi tiklanishining asosiy determinanti klinik natijalar va miokard hayotiyligini yo'qotish darajasi ekanligini tasdiqlaydi [34]. To'liq revaskulyarizatsiyaga

erishilgan bemorlar guruhida, to'liq revsakulyarizatsiyaga erishmagan guruhga nisbatan 10 yillik asosiy natijalar (o'lim, MI, insult yoki qayta revaskulyarizatsiya) sezilarli darajada past bo'lgan ([HR]: 0.57; 95% ishonch oralig'i [CI]: 0.46-0.72; P < 0.001) [35]. Yurak yetishmovchiligi bor bemorlarda to'liq revaskulyarizatsiyaga erishish ko'pincha qiyin bo'ladi, chunki ular ko'pincha yurak yetishmovchiligi bo'lmagan bemorlarga qaraganda katta yoshli va qo'shimcha kasalliklari ko'proq bo'lib, uzoq va murakkab amaliyotlarning gemodinamik ta'siri va kontrast yuklamasini ko'tara olmaydilar [36]. REVIVED-BCIS2 tadqiqotida ishtirok etgan bemorlarda koronar revaskulyarizatsiya indeksi (RIcoro - Remote Ischemic Conditioning on Coronary Outcomes) o'rtacha 67% va miokardial revaskulyarizatsiya indeksi (RImyo - Remote Ischemic Conditioning on Myocardial Outcomes) o'rtacha 85% edi, bu hayotiy bo'lmagan miokard yuqori darajada ekanligi va bu qaysi tomir revaskulyarizatsiya qilinishi kerakligini belgilovchi muhim omildir [34].

Xulosa

Ishemik kardiomiopatiya yurak ishemik kasalligi natijasida rivojlanuvchi, global miqyosda keng tarqalgan patologik holat bo'lib, zamonaviy kardiologiyaning dolzarb muammolaridan biri hisoblanadi. Xalqaro tadqiqotlar natijalariga ko'ra, hozirgi kunda bu kasallik dunyo bo'yicha 126 million nafar insonni (dunyo aholining 1.72%) qamrab olgan. Ilmiy manbalarda qayd etilishicha, IKMP bilan kasallangan bemorlarda 5 yillik yashovchanligi atigi 50% atrofida bo'lib, ayniqsa, ChQOF 35% dan past bo'lgan guruhlarda bir yillik o'lim ko'rsatkichi 15-20% gacha yetishi, bu esa kasallikning og'ir kechishidan dalolat beradi.

STICH tadqiqoti natijalariga ko'ra, Aorta koronar shuntlash jarrohlik amaliyoti optimal medikamentoz terapiyaga nisbatan yurak yetishmovchiligini kamaytirishi va bemorlarning uzoq muddatli yashovchanligini sezilarli darajada oshirishi isbotlangan. Shu bilan birga, REVIVED-BCIS2 tadqiqotida TOKA va optimal medikamentoz terapiya taqqoslanganida, 3-4 yillik kuzatuv davomida o'lim ko'rsatkichlarida statistik jihatdan ahamiyatli farq aniqlanmagan, garchi TOKA guruhidagi bemorlarning hayot sifati va jismoniy imkoniyatlari sezilarli darajada yaxshilangani qayd etilgan. Zamonaviy farmakoterapiya sifatida to'rt komponentli terapiya - ARNi, SGLT2i, MRA va beta-blokatorlardan iborat davolash strategiyasi yurak yetishmovchiligi bilan og'rigan barcha bemorlar uchun asosiy tavsiya etiladi.

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Authors' contribution.

Kh.F., A.A.; Methodology: A.A.; Investigation: A.A.; Writing Original Draft: A.A.; Writing Review Editing: Kh.F., A.A.; Supervision: Kh.F. All authors have read and agreed to the published version of the manuscript.

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Tadqiqot aralashuvlar yoki bemor ma'lumotlarini o'z ichiga olmaganligi sababli etik ruxsat talab qilinmadi.

Ethics approval.

The study did not require ethical approval as no interventions or human data were involved.

Ma'lumotlar mavjudligi to'g'risidagi bayonot

Tadqiqot natijalarini qo'llab-quvvatlovchi ma'lumotlar asosli so'rov bo'yicha mualliflardan olinishi mumkin.

Data Availability Statement

The data supporting the results of this study are available from the authors upon reasonable request.

Rahmatnomalar

Mualliflar Respublika ixtisoslashtirilgan kardiologiya ilmiy-amaliy tibbiyot markaziga tadqiqot o'tkazish uchun yordam va qo'llab-quvvatlash uchun, shuningdek qimmatli sharhlar va takliflar bilan ishning sifatini yaxshilashga yordam bergan hamkasblarga o'z minnatdorchilarini bildiradilar.

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Manfaatlar to'qnashuvi

Mualliflar manfaatlar to'qnashuvining yo'qligini e'lon qiladilar.

Conflict of interest

The authors declare no conflict of interest.

Qisqartmalar

IKMP	Ishemik kardiomiopatiya
TOKA	Teri orqali koronar aralashuv
AKSh	Aorto-koronar shuntlash
ChQOF	Chap qorincha otish fraksiyasi
YuIK	Yurak ishemik kasalligi
ARNi	Angiotenzin retseptor-neprilizin ingibitori
SGLT2i	Natriy-glyukoza kotransporter-2 ingibitori
MRA	Mineralokortikoid retseptor antagonisti
ACC	Amerika kardiologiya kolleji
AHA	Amerika yurak assotsiatsiyasi
ESC	Yevropa kardiologiya jamiyati
STICH	Ishemik yurak yetishmovchiligini jarrohlik davolash tadqiqoti
REVIVED-BCIS2	Ishemik qorincha disfunksiyasi uchun revaskulyarizatsiya tadqiqoti

Adabiyot

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Nashriyot javobgar emas/ eslatmasi:
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