

Article

Ishemik kardiomiopatiyada koronar revaskulyarizatsiya to'liqligining kvadroterapiya fonida hayot sifati tiklanishiga ta'siri

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Annotatsiya:

Maqsad. Ishemik kardiomiopatiya (IKMP) bilan kasallangan bemorlarda 6 oyda KCCQ-12 bo'yicha hayot sifati tiklanishini, uning koronar revaskulyarizatsiya to'liqligiga bog'liqligini va mustaqil bashoratchilarini aniqlash.

Materiallar va usullar. Prospektiv bir markazli tadqiqotga 168 bemor kiritildi: to'liq TOKA (n=58), to'liqsiz TOKA (n=54) va faqat OMT (n=56); barcha bemorlar SGLT2 ingibitori asosidagi kvadroterapiya oldi. Natijalar boshlang'ich qiymat va qoldiq SYNTAX ballga tuzatilgan ANCOVA hamda logistik regressiya yordamida tahlil qilindi.

Natijalar. 6 oyda KCCQ-12 barcha guruhlarda oshdi (+14,3; +9,5; +9,5 ball; barcha guruh ichida $p < 0,05$), bemorlarning 53,7–63,8% ≥ 5 ball yaxshilanishga erishdi. Tuzatilgan guruhlararo KCCQ farqlari ahamiyatsiz edi. To'liq revaskulyarizatsiya qo'shimcha CHQOF o'sishi bilan bog'landi (+5,01%; 95% CI 1,17–8,84; $p = 0,01$). ≥ 10 ball javobning yagona mustaqil bashoratchisi pastroq boshlang'ich KCCQ bo'ldi (OR 0,91; 95% CI 0,88–0,94; $p < 0,001$).

Xulosa. Hayot sifati revaskulyarizatsiya to'liqligidan qat'i nazar yaxshilandi, to'liq revaskulyarizatsiya esa qo'shimcha chap qorincha teskari remodelanishini ta'minladi.

Kalit so'zlar: hayot sifati, Kansas-Siti kardiomiopatiya so'rovnomasi, ishemik kardiomiopatiya, to'liq revaskulyarizatsiya, SGLT2 ingibitorlari.

The impact of complete coronary revascularisation on the recovery of quality of life under quadruple therapy in ischaemic cardiomyopathy

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Abstract:

Aim. To quantify 6-month KCCQ-12 recovery in patients with ischaemic cardiomyopathy (ICM), assess its relationship with coronary revascularisation completeness, and identify independent predictors of a clinically important response.

Methods. This prospective single-centre study included 168 patients: complete PCI (n=58), incomplete PCI (n=54), and GDMT only (n=56); all received SGLT2 inhibitor-based quadruple therapy. Outcomes were analysed by ANCOVA adjusted for baseline value and residual SYNTAX score, with logistic regression for response predictors.

Results. At 6 months, KCCQ-12 improved in all groups (+14.3, +9.5, and +9.5 points; all within-group $p < 0.05$), and 53.7–63.8% achieved a ≥ 5 -point improvement. Adjusted between-group KCCQ differences were not significant. Complete revascularisation was associated with additional LVEF recovery (+5.01%; 95% CI 1.17–8.84; $p = 0.01$). The only independent predictor of a ≥ 10 -point response was lower baseline KCCQ (OR 0.91; 95% CI 0.88–0.94; $p < 0.001$).

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Conclusions. Quality of life improved irrespective of revascularisation completeness, while complete revascularisation provided additional left ventricular reverse remodelling.

Keywords: quality of life, Kansas City Cardiomyopathy Questionnaire, ischaemic cardiomyopathy, complete revascularisation, SGLT2 inhibitors.

Kirish

Ishemik kardiomiopatiya (IKMP) bilan yashayotgan bemor uchun kasallikning bevosita og'irligi laboratoriya raqamlarida emas, balki kundalik hayotda nafas qisilishi, tez charchash va ijtimoiy faollikning cheklanishida namoyon bo'ladi. Aynan shu "bemor his qiladigan" davolashning pirovard maqsadini belgilaydi. Kasalliklarning global yuki (GBD 2019) tahliliga ko'ra dunyoda taxminan 56,2 million kishi yurak yetishmovchiligi bilan yashaydi va uning yetakchi sababi koronar arteriyalar aterosklerozidir [1], IKMP esa chap qorincha otish fraksiyasi (CHQOF) pasaygan, ko'p tomirli zararlanishga ega bemorlarda uchraydigan asosiy shakllardan biridir [2]. Muhimi, bemor hayot sifati xolati nafaqat noqulaylikni aks ettiradi, balki o'lim va qayta gospitalizatsiyaning mustaqil, kuchli bashoratchisi hamdir [3]. Kansas-Siti kardiomiopatiya so'rovnomasi (Kansas City Cardiomyopathy Questionnaire, KCCQ) simptomlar, jismoniy cheklovlar va ijtimoiy faollikni yagona miqyosda jamlaydi va aynan yurak yetishmovchiligi uchun validatsiyalangan [4]. Uning 12 bandli ixcham shakli (KCCQ-12) qaror qabul qilishda qulay bo'lib, unda ≥ 5 ballik siljish kichik, ≥ 10 ballik – o'rtacha, ≥ 20 ballik esa yirik klinik ahamiyatga ega deb hisoblanadi [5,6]. Bunday miqyoslar bemor uchun eng qadrlil faoliyatlarga masalan, uy ishlari yoki ijtimoiy aloqalarga ta'sirni ham qamrab oladi [7].

So'nggi yillarda davolash asosi tubdan yangilandi. Natriy-glyukoza kotransporter 2 tipi ingibitorlari (SGLT2i) DAPA-HF va EMPEROR-Reduced sinovlarida o'lim va gospitalizatsiyaning kamaytirishidan tashqari [8,9], KCCQ balli bo'yicha o'lgan hayot sifati ham izchil yaxshiladi buni DAPA-HF, DEFINE-HF hamda EMPEROR-Reduced ning maxsus tahlillari tasdiqladi [10–12]. Shu tariqa angiotenzin reseptori-nepirilizin ingibitori (ARNI) yoki AO'F ingibitori, beta-blokator, mineralokortikoid reseptori antagonisti (MRA) va SGLT2i birikmasidan iborat kvadroterapiya joriy klinik tavsiyalarda asos sifatida mustahkamlandi [13–15].

Xuddi shu davrda koronar revaskulyarizatsiyaning o'rni qayta ko'rib chiqila boshladi. REVIVED-BCIS2 sinovida teri orqali koronar aralashuv (TOKA) medikamentoz terapiyaga qo'shimcha ravishda o'lim va gospitalizatsiyaning kamaytirishini [16], biroq unda fon terapiya SGLT2i ni o'z ichiga olmagan edi; COMPLETE qoldiq ishemiyani bartaraf etishning foydasini [17], STICH esa hayotiy miokardni tiklashning teskari remodellashga hissasini ko'rsatgan [18,19]. Biroq bularning barchasi asosan o'lim yoki strukturaviy o'lganlarga qaratilgan. SGLT2i hukmron bo'lgan hozirgi terapiya sharoitida revaskulyarizatsiyaning to'liq bajarish bemor his qiladigan hayot sifati tiklanishiga qo'shimcha hissa qo'shadimi degan savol, xususan Markaziy Osiyo bemorlarida, ochiqlikicha qolmoqda.

Materiallar va usullar

Ushbu bir markazli tadqiqot Respublika ixtisoslashtirilgan kardiologiya ilmiy-amaliy tibbiyot markazining intervension kardiologiya bo'limida bajarildi. Tadqiqotga IKMP bilan kasallangan, kvadroterapiya (SGLT2 ingibitori bilan) davolanayotgan 168 bemor kiritildi (guruhlar bo'yicha 58 / 54 / 56). Kiritish shartlari quyidagilar edi: CHQOF $\leq 40\%$, tasdiqlangan koronar tomirlar ateroskleroz va tanlangan terapiyada kamida ikki hafta barqarorlik. Istisno mezonlariga so'nggi 4 haftadagi o'tkir koronar sindrom, ilgari o'tkazilgan koronar shuntlash, aralashuv talab qiladigan og'ir klapan nuqsoni, eGFR < 20 ml/daq/1,73 m², faol onkologik jarayon yoki so'rovnomaning mustaqil to'ldirish imkoniyati kiritildi.

Guruhlanish va davolash

Har bir bemorning guruhi koronar anatomiya va erishilgan revaskulyarizatsiya darajasiga qarab yurak jamoasi (intervensiyon kardiolog hamda yurak yetishmovchiligi bo'yicha mutaxassislar) tomonidan belgilandi. To'liq revaskulyarizatsiyaga (qoldiq SYNTAX ≈ 0) erishilgan bemorlar birinchi guruh (G1), ba'zi tomirlar davolanmay qolgan bemorlar ikkinchi guruh (G2), aralashuv o'tkazilmay faqat dori bilan boshqarilgan bemorlar esa uchinchi guruh (G3) sifatida qaraldi. Uchala

guruhda ham SGLT2 ingibitorini o'z ichiga olgan kvadroterapiya istisnosiz (100%) qo'llanildi; kuzatuv davomiyligi 6 oyni tashkil etdi. Yakuniy tahlil 6 oylik to'liq ma'lumotga ega 168 bemorda o'tkazildi. Barcha ko'rsatkichlar boshlang'ich va 6-oyda qayd etildi. Exokardiografiya Amerika exokardiografiya jamiyati (ASE) tavsiyalari bo'yicha bajarilib, CHQOF Simpsonning ikki tekislikli usulida, qorincha oxirgi-sistolik hajmi (CHQOSH) va miokard massa indeksi (CHQMMI) tana yuzasiga indekslangan holda, diastolik funksiya esa E/e' va chap bo'lmacha hajmi indeksi (CHBHI) orqali baholandi [20]; laborator NT-proBNP, kreatinin va eGFR (CKD-EPI) aniqlandi. Hayot sifati KCCQ-12, funksional holat esa 6 daqiqali yurish testi (6MWT) va NYHA klassi bilan o'lchandi. Birlamchi yakuniy nuqta – 6 oyda KCCQ-12 ballining o'zgarishi va ≥ 10 ballli klinik ahamiyatli yaxshilanishga erishgan bemorlar ulushi; ikkilamchi nuqtalar – 6MWT masofasi, NYHA klassining kamida bir pog'onaga yaxshilanishi, NT-proBNP dinamikasi, CHQOF o'zgarishi belgilovchi omillar deb kiritildi.

Statistik tahlil

Hisoblar R 4.5.2 dasturida bajarildi. Uzluksiz o'zgaruvchilarning taqsimoti Shapiro-Uilk mezoni bilan tekshirilib, normal holatda $M \pm SD$ (ANOVA), aks holda mediana [Q1; Q3] (Kruskal-Uollis) ko'rinishida taqdim etildi; kategorik ma'lumotlar $n(\%)$ sifatida χ^2 yoki Fisher mezoni bilan taqqoslandi. Har bir guruh ichidagi 6 oylik siljish juftlangan t-mezon yoki Uilksokson mezoni bilan baholandi. Klinik ahamiyatli (≥ 10 ball) javobga ta'sir etuvchi omillar bir- va ko'p o'zgaruvchili logistik regressiya (guruh, boshlang'ich KCCQ, CHQOF o'zgarishi, qoldiq SYNTAX, yosh, qandli diabet) yordamida o'rganilib, natija shanslar nisbati (OR) va 95% ishonch oralig'i (CI) tarzida berildi; KCCQ o'zgarishining CHQOF va 6MWT bilan aloqasi Spearman korrelyatsiyasi orqali tahlil qilindi. Ish Xelsinki deklaratsiyasiga muvofiq amalga oshirilgan, mahalliy etika qo'mitasi tomonidan ma'qullangan va barcha bemorlardan yozma rozilik olingan. Kuzatuvning 6 oyi davomida yurak-qon tomir sabablari bilan 4 bemor vafot etdi; ular hayot sifati bo'yicha yakuniy tahlilga kiritilmadi.

Natijalar

Bemorlarning boshlang'ich tavsifi

Guruhlar demografik ko'rsatkichlar, hamroh kasalliklari va aksariyat exokardiografik parametrlar bo'yicha taqqoslanadigan edi; xususan, boshlang'ich KCCQ-12 (50,0 / 53,2 / 53,5 ball; $p=0,347$), 6MWT va NYHA klassi guruhlararo farq qilmadi. Kuzatilgan farqlar koronar anatomiyaga tegishli bo'lib, dizayn bilan belgilangan edi: surunkali to'liq okklyuziya 2-guruhda ko'proq uchradi, boshlang'ich va qoldiq SYNTAX ballari guruhlar bo'yicha farqlandi, boshlang'ich CHQOF 1-guruhda biroz pastroq, kuzatildi (Jadval 1).

Hayot sifatining (KCCQ-12) dinamikasi

6 oylik kuzatuvda KCCQ-12 ballining o'sishi barcha uch guruhda ishonchli bo'ldi: 1-guruhda +14,3 ball ($p<0,001$), 2-guruhda +9,5 ball ($p=0,014$) va 3-guruhda +9,5 ball ($p=0,002$). Klinik ahamiyatli (≥ 5 ball) yaxshilanishga bemorlarning mos ravishda 63,8%, 53,7% va 57,1%i erishdi; ≥ 10 ballik o'sish 56,9% / 48,1% / 55,4% bemorda, ≥ 20 ballik esa 39,7% / 40,7% / 35,7% bemorda qayd etildi (Rasm 1). Guruhlararo tuzatilgan farq (ANCOVA) ahamiyatsiz bo'ldi: 1- va 3-guruh o'rtasida +3,28 ball (95% CI – 12,8–19,3; $p=0,69$; $\eta^2=0,002$). Shunday qilib, hayot sifati barcha revaskulyarizatsiya strategiyalarida sezilarli va o'xshash darajada yaxshilandi.

Rasm 1da ko'rinishicha, KCCQ-12 balli uchala guruhda ham boshlang'ich holatga nisbatan sezilarli ko'tarildi, 6 oylik yakuniy qiymatlar esa guruhlar orasida deyarli farq qilmadi. Yaxshilanish darajalarining taqsimoti ham o'xshash bo'lib, klinik ahamiyatli javob beruvchilar ulushi barcha guruhlarda yaqin edi. Bu hayot sifatining tiklanishi revaskulyarizatsiya strategiyasidan nisbatan mustaqil ekanini ko'rsatadi.

Funksional holat, neyroqumoral va strukturaviy ko'rsatkichlar

6MWT masofasi barcha guruhlarda ishonchli oshdi (+41,4 / +38,9 / +28,7 m; guruh ichida $p<0,001$), ammo tuzatilgan guruhlararo farq ahamiyatsiz ko'rsatkich namoyon etdi (1- va 3-guruh: –3,7 m; $p=0,72$). NYHA klassining kamida bir pog'onaga yaxshilanishi bemorlarning 44,8–51,8%ida kuzatildi ($p=0,74$). NT-proBNP darajasi barcha guruhlarda ishonchli pasaydi (mediana o'zgarishi –687 / –752 / –635 pg/ml; guruh ichida barcha $p\leq 0,005$), 1- va 3-guruh o'rtasidagi tuzatilgan farq esa ahamiyatsiz edi ($p=0,10$). CHQOF esa to'liq revaskulyarizatsiya guruhida

Table 1. Baseline clinical, coronary and echocardiographic characteristics of the study population by group
1-jadval. Tadqiqot populyatsiyasining guruhlar bo'yicha boshlang'ich klinik, koronar va exokardiografik tavsifi

Ko'rsatkich	1-guruh (n=58)	2-guruh (n=54)	3-guruh (n=56)	p
SGLT2 ingibitori, n (%)	58 (100,0)	54 (100,0)	56 (100,0)	1,000
Yosh, yil	61,7±7,7	65,2±6,8	61,5±9,8	0,030
Erkak jinsi, n (%)	44 (75,9)	40 (74,1)	39 (69,6)	0,744
Tana-massa indeksi, kg/m ²	28,7 [24,5; 30,8]	28,7 [26,2; 30,9]	27,0 [24,2; 30,8]	0,183
Arterial gipertenziya, n (%)	42 (72,4)	42 (77,8)	39 (69,6)	0,620
Qandli diabet, n (%)	24 (41,4)	26 (48,1)	23 (41,1)	0,699
Oldingi miokard infarkti, n (%)	30 (51,7)	28 (51,9)	25 (44,6)	0,683
Surunkali buyrak kasalligi, n (%)	7 (12,1)	8 (14,8)	7 (12,5)	0,900
Chekish, n (%)	25 (43,1)	22 (40,7)	21 (37,5)	0,830
Chap koronar arteriya stvoli, n (%)	7 (12,1)	11 (20,4)	7 (12,5)	0,387
Surunkali to'liq okklyuziya, n (%)	9 (15,5)	26 (48,1)	16 (28,6)	<0,001
SYNTAX boshlang'ich	24,8 [20,2; 26,3]	34,6 [25,9; 39,7]	23,0 [18,3; 28,1]	<0,001
SYNTAX qoldiq	0,0 [0,0; 0,0]	13,0 [9,0; 16,2]	23,0 [18,3; 28,1]	<0,001
CHQOF, %	31,9±4,3	31,2±4,9	33,4±4,0	0,035
CHQOSH, ml	125,7±29,8	141,0±33,3	116,3±27,3	<0,001
CHQMMI, g/m ²	102,6 [91,0; 111,3]	103,2 [94,6; 124,4]	105,2 [93,5; 115,2]	0,385
CHBHI, ml/m ²	37,2±7,9	36,9±9,1	39,0±8,4	0,356
E/e'	13,2 [11,0; 16,7]	13,6 [11,5; 16,5]	13,3 [11,4; 16,7]	0,936
NT-proBNP, pg/ml	2209 [1345; 2820]	2808 [1816; 3383]	2468 [1627; 3049]	0,053
eGFR, ml/daq/1,73 m ²	72,2±17,8	68,3±16,9	75,6±17,5	0,095
NYHA III–IV, n (%)	33 (56,9)	28 (51,9)	29 (51,8)	0,821
KCCQ-12, ball	50,0±13,0	53,2±16,6	53,5±13,7	0,347
6 daq yurish testi, m	286,6±80,5	302,1±65,8	295,4±78,2	0,550
ARNI/iAPF, n (%)	44 (75,9)	41 (75,9)	42 (75,0)	0,992
Beta-blokator, n (%)	58 (100,0)	54 (100,0)	56 (100,0)	1,000
MRA, n (%)	50 (86,2)	46 (85,2)	48 (85,7)	0,988
Statin, n (%)	47 (81,0)	45 (83,3)	46 (82,1)	0,951
Antitrombotsitar preparat, n (%)	55 (94,8)	52 (96,3)	46 (82,1)	0,016

Izoh. Ma'lumotlar normal taqsimotda $M \pm SD$, normal bo'lmaganlar mediana [Q1; Q3] ko'rinishida; kategorik ko'rsatkichlar n(%). Uzlusiz ko'rsatkichlar ANOVA yoki Kraskel-Uollis mezoni, kategoriklar χ^2 yoki Fisher mezoni bilan taqqoslandi. CHQOF – chap qorincha otish fraksiyasi; CHQOSH – chap qorincha oxirgi-sistolik hajmi; CHQMMI – chap qorincha miokard massasi indeksi; CHBHI – chap bo'lmacha hajmi indeksi; NT-proBNP – N-terminal pro-B-tip natriyuretik peptid; eGFR – hisoblangan ko'ptokchali filtratsiya tezligi; NYHA – Nyu-York yurak assotsiatsiyasi; ARNI – angiotenzin reseptori-neprilizin ingibitori; AAF – angiotenzin-aylantiruvchi ferment; MRA – mineralokortikoid reseptori antagonisti.

boshqalardan ko'proq oshdi: 1- va 3-guruh o'rtasida tuzatilgan farq +5,01% (95% CI 1,17–8,84; $p=0,01$; $\eta^2=0,052$), 2- va 3-guruh o'rtasida esa ahamiyatsiz edi (Jadval 2).

Hayot-sifati ko'rsatkichining bashoratchilari

KCCQ-12 ballining o'zgarishi CHQOF o'zgarishi bilan zaif, ammo statistik ishonchli korrelyatsiyada bo'ldi (Spearman $r=0,158$; $p=0,040$), 6MWT o'zgarishi bilan esa bog'lanmadi ($r=-0,106$; $p=0,172$) (Rasm 2, A). Klinik ahamiyatli (≥ 10 ball) javob (168 bemordan 90 hodisa) bir o'zgaruvchili tahlilda pastroq boshlang'ich KCCQ hamda kattaroq CHQOF o'sishi bilan bog'landi. Ko'p o'zgaruvchili modelda esa yagona mustaqil bashoratchi pastroq boshlang'ich KCCQ bo'lib chiqdi (har bir ball uchun OR 0,91; 95% CI 0,88–0,94; $p<0,001$); revaskulyarizatsiya to'liqligi, CHQOF o'zgarishi, qoldiq SYNTAX, yosh va qandli diabet mustaqil bog'lanmadi (Rasm 2, B; Jadval 3). Bu bog'liqlik yaqqol namoyon bo'ldi: boshlang'ich KCCQ qanchalik past bo'lsa, 6 oylik o'sish shunchalik katta edi (Spearman $r=-0,65$; $p<0,001$), va bu qonuniyat uchala guruhda ham saqlandi. Boshlang'ich KCCQ ballari bo'yicha uchlikka (tertilga) ajratilganda, ≥ 10 ballli javob past uchlikda 85,7%, o'rta uchlikda 44,6% va yuqori uchlikda atigi 30,4% bemorda kuzatildi.

Rasm 2ning A panelida KCCQ-12 va CHQOF o'zgarishlari o'rtasida zaif, ammo ijobiy bog'liqlik namoyon qildi. B paneldagi ko'p o'zgaruvchili modelda klinik ahamiyatli javobning yagona mustaqil belgilovchisi pastroq boshlang'ich KCCQ qiymatga ega bo'ldi.

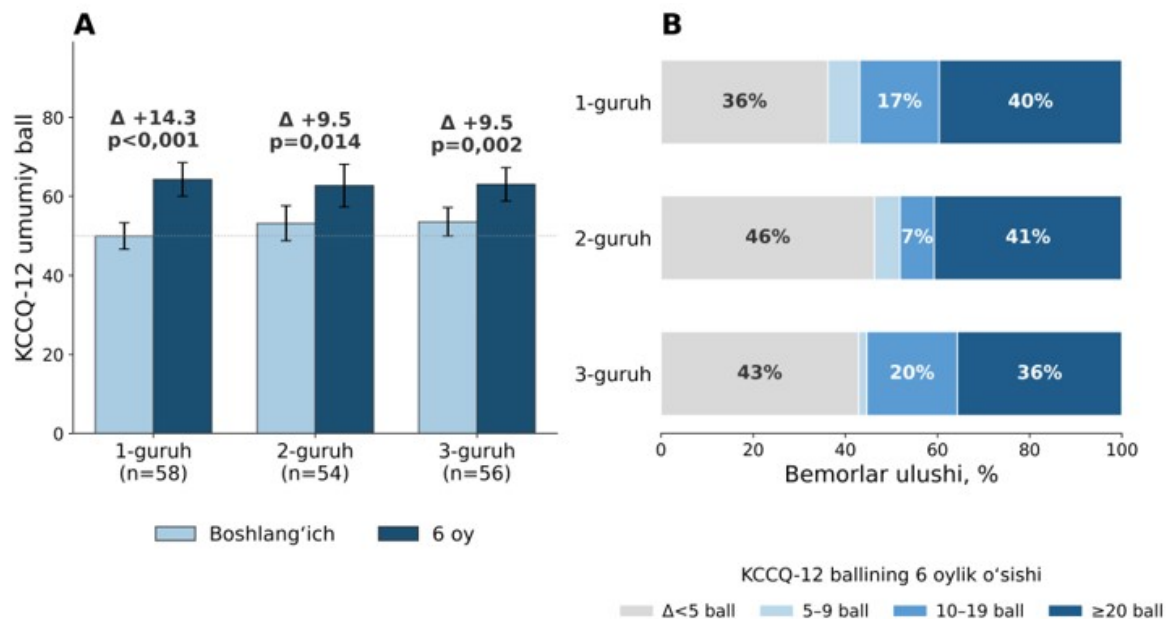


Figure 1. Six-month change in health-related quality of life by group. (A) Mean KCCQ-12 at baseline versus 6 months with 95% CI and within-group change; (B) distribution of KCCQ-12 improvement categories

Rasm 1. Hayot sifatining 6 oylik dinamikasi guruhlar bo'yicha. (A) Boshlang'ich va 6 oylik o'rtacha KCCQ-12 (95% CI va guruh ichidagi o'zgarish bilan); (B) KCCQ-12 yaxshilanish darajalarining taqsimoti

Table 2. Six-month quality-of-life and functional outcomes by group (n=168)

Jadval 1. Guruhlar bo'yicha 6 oylik hayot sifati va funksional natijalar (n=168)

Ko'rsatkich	1-guruh (n=58)	2-guruh (n=54)	3-guruh (n=56)	p†
Boshlang'ich	50,0±13,0	53,2±16,6	53,5±13,7	
6 oy	61,2 [52,5; 77,5]	64,4 [49,0; 76,3]	63,5 [54,5; 74,2]	
Δ 6 oy (guruh ichida p)	+14,3 (p<0,001)	+9,5 (p=0,014)	+9,5 (p=0,002)	0,69‡
≥5 ball	37 (63,8)	29 (53,7)	32 (57,1)	0,488
≥10 ball	33 (56,9)	26 (48,1)	31 (55,4)	0,604
≥20 ball	23 (39,7)	22 (40,7)	20 (35,7)	0,784
NYHA ≥1 klass yaxshilanish, n (%)	26 (44,8)	27 (50,0)	29 (51,8)	0,670
6MWT boshlang'ich, m	286,6±80,5	302,1±65,8	295,4±78,2	
6MWT 6 oy, m	327,9±77,0	341,0±75,2	324,1±80,7	
6MWT Δ (guruh ichida p)	+41,4 (p<0,001)	+38,9 (p<0,001)	+28,7 (p<0,001)	0,72‡
NT-proBNP boshlang'ich, pg/ml	2209 [1345; 2820]	2808 [1816; 3383]	2468 [1627; 3049]	
NT-proBNP 6 oy, pg/ml	1559 [770; 2166]	1924 [1440; 2530]	1994 [1159; 2386]	
NT-proBNP Δ (guruh ichida p)	-687 (p=0,002)	-752 (p=0,005)	-635 (p=0,003)	0,10‡
CHQOF boshlang'ich, %	31,9±4,3	31,2±4,9	33,4±4,0	
CHQOF 6 oy, %	39,8±6,1	36,0±7,1	37,4±4,7	
CHQOF Δ (guruh ichida p)	+8,0 (p<0,001)	+4,8 (p<0,001)	+4,1 (p<0,001)	0,01‡

Izoh. Guruhlararo taqqoslash: kategorik ko'rsatkichlar uchun χ^2 mezoni; uzluksiz natijalarning Δ qiymati uchun ANCOVA (boshlang'ich qiymat + qoldiq SYNTAX ga tuzatilgan, referens – 3-guruh). ‡ 1- va 3-guruh o'rtasidagi ANCOVA-tuzatilgan p. Guruhlararo farqlardan faqat CHQOF ahamiyatli bo'ldi (p=0,01); qolganlari ahamiyatsiz. NT-proBNP mediana [Q1; Q3] ko'rinishida; Δ – 6 oylik o'zgarish (NT-proBNP uchun mediana o'zgarish), guruh ichidagi p juftlangan mezon bilan. 6MWT – 6 daqiqali yurish testi; CHQOF – chap qorincha otish fraksiyasi.

Munozara

Ushbu taqqidiot ishida SGLT2 ingibitori hukmron bo'lgan zamonaviy terapiya sharoitida IKMP bilan kasallangan bemorlarda hayot sifatining tiklanishi koronar revaskulyarizatsiyaning to'liqligiga bog'liqlik degan savol o'z o'rniga ega bo'ldi. Olingan natijaga ko'ra 6 oy ichida KCCQ-12 uchala yo'lda ham – to'liq TOKA, to'liqsiz TOKA va faqat dori bilan bemorlarni olib borish sezilarli hamda bir-biriga yaqin darajada ko'tarildi, tuzatilgan guruhlararo farq esa statistik ahamiyatsiz bo'ldi. Buning

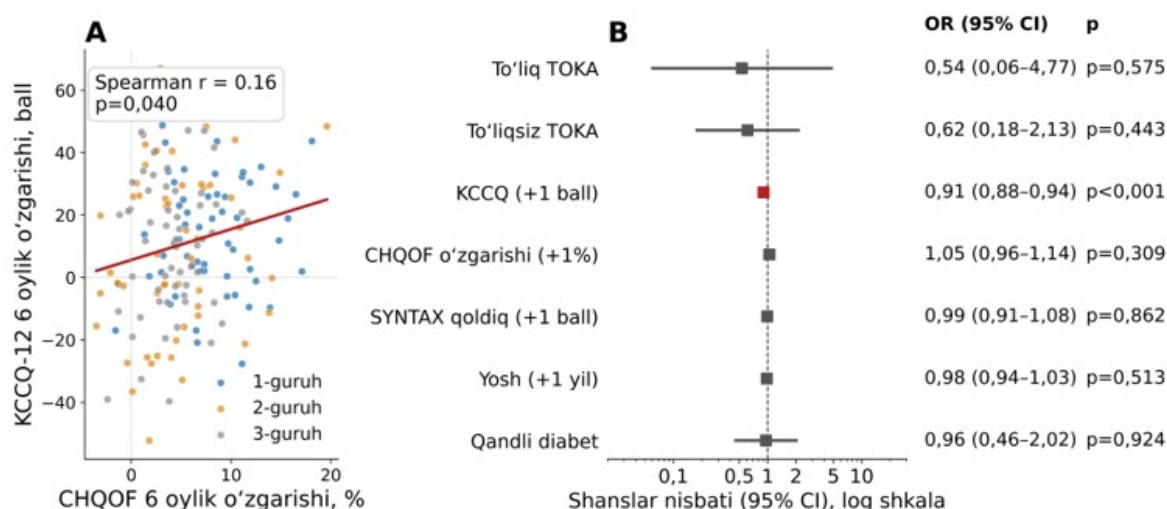


Figure 2. Determinants of the quality-of-life response. (A) Correlation between 6-month KCCQ-12 change and LVEF change, by group; (B) multivariable odds ratios for achieving a clinically important (≥ 10 -point) KCCQ-12 improvement

Rasm 2. Hayot-sifati javobining bashoratchilari. (A) 6 oylik KCCQ-12 va CHQOF o'zgarishlari o'rtasidagi korrelyatsiya (guruhlar bo'yicha); (B) klinik ahamiyatli (≥ 10 ball) KCCQ-12 yaxshilanishiga erishishning ko'p o'zgaruvchili shanslar nisbatlari

Table 3. Univariable and multivariable logistic regression for a clinically important (≥ 10 -point) improvement in KCCQ-12

Jadval 3. KCCQ-12 ballining klinik ahamiyatli (≥ 10 ball) yaxshilanishi uchun bir va ko'p o'zgaruvchili logistik regressiya

Ko'rsatkich	Bir o'zgaruvchili OR (95% CI)	p	Ko'p o'zgaruvchili OR (95% CI)	p
To'liq TOKA (G3 ga nisbatan)	1,23 (0,65–2,33)	0,531	0,54 (0,06–4,77)	0,575
To'liqsiz TOKA (G3 ga nisbatan)	0,73 (0,38–1,39)	0,333	0,62 (0,18–2,13)	0,443
KCCQ boshlang'ich (+1 ball)	0,91 (0,88–0,94)	<0,001	0,91 (0,88–0,94)	<0,001
CHQOF o'zgarishi (+1%)	1,07 (0,99–1,14)	0,073	1,05 (0,96–1,14)	0,309
SYNTAX qoldiq (+1 ball)	1,00 (0,97–1,03)	0,861	0,99 (0,91–1,08)	0,862
Yosh (+1 yil)	0,99 (0,95–1,03)	0,590	0,98 (0,94–1,03)	0,513
Qandli diabet (bor)	1,09 (0,59–2,01)	0,781	0,96 (0,46–2,02)	0,924

Izoh. Bog'liq o'zgaruvchi – 6 oyda KCCQ-12 ballining ≥ 10 ballga oshishi. Ko'p o'zgaruvchili model 168 bemor va 90 hodisani qamrab oldi, OR – shanslar nisbatlari; CI – ishonch oralig'i;

aksicha, chap qorincha teskari remodelizatsiyasi (CHQOF o'sishi) faqat to'liq revaskulyarizatsiyada qo'shimcha ravishda kuchaydi. Bu manzara zamonaviy medikamentoz terapiyaning va xususan, SGLT2i ning hayot sifatiga hal qiluvchi hissasini aks ettiradi. DAPA-HF, DEFINE-HF va EMPEROR-Reduced ning hayot-sifati tahlillari SGLT2i qabul qiluvchilarda KCCQ ballining tez va ishonchli o'sishini ko'rsatgan edi [10–12]; bizning natijalarimiz bu foyda revaskulyarizatsiya darajasidan qat'i nazar yuzaga kelishini qo'shimcha tasdiqlaydi. SGLT2i ning yurak strukturasiga ta'siri, jumladan nodiabetik bemorlarda ham teskari remodelanish, mustaqil ravishda ko'rsatilgan [21] bu esa medikamentoz va anatomik yondashuvlar bir-birini to'ldirishini anglatadi.

Bu xulosalar REVIVED-BCIS2 bilan o'xshash bo'lib, mazkur sinov ishemik chap qorincha disfunksiyasida TOKA ning dori terapiyasiga qo'shimcha o'lim va gospitalizatsiya bo'yicha ustunligini ko'rsatmay, garchi uning fon terapiyasi SGLT2i bilan samaradorligi yuqori ekanligini anglatadi [16]. Amaliyot uchun bundan muhim xulosa kelib chiqib, to'liq revaskulyarizatsiya texnik jihatdan imkonsiz bo'lgan bemorda ham SGLT2i asosidagi terapiya bilan sezilarli simptomatik yengillikka erishish mumkin. Ayni vaqtda to'liq revaskulyarizatsiyaning CHQOF ni yaxshilashdagi afzalligi uning uzoq muddatli, prognostik va strukturaviy maqsadlar uchun qiymatini kamaytirmaydi.

Eng izchil topilma klinik ahamiyatli yagona mustaqil belgilovchi omil revaskulyarizatsiya to'liqligi emas, balki pastroq boshlang'ich KCCQ bo'lganidir; boshlang'ich ball bo'yicha uchlik tahlili buni yaqqol ko'rsatdi (past uchlikda ≥ 10 ballli javob 85,7%, yuqori uchlikda 30,4%). Bu bemor bergan hayot sifati holati ballining ham bashoratlovchi, ham davolashga javobni belgilovchi qiymatini ta'kidlagan oldingi tadqiqotlar bilan uyg'un [3,7]. Shu sababli davolash yo'lini tanlashda faqat koronar anatomiyani emas, balki bemorning dastlabki simptom yukini ham inobatga olish maqsadga muvofiqdir.

Cheklovlar

Tadqiqot bir qator cheklovlarga ega. Bu bir markazli, kuzatuvga asoslangan va randomizatsiyalanmagan ish bo'lib, guruhlariga taqsimlash yurak jamoasi qarori bilan amalga oshirildi; tanlov xatosini kamaytirish uchun boshlang'ich qiymat va qoldiq SYNTAX ballga tuzatish qo'llangan bo'lsa-da, qoldiq aralashuvchi omillar to'liq istisno etilmaydi. Kuzatuvning 6 oylik farqi uzoq muddatli barqarorlik haqida xulosa chiqarishga imkon bermaydi. Miokard hayotiyli magnit-rezonans usulida baholanmadi; KCCQ-12 esa subyektiv, bemor tomonidan to'ldiriladigan vosita. Shunga qaramay, natijalarning ichki izchilligi asosiy xulosalarning ishonchligini mustahkamlaydi.

Xulosa

IKMP bilan kasallangan bemorlarda SGLT2 ingibitori asosidagi kvadroterapiya fonida hayot sifati koronar revaskulyarizatsiya qay darajada bajarilganidan qat'i nazar bir xilda va ishonchli tarzda tiklandi; to'liq revaskulyarizatsiya esa bu tiklanishga qo'shimcha simptomatik hissa qo'shmasa-da, chap qorincha teskari remodellanishi kuchaytirdi. Amaliy nuqtai nazardan bu shuni anglatadiki, simptomatik yengillikni har qanday revaskulyarizatsiya darajasida kutish mumkin, revaskulyarizatsiyaning to'liqligi haqidagi qaror esa strukturaviy va uzoq muddatli maqsadlarga, hamda har bir bemorning dastlabki holatiga tayanib, shaxsiylashtirilgan tarzda qabul qilinishi lozim. Shu bilan birga, to'liq revaskulyarizatsiyaning chap qorincha otish fraksiyasini mustaqil ravishda oshirishi simptomatik natijalar teng bo'lgan sharoitda ham uning teskari remodellanishi va uzoq muddatli prognoz uchun aniq qiymatini ta'kidlaydi.

Mualliflarning hissalari

X.F. va A.A. tadqiqot konsepsiyasi va dizaynini ishlab chiqdi; A.A. statistik tahlil va vizualizatsiyani bajardi; B.A. va A.A. ma'lumotlarni yig'di; X.F. tadqiqotni nazorat qildi va qo'lyozmani tanqidiy ko'rib chiqdi; barcha mualliflar yakuniy variantni o'qib chiqib, uni nashrga ma'qulladi.

Authors' contribution

Kh.F. and A.A. conceived and designed the study; A.A. performed the statistical analysis and visualisation; B.A. and A.A. collected the data; Kh.F. supervised the study and critically reviewed the manuscript; all authors read and approved the final version for publication.

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Ethics approval

The study was conducted in accordance with the Declaration of Helsinki and approved by the local ethics committee of the centre.

Nashrga xabardor qilingan rozilik

Barcha ishtirokchilardan yozma rozilik olindi.

Consent for publication

Written informed consent was obtained from all participants.

Ma'lumotlar mavjudligi to'g'risidagi bayonot

Tahlilni tasdiqlovchi anonimlashtirilgan ma'lumotlar asosli so'rov bo'yicha muvofiqlashtiruvchi muallifdan olinishi mumkin.

Data Availability Statement

The anonymised data supporting the analysis are available from the corresponding author upon reasonable request.

Rahmatnomalar

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Mualliflar manfaatlar to'qnashuvi yo'qligini bildiradi.

Conflict of interest

The authors declare no conflict of interest.

Qisqartmalar

ANCOVA	kovariatsion tahlil;
CI	ishonch oralig'i
CHQOF	chap qorincha otish fraksiyasi
CHQOSH	chap qorincha oxirgi-sistolik hajmi
CHQMMI	chap qorincha miokard massasi indeksi
CHBHI	chap bo'lmacha hajmi indeksi
IKMP	ishemik kardiomiopatiya
KCCQ-12	Kanzas-Siti kardiomiopatiya so'rovnomasini
NYHA	Nyu-York yurak assotsiatsiyasi
OMT	optimal medikamentoz terapiya
OR	shanslar nisbati
SYuYe	surunkali yurak yetishmovchiligi
SGLT2i	natriy-glyukoza kotransporter 2 tipi ingibitori
TOKA	teri orqali koronar aralashuv
6MWT	6 daqiqali yurish testi

Adabiyot

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