

**O‘ZBEKISTON RESPUBLIKASI SOG‘LIQNI SAQLASH VAZIRLIGI
" RESPUBLIKA IXTISOSLASHTIRILGAN TERAPIYA VA TIBBIY
REABILITATSIYA ILMIY-AMALIY TIBBIYOT MARKAZI" DM**

ALYAVI ANIS LYUTFULLAEVICH

**YURAK-QON TOMIR KASALLIKLARI BILAN
BIRGALIKDA 2-TUR QANDLI DIABETI BO‘LGAN
BEMORLARNING KLINIK VA FUNKSIONAL HOLATINI
KOMPLEKS REABILITATSIYA QILISHNING ZAMONAVIY
USULLARI**

(Monografiya)

Toshkent 2024

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«TASDIQLAYMAN»
Sog‘liqni saqlash vazirligi
Ilmiy texnik kengashi raisi
_____ **Sh.K.Atadjanov**
«____» _____ **2024 y.**

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Muallif:

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Monografiya “_____” _____ 2024 y. "RITvaTRIATM" DM muammoli kengashida ko‘rib chiqilgan

Monografiya “_____” _____ 2024 y. "RITvaTRIATM" DM Ilmiy kengashida tasdiqlangan

"RITvaTRIATM" DM
direktorining ilmiy ishlar
bo‘yicha muovini, t.f.d.

Ismailova J.A.

"RITvaTRIATM" DM ilmiy
kotibi, PhD

Masharipova D.R.

Ushbu monografiya turli darajadagi 2-toifa diabet bilan bog'liq yurak tomirlari kasalligi bo'lgan bemorlarning klinik va funksional holatini tuzatish uchun kompleks rehabilitatsiya usullarini o'z ichiga oladi. Yurak-qon tomir kasalliklari dunyo bo'ylab o'limning yeng keng tarqalgan sababidir. Ular ko'pincha bemorlarni kasalxonaga yotqizish, ularning nogironligi va nogironligining sabablari hisoblanadi. Ushbu kasalliklar tibbiyot tizimiga, shuningdek bemorlar va ularning oilalariga ta'sir ko'rsatadigan muhim ijtimoiy-iqtisodiy yukni anglatadi. Yurak-qon tomir kasalliklarining yetiopatogeneziga turmush tarzi sezilarli ta'sir ko'rsatishi ko'rsatildi, shuning uchun ikkinchisini o'zgartirish birlamchi va ikkilamchi profilaktikaning muhim tarkibiy qismidir.

Monografiyada turli og'irlikdagi 2-toifa diabet bilan bog'liq yurak tomirlari kasalligi bo'lgan bemorlarning klinik va funksional holatini tuzatish uchun kompleks rehabilitatsiyaning zarur usullari keltirilgan. Monografiya tibbiyot xodimlari, mutaxassislar: terapevtlar, kardiologlar, yendokrinologlar va umumiy amaliyot shifokorlari uchun mo'ljallangan.

TADQIQOTIMIZ NATIJALARI

Tadqiqot materiallari. Miyokard revaskulyarizatsiyasi tarixi bo'lgan koroner yurak kasalligi, angina pectoris II, III bilan og'rikan 53 bemor kuzatuv ostida yedi. 2-toifa diabet mavjudligiga qarab, bemorlar ikki guruhga bo'lingan. Birinchi guruh 27 (50,9%) 2-toifa diabetesiz bemorlardan iborat yedi. Ikkinchi guruh 26 (49,1%) 2-toifa diabet bilan og'rikan bemorlardan iborat yedi. Barcha bemorlar klinik, antropometrik va gemodinamik ko'rsatkichlar bo'yicha taqqoslanadigan yedi. Oldingi miokard revaskulyarizatsiyasi tarixi bo'lgan barcha bemorlar.

Bemorlarni tadqiqotga kiritish mezonlari

1. Tadqiqotda ishtirok yetish uchun bemor tomonidan imzolangan bemorning yozma xabardor roziligi mavjudligi.

2. Koroner yurak kasalligi tasdiqlangan 18 yoshdan oshgan har ikki jinsdagi shaxslar.

3. 18 yoshdan oshgan har ikki jinsdagi shaxslar koroner yurak kasalligi va 2-toifa diabet bilan tasdiqlangan.

Bemorlarni tadqiqotga kiritmaslik mezonlari

1. Yoshi 18 yoshdan kichik va 85 yoshdan oshgan yerkaklar va ayollar.

2. Koroner yurak kasalligining o'tkir shakllari (oldingi 3 oy davomida miokard infarkti. tadqiqotga kiritilishidan oldin o'tkir koronar sindrom (beqaror angina pektoris).

3. Sun'iy yurak stimulyatori yoki kardioverter defibrilatorni implantatsiya qilishni talab qiladigan ritm va o'tkazuvchanlik buzilishlarining mavjudligi.

4. 3 oy davomida miya qon aylanishining o'tkir buzilishi. tadqiqot boshlangunga qadar.

5. 1-toifa diabet mellitus.

6. Tadqiqot paytida yoki anamnezda tasdiqlangan onkologik kasalliklar.

7. Ushbu tadqiqotda ishtirok yetish uchun bemor tomonidan imzolangan ongli ixtiyoriy rozilikning yo'qligi.

Barcha tekshirilgan bemorlarning klinik, laboratoriya va antropometrik xususiyatlari 3-jadvalda keltirilgan.

3-jadval tekshirilayotgan bemorlarning klinik, laboratoriya va antropometrik xususiyatlari

Ko'rsatkich	1 guruh (DM holda)	2 guruh (DM bilan)
Yoshi, yillari	66 [45; 83]	68 [60; 79]
Tana massasi indeksi, kg/ m	23,1 [25,7;35,2]	31,6 [28,4; 31,6]

Yeslatma: Me namunaning medianasi; [xmin; xmax] namuna hajmi; * taqqoslash guruhi bilan farq, $p < 0.05$.

Shuningdek guruxlarda mos ravishda:

Sistolik qon bosimi, mmhg 130 [110; 180] 133 [110; 220]

Diastolik qon bosimi, mmhg 82 [70; 110] 83,5 [70; 120]

Yurak tezligi, beats / min 75 [64; 98] 78 [68; 90]

Glycated gemoglobin hba1 darajasi, % 5,33 [4,8; 6,1] 7,8 [5,3; 11,8]*

Ro'za glikemiyasi, mmol/ l 5,0 [4,5; 6,4] 8,75 [4,9; 16,7]*

Karbamid, mmol/ l 6 [3,0; 11,1] 6,4 [4; 18]

Qon kreatinin, mmol/ l 99,6 [93; 163] 107,6 [77; 224]

GFR, ml / min/1,732 65,4 [46,6; 105,1] 62,3 [35,2; 89,9]

Nazorat guruhi yurak-qon tomir patologiyasi va og'ir surunkali kasalliklarsiz 20 kishidan (o'rtacha yoshi 54,7 3,2 yosh) iborat yedi.

Tadqiqot usullari

Dastlab barcha bemorlar qabul qilinganidan keyin anamnez yig'ish, klinik tekshiruv va antropometrik ko'rsatkichlarni o'lchashdan o'tdilar. Qonda kreatinin, karbamid, lipid spektri, koagulogramma, D-dimer, och qon shakar, trombotsitlar va yeritrotsitlar agregatsiyasi darajasini aniqlash uchun biokimyoviy tadqiqotlar o'tkazildi. Bundan tashqari, ovqatdan 2 soat o'tgach, 2-toifa diabet bilan og'riqan bemorlarda qon shakar va glikogemoglobin ham aniqlangan,

Lipit spektri umumiy xolesterin (OHC), triglitseridlar (TG), past zichlikdagi lipoprotein xolesterin (LDL xolesterin), juda past zichlikdagi lipoprotein xolesterin (VLDL xolesterin) va yuqori zichlikdagi lipoprotein xolesterin (HDL xolesterin) darajasi bilan aniqlandi. Tadqiqot "Humalyaser 2000" (Germaniya) biokimyoviy analizatoridagi reagentlar to'plami yordamida immunofermetik usul bilan amalga oshirildi. Biokimyoviy tahlillar uchun qon namunasi yertalab, och qoringa ulnar venani ponksiyon qilish orqali amalga oshirildi.

Gemostaz tizimining ko'rsatkichlarini o'rganish markazning klinik diagnostika laboratoriyasida o'tkazildi. Gemostaz tizimining holatini baholash uchun protrombin indeksini (PTI) va xalqaro normallashtirilgan nisbatni (INR) hisoblash bilan protrombin vaqti aniqlandi; Clauss (1957) bo'yicha faollashtirilgan qisman tromboplastin vaqti (APTT), trombin vaqti (TV), fibrinogen.

Tizimli yallig'lanish belgilarining biokimyoviy qon tahlili ham o'tkazildi

(IL-6), yendotelial quvvatsizlik ko'rsatkichlari: yendotelin -1 (YeT-1), interleykin 6 (IL-6), qon tomir yendotelial o'sish omil (VEGF) qattiq-bosqich analizator "Humareader yagona" (Germaniya) ustida ferment immunoassay tomonidan. Yelishay usuli fermentlar bilan yetiketlangan antikorlar yoki antijenlardan foydalanishga asoslangan bo'lib, bu fermentativ faollikka antigen-Antikor kompleksining shakllanish jarayonini qayd yetish imkonini beradi. ELISA juda o'ziga xosdir va uning sezgirligi ko'p hollarda boshqa immunologik usullarning sezgirligidan oshib ketadi

Cdkn4977574b-AS10757274 genining rs2, ZNF10911021 genining rs648, adipoq genining rs 266729 polimorfizmlarini aniqlash uchun genetik tadqiqotlar o'tkazish uchun ilg'or texnologiyalar markazi bilan shartnoma tuzildi.

Trombotsitlar agregatsiyasini aniqlash uchun ulnar venadan qon olingan. Venipunktur turniket qo'llamasdan amalga oshirildi. Qon antikoagulyant bilan aralashtirildi (9:1 ga nisbatan natriy sitrat) va 180 ni kamida 4-6 marta sekin aylantirib, muloyimlik bilan aralashtirildi. "Agregatsiya darajasi" indikator "ALAT-2" biola (NPF BIOLA, Rossiya) agregatsiya analizatorida Born tomonidan trombotsitlar agregatsiyasini o'rganish usuli bilan aniqlandi. Bu usul trombotsitlar agregatsiyasi induktori (ADP) qo'shilishi natijasida sodir bo'lgan trombotsitlarga boy plazmaning yorug'lik o'tkazishidagi o'zgarishlarni qayd yetishdan iborat. Bunday holda, trombotsitlar agregatsiyasi optik zichlikning qayd yetilgan pasayishi va qon plazmasi orqali yorug'lik o'tkazuvchanligining oshishi bilan grafik tarzda ko'rsatiladi.

Spontan yeritrotsitlar agregatsiyasini aniqlash

Yeritrotsitlarning o'z-o'zidan agregatsiyasini o'rganish uchun qon, shuningdek, qonni biokimyoviy probirkaga konservant (natriy sitrat) bilan joylashtirish orqali venipunktur orqali olingan. Sentrifugalash 1000 rpm tezlikda 7 daqiqa davomida amalga oshirildi. Keyin probirkadan 1 ml plazma olindi va boshqasiga quruq steril naychaga joylashtirildi, santrifugadan 0,02 ml yeritrotsitlar qo'shildi. Sinov naychasini sekin silkitib, yeritrotsitlarning bir hil suspenziyasi olindi. Undan smear tayyorlab, u yelektron mikroskop ostida tekshirildi. Yig'ilgan yeritrotsitlar soni va shakllarining parametrlarini aniqlash uchun keyingi video yozish va suratga olish bilan optik mikroskopiya ishlatilgan. Agregotometriya birligiga 10 dona uzoq fokusli linzali yorug'lik mikroskopi, 10 dona foto okulyar, videokamera va kompyuter kiradi.

Yeritrotsitlarning spontan agregatsiyasi mikrograflar yordamida aniqlandi. Shu bilan birga, agregatlarning kattaligi, ularning shakli va agregatsiya holatidagi yeritrotsitlar soni hisobga olindi. Tizim mezonlari bo'yicha mikrofotograflarni tahlil qilish natijasida olingan ballar yig'indisi yeritrotsitlar agregatsiyasining ko'rsatkichidir. Sog'lom shaxslar uchun bu 9,54 ni tashkil yetadikategishli 0,34 ball.

Instrumental usullardan barcha bemorlarga 12 qo'rg'oshinli YeKG, yekokardiyografiya, to'qima dopplerografiyasi, buyrak tomirlari dopplerografiyasi va yendoteliyga bog'liq vazodilatatsiya o'tkazildi.

Yelektrokardiografiya bemorni kasalxonaga yotqizishning birinchi kunida o'tkazildi. "Bioset" (Germaniya) statsionar yelektrokardiograf ishlatilgan.

To'qimalarning dopplerografiyasi bilan yekokardiyografi. Yekokardiyografi o'rganish ultratovush qurilma Samsung medison "Accuvix ustida amalga oshirildi. V20 " (Koreya) Amerika yekokardiyografik jamiyati (ASE) tavsiyalariga muvofiq m va B rejimlarida standart yekokardiyografik pozitsiyalarda 2-4 Mgs chastotali rang rejimi va impulsi to'lqinli, uzluksiz to'lqinli sektor sensori yordamida (Schiller N. B. va boshq., 1989).

Ta'mirlashning tarkibiy parametrlari qayd yetildi:

- tana yuzasi maydoniga indekslangan oxirgi diastolik LV hajmi(Simpson usuli) (icdo);
- chap atriumning oxirgi sistolik hajmi (Simpson usuli), tana yuzasi maydoniga indekslangan (ilp);
- o'ng qorinchaning oxirgi diastolik maydoni (apikal 4 kamerali holatda planimetrik usul), tana yuzasi maydoniga indekslangan (ipj);
- tananing sirt maydoniga (PPI) indekslangan o'ng atriumning oxirgi sistolik maydoni (apikal 4 kamerali holatda planimetrik usul);
- interventrikulyar septumning diastolik qalinligi (chap qorinchaning uzun o'qi bo'ylab parasternal holat, LVP);
- orqa LV devorining diastolik qalinligi (chap qorinchaning uzun o'qi bo'ylab parasternal holat, LVL);
- LV miokard massasi ("qobiq" usuli, apikal holat) tana yuzasi maydoniga indekslangan;
- sharsimonlik indeksi-Lvning qisqa diametrining bo'shliq uzunligiga nisbati (ind sharlari).

Miyokard holatining funksional xususiyatlari:

- LV yejeksiyon fraksiyasi (LVEF) – LV zarba hajmining (Simpson usuli bilan aniqlangan LV BVF va oxirgi sistolik LV hajmi o'rtasidagi farq) LV BVFGA nisbati;
- LV mintaqaviy kontraktillikning buzilishi indeksi (INRS)-17 segmentli sxema yordamida mintaqaviy kontraktillikning o'rtacha qiymatlari. Segment kontraktilligini baholash besh balli (0–giperkinez –sistolik qalinlashuv 100% dan ortiq, 1 – normokinez - sistolik qalinlashuv 50-100%, 2 – gipokinez – sistolik qalinlashuv 50% dan kam, 3 – akinez – sistolik qalinlashuvning yo'qligi, 4 – diskinez – sistolik bo'rtib chiqish). miyokard segmenti);
- oshqozon osti bezi maydoni qisqarishining fraksiyasi (RVF) – apikal 4 kamerali holatda planimetrik usullar bilan o'lchanadigan oshqozon osti bezining oxirgi diastolik va oxirgi sistolik maydoni o'rtasidagi farqning oshqozon osti bezining oxirgi diastolik maydoniga nisbati;

- ta'sir indeksi – UI) - tananing sirt maydoniga indekslangan Lvning ta'sir hajmi;

- daqiqali indeks – MI) - yurak urish tezligi bo'yicha UI mahsuloti;

- miokardning diastolik plomba turi (transmittal va transtrikuspid qon oqimining dopplerografiyasi, diastolik Disfunksiyaning Kanada tasnifi bo'yicha diastolik plomba turlarining tasnifi, DD);

- miyokard faoliyatining integral indeksi – Tei) - yopiq klapanlar davrlarining davomiyligini chiqarib yuborish davriga nisbati (qon oqimining dopplerografiyasi);

- o'pka arteriyasidagi o'rtacha bosim (cpr LA) chiqarish oqimining tezlashuv davri davomiyligining o'pka arteriyasi qopqog'idagi chiqarish davrining umumiy davomiyligiga nisbati bilan aniqlandi.

Buyrak tomirlarining ultratovushli dopplerografiyasi Philips Affinity 50g ultratovush apparatida (Aqsh) 3,5 Mgs sensori bilan umumiy qabul qilingan texnikaga muvofiq rejimda amalga oshirildi [5]. Dopler tasviri ikkala tomonning asosiy buyrak arteriyalarida (HPA), segmentar (CA) va interlobular arteriyalarda (MDA) amalga oshirildi. Sistoladagi maksimal qon oqimi tezligi (V_{max} , m/s), minimal qon oqimi tezligi (V_{min} , m/s), shuningdek qarshilik indeksi (RI, an'anaviy birliklar – cu) aniqlandi.

CKD diagnostikasi surunkali buyrak kasalligi yepidemiologiya hamkorligi (CKD–YePI) formulasiga muvofiq Gfrni aniqlash asosida tashkil yetilgan [15].

YeP tomirlarining holati brakiyal arteriyaning dopplerografiyasi bilan baholandi. Bunday holda, D. Celemajer (1992) usuli bo'yicha reaktiv giperemiya bilan sinov ishlatilgan. O'ng brakiyal arteriya (PAA) diametridagi o'zgarishlar Philips Affinity 50g ultratovush qurilmasi (Aqsh) yordamida 7 Mgs sensori bilan umumiy qabul qilingan texnikaga muvofiq baholandi. Brakiyal arteriya tirsak burmasidan 2-15 sm balandlikda bo'ylama qismda joylashgan bo'lib, tasvir yelektrokardiogrammaning (YeKG) r to'liqini bilan sinxronlashtirildi. Tadqiqot tripleks rejimida o'tkazildi.

Dastlabki holatda arteriya diametri va arterial qon oqimining maksimal tezligi o'lchandi. Qon tomirlarining ultratovushli dopplerografiyasi bemorning yotgan

holatida 10 daqiqalik dam olishdan keyin yertalab soat 10 gacha och qoringa o'tkazildi.

Keyin qon oqimining ko'payishini olish uchun yelkaga sfigmomanometr manjeti surtildi va sistolik qon bosimidan 50 mm simob ustuni oshib, 5 daqiqa ushlab turildi. Manjetdan havo chiqqandan so'ng darhol arteriyadagi qon oqimining tezligi (SC) dastlabki 15 soniya davomida o'lchandi va arteriya diametri 60 soniya davomida qayd yetildi. Quyidagi YeF PA ko'rsatkichlari qayd yetildi: D0, sm — dam olishda Pa diametri; D1 — RG bilan sinovdan keyingi Pa diametri, sm; Vmax — PA boshiga sistolik qon oqimining cho'qqisi, sm/s; Vmin — PA boshiga maksimal diastolik tezlik, sm/s. Quyidagi parametrlar hisoblab chiqilgan: yesrd-yendoteliyga bog'liq vazodilatatsiya: $YeSDD = (D1 - D0)/D0 \cdot 100\%$.

PA diametri >10% o'sish darajasi yendoteliyning vazomotor funksiyasi buzilgan holda saqlanib qolgan YeDVD sifatida qabul qilindi-PA diametri <10% ga oshdi.

Genetik tadqiqotlar. O'zbekiston Respublikasi innovatsion rivojlanish vazirligi huzuridagi ilg'or texnologiyalar markazi bilan kelishilgan holda biotexnologiya laboratoriyasida cdkn4977574 genining rs10757274 va rs2b-AS1 genining rs10911021, ZNF648 genining rs266729, ADIPOQ genining 52 qon polimorfizmlarini aniqlash uchun polimorfizm bo'yicha molekular genetik tadqiqotlar o'tkazildi. bemorlarning namunalari olindi. Klinik namunalardan DNK izolyatsiyasi Artbiotech (Belarus) reaktivlari to'plami yordamida spin ustunlarida amalga oshirildi. Izolyatsiya qilingan Dnkning konsentratsiyasi va tozaligi Biospec-nano spektrofotometr yordamida o'lchandi (Shimadzu Biotech, Yaponiya). Cdkn4977574b-AS10757274 genining Rs1, ZNF1 genining rs10911021 va ADIPOQ genining rs 648 polimorfizmlari Quanstudio 5 amaliy biosistemalar kuchaytirgichi yordamida Real vaqtda PCR orqali aniqlandi. Reaksiya ishlab chiqaruvchining standart protokoliga muvofiq Taqman va Genotiplash tahlillari (Thermo Fisher Scientific, Aqsh) to'plamidan foydalangan holda 10mcl hajmda amalga oshirildi. PCR amplifikatsiyasi Thermo Fisher scientific (Aqsh) kuchaytirgichi tomonidan amaliy biosistemalarda amalga oshirildi.

PCRNI kuchaytirish uchun reaktivlar quyidagicha yedi:

Umumiy hajmi-10 ta:

Universal PCR Master aralashmasi-5,0

CDKN2B-AS1 – rs4977574) - 0,5 RSC

DNase-bepul suv - 3,5 rb

DNK-1,0 DK

4-jadval PCR kuchaytirish dasturi quyidagi parametrlarni o‘z ichiga olgan:

1 sikl 50 bilan 2 daqiqa

40 sikl

95 S

95 S

* 60 soniya

10 daqiqa

15 soniya

1 daqiqa

* - floresans o‘qish ramkasi

Olingan natijalarni statistik qayta ishlash Pentium IV da IBM kompyuterida biomedikal tadqiqotlar uchun tavsiya yetilgan variatsion statistika usullari yordamida amalga oshirildi. natijalar Microsoft Excel 2002 va Statistica 6.0 dasturlari yordamida qayta ishlandi. Ko‘rsatkichlar variatsion qatorning o‘rtacha arifmetikasi va uning standart xatosi (M. M. M.) shaklida taqdim yetiladi. O‘rtacha qiymatlardagi farqlarning ishonchliligi talabaning t-testi yordamida baholandi. Statistik ishonchlilik darajasi sifatida $P < 0.05$ qabul qilindi.

3.1 tekshirilgan bemorlarning umumiy klinik xususiyatlari

Tadqiqotga kiritish mezonlariga muvofiq 53 kishi tanlab olindi, ulardan 29 nafari qandli diabetesiz yurak tomirlari kasalligi bo'lgan bemorlar asosiy guruhga kiritilgan va 31 nafar yurak tomirlari kasalligi + 2-toifa diabetning kombinatsiyalangan patologiyasi bo'lgan bemorlar taqqoslash guruhini tashkil yetdi.

Shuningdek, tadqiqotga kiritilgan barcha bemorlar ongli ixtiyoriy rozilikni imzoladilar. Tadqiqot Rsnmc terapiya va tibbiy reabilitatsiya mahalliy axloq qo'mitasi tomonidan tasdiqlangan. Tadqiqot ishtirokchilariga tadqiqotning barcha maqsad va vazifalari va uni amalga oshirish usullari to'g'risida batafsil ma'lumot berildi.

5-jadval tadqiqotda ishtirok yetgan bemorlarning klinik xususiyatlari

Bemorning xususiyatlari koroner yurak kasalligi bo'lgan bemorlar

2-toifa diabetesiz, koroner yurak kasalligi bo'lgan bemorlar+ 2-toifa diabet

Bemorlar soni 27 (50,9%) 26 (49,1%)

Yosh, 62.2 yillartarkibida 1.3 66.3 tarkibida 1.2 0.55

Gender tarkibi

(yerkaklar;

ayollar) 39 14

BMI (kg / m²) 29,4 dos. 0,57 30,4 dos. 1,3 0,47

Bemorlarning ikkala guruhi ham yetakchi klinik va demografik ko'rsatkichlar bo'yicha to'liq taqqoslandi: jinsi, yoshi, BMI, chekish holati, ammo taqqoslash guruhidagi bemorlarning tana vazni biroz kattaroq yedi. Ikkala guruhning bemorlari, shuningdek, nafas qisilishi, yurak sohasidagi og'riqlar va boshqa (ChD dan tashqari) kardiologik patologiya va birga keladigan kasalliklar mavjudligi kabi klinik xususiyatlar bilan taqqoslanar yedi, miyokard infarkti tarixi bundan mustasno. chd + 2-toifa diabet bilan og'rikan bemorlar ($p = 0,024$).

Tekshirilgan bemorlarning dastlabki biokimyoviy ko'rsatkichlari ma'lumotlari

O'rganilgan guruhlarini tahlil qilishda faqat ro'za tutish glikemiyasi ko'rsatkichlarida, glikatlangan gemoglobin va insulin darajasida 2-toifa diabet bilan kasallangan odamlarda yuqori ko'rsatkichlar shaklida sezilarli o'zgarishlar qayd yetildi ($p < 0,05$).

6-jadval 2-toifa diabet bilan va u holda yurak tomirlari kasalligi bo'lgan bemorlarning qonining biokimyoviy ko'rsatkichlari darajasini baholash

Turi bilan ko'rsatkich 2 turi holda DM 2 DM R

Glycohemoglobin 9.35 glycohemoglobin 1.31 5.6 glycohemoglobin 0.33 0.05

Ovqatdan oldin qon shakar 8.83. 0.59. 5. 6. 0.27. 0.05.

Ovqatdan keyin qon shakar 12,8 rak 0,74 8,2 rak 0,63 0,05

Insulin 22.66 3.81 17 D. 2.71 0.32

Tadqiqotimiz natijalari shuni ko'rsatadiki, giperglikemiya klinik ahamiyatga yega yemas. Miyokard revaskulyarizatsiyasidan o'tgan 2-toifa diabet bilan bog'liq koronar yurak kasalligi bo'lgan bemorlarda giperglikemiya yepizodlarining uzoq muddatli prognoziga salbiy ta'sirini hisobga olgan holda, bu yepizodlarni kasallikning og'irligi belgisi va shunga mos ravishda bashorat qiluvchi sifatida ko'rib chiqish mumkin.uning noqulay natijasi.

Qandli diabet bilan va diabetesiz yurak tomirlari kasalligi bo'lgan bemorlarning qon lipid spektrining asosiy parametrlari

7-jadval tekshirilgan bemorlarda lipid metabolizmining ko'rsatkichlari

Turi holda ko'rsatkich 2 turi bilan DM 2 DM R

OHS 4.9 D. 0.41 4.53 D. 0.3 0.42

TG 2.67 xizmat 0.5 2.93 xizmat 0.46 0.96

HDL 1.3 xizmatlar 0.07 1.35 xizmatlar 0.06 0.68

LDL 2.7 R. 0.32 2.52 R. 0.22 0.61

KA 3.1 D. 0.39 2.5 D. 0.27 0.21

Laboratoriya tekshiruviga ko'ra, 2-toifa diabet bilan koronar yurak kasalligi guruhidagi bemorlarda TG darajasi sezilarli darajada yuqori bo'lgan ($p = 0,9$). Lipidogrammaning qolgan parametrlari guruhlar o'rtasida sezilarli farqlarga yega yemas yedi, ammo taqqoslash guruhida LDL darajasi biroz pastroq yedi.

2-toifa diabet bilan va diabetesiz yurak tomirlari kasalligi bo'lgan bemorlarda trombositlar agregatsiyasi faolligi va yeritrotsitlarning funksional holatining xususiyatlari.

Yeritrotsitlarning spontan agregatsiyasi mikrograflar yordamida aniqlandi. Shu bilan birga, agregatlarning kattaligi, ularning shakli va agregatsiya holatidagi yeritrotsitlar soni hisobga olindi. Tizim mezonlari bo'yicha mikrofotograflarni tahlil qilish natijasida olingan ballar yig'indisi yeritrotsitlar agregatsiyasining ko'rsatkichidir. Sog'lom shaxslar uchun bu 9,54 ni tashkil yetadikategishli 0,34 ball.

Yeritrotsitlar agregatogrammalarini tahlil qilish DM-41,6% va 50% ga nisbatan 27,6% va 24,1% bo'lgan bemorlarda tarvaqaylab ketgan va sharsimon agregatlarning ustunligini ko'rsatdi. "Tanga ustunlari" ko'rinishidagi klasterlar soni diabetesiz yurak tomirlari kasalligi bo'lgan bemorlarda ko'proq topilgan-mos ravishda 48,3% va 8,3%. Shu bilan birga, ikkala guruhdagi individual agregatlardagi qizil qon hujayralari soni deyarli teng yedi-58% va 66,6%. Ballar yig'indisi ko'pincha tenglashtirildi, bu nafaqat 2-toifa diabet bilan, balki yurak tomirlari kasalligi, dislipidemiya va koagulogramma indekslarining davomiyligi bilan ham bog'liq. Ma'lumki, lipid metabolizmining buzilishi, fibrinogen yeritrotsitlar membranasining xususiyatlarining o'zgarishiga ham ta'sir qiladi va shu bilan ularning bog'lanishiga hissa qo'shadi.

9-jadval yeritrotsitlar agregatsiyasining ko'rsatkichlari (nuqtalarda)

Ko'rsatkichlar Guruhi

Guruh 1

(SD holda) 2-guruh

(SD bilan)

Shaxsiy agregatlardagi qizil qon hujayralari soni 4 ball 17 pas. (58%) 16 o'g'il.
(66.6%)

2 ball 12 o'g'il. (42%) 8 o'g'il (33.3%)

Yeritrotsitlarning to'planishi

deformatsiyalangan ustunlar shaklida 2 ball 14 o'g'il (48,3%) 2 o'g'il.(8,3%)

Tarvaqaylab agregatlari 8 ball 8 o'g'il. (27.6%) 10 o'g'il.(41,6%)

Sferik agregatlar 10 ball 7 o'g'il (24,1%) 12 o'g'il. (50%)

Agregatsiya holatidagi yeritrotsitlar soni 2 ball 6 bemor. (20.7%) 15pac.(62.5%)

4 ball 15pac. (51.7%) 4pac.(16.6%)

10 ball 8 o'g'il.(27.6%) 5pac.(20.8%)

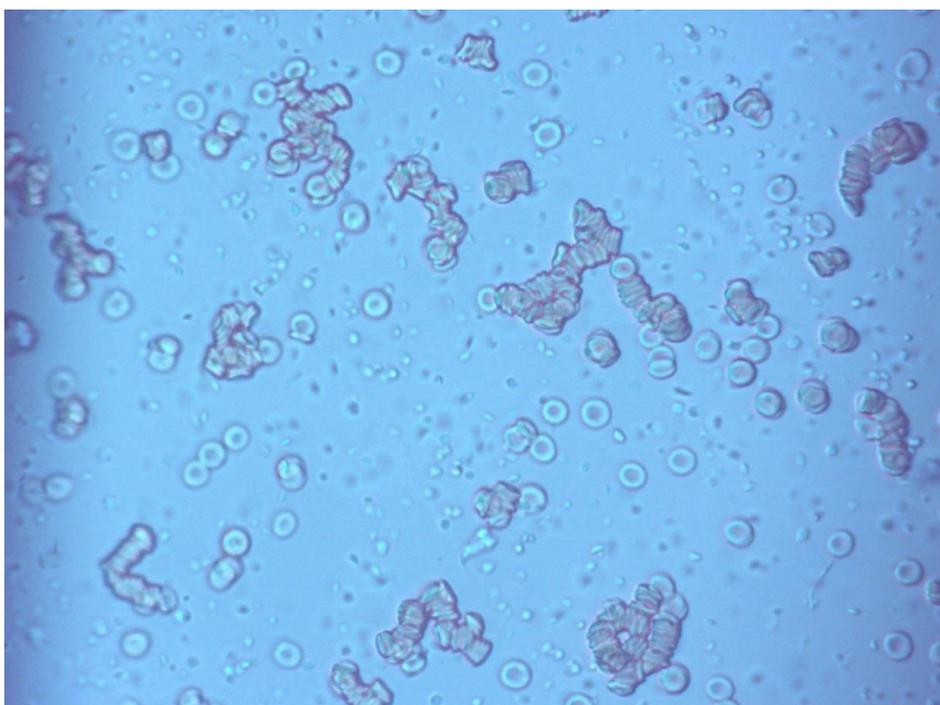
Yeritrotsitlar agregatsiyasiga misollar 1 va 2-rasmlarda keltirilgan.

Rasm 1.

Bemor R. S., 58 yosh. 2-toifa diabet bilan koroner yurak kasalligi. Sferik agregat shaklida yeritrotsitlarning yagona to'planishi



Risunok 2. Bolnaya M.S., 45 let. Mnojestvennoe skoplenie eritrotsitov v vide vetvistykh agregatov.



Buyrak arteriyasi dopplerografiyasi natijalarini tahlil qilish

O'rganilgan guruhlarining buyrak arteriyalarining dopplerografiyasini tahlil qilish Vmin qon oqimining minimal tezligida HPA (10,35 m/s va 12,6 m/s) darajasida dm bilan og'riqan bemorlarda uning pasayishi shaklida sezilarli farqlarni aniqladi. o'ng (8,7 m / s va 9,9 M/S) va HPA (11.64 m/SC versus 16.4 m/s), MDA (6.8 m / s versus 8.3 M / S) DM (p holda bemorlarga nisbatan intrarenal gemodinamika yanada aniq buzilishi ko'rsatadi chapda<0.05).

Shuningdek, 2-toifa diabet bilan ogʻrigan bemorlarda oʻngdagi MDA (44,5 m/s va 38,5 m/s), CA (54,73 m/s va 41,47 m/s) darajasida sistola (Vmax) ga maksimal qon oqimining tezligi sezilarli darajada oshdi va Mda (44.5 m/s va 38.5 m / sc) guruh 1 ($p < 0.05$) bemorlar bilan solishtirganda chapda. Bundan tashqari, 2-guruh bemorlarida intrarenal qon tomir qarshiligining sezilarli buzilishlari aniqlandi, bu 1-guruh bemorlariga nisbatan oʻngdagi MDA darajasida (0,71 cu va 0,64 cu; $p < 0,05$), Chapdagi GPA (0.77 cu vs 0.71 yandex birliklari. mos ravishda; $p < 0.05$), chapda MDA (0.72 cu vs 0.66 CU, oʻz navbatida; $p < 0.05$), 10-jadval.

10-jadval tekshirilgan guruhlarda buyrak arteriyasi dopplerografiyasining koʻrsatkichlari

Arteriya Koʻrsatkichlari Guruhi

Guruh 1 (SD holda) guruh 2 (SD bilan)

Oʻng Vmax ustida HPA, m/s 64.4 63.5

Vmin, m / s 12.6 10.35*

RI, YaʼNI 0,7 0,73

Oʻng Vmax haqida CA, m/s 45.45 50.7

Vmin, m / s 9.9 8.7*

RI, YaʼNI 0,67 0,68

MD oʻng Vmax, m / s 38.5 44.5*

Vmin, m/s 8.02 8.0

RI, CU 0.64 0.71*

Chap Vmax ustida HPA, m/s 62.6 62.5

Vmin, m / s 16.4 11.64*

Ri, cu. e. 0.71 0.77*

Chap Vmax haqida CA, m/s 41.47 54.73*

Vmin, m / s 9 9.57

RI, CU 0.67 0.7

MD Vmax tark, m/s 38.64 45.06*

Vmin, m / s 8,3 6,8*

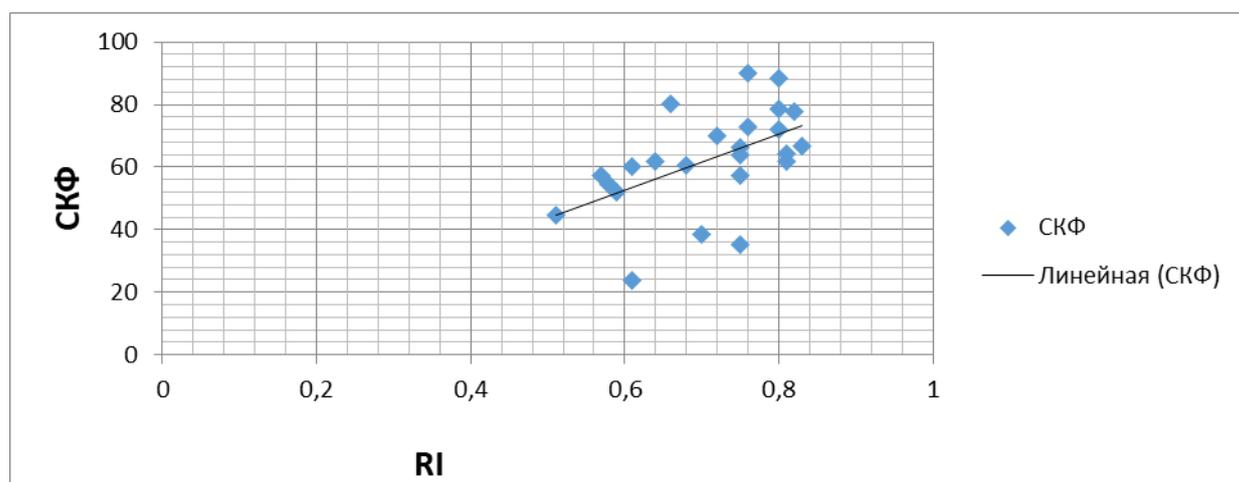
Ri, cu. e. 0,66 0,72*

Yeslatma: * - taqqoslash guruhi bilan farq; $p < 0.05$.

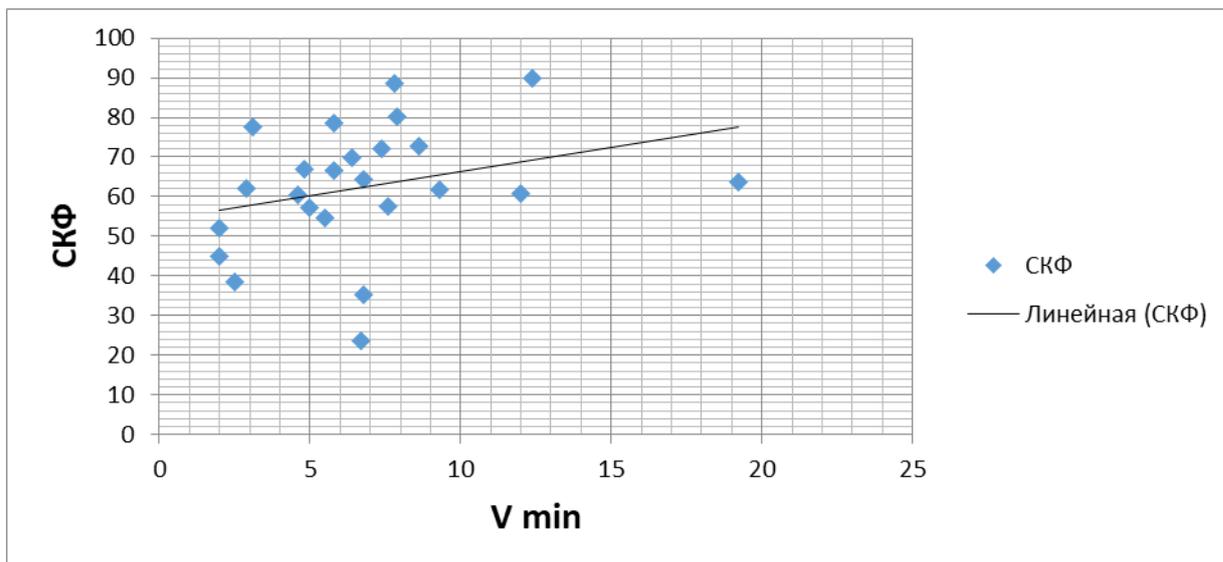
10-jadvaldan ko‘rinib turibdiki, 2-toifa diabet bilan og‘rigan bemorlarda deyarli barcha arteriyalar darajasida sezilarli darajada o‘zgargan dopplerografik ko‘rsatkichlardan biri Vmin yedi. Ushbu ko‘rsatkich 2-toifa diabet bo‘lmaganlarga nisbatan sezilarli darajada kamaydi ($p < 0.05$).

Tahlil davomida olingan natijalarni hisobga olgan holda, chap tomonda mda darajasida 2-toifa diabet bilan og‘rigan bemorlarda barcha ko‘rsatkichlarning yeng muhim o‘zgarishlari aniqlandi. Shu munosabat bilan chap tomonda mda darajasida kreatinin, GFR va bemorlarning yoshi kabi ko‘rsatkichlar bilan dopplerografik ma’lumotlarning korrelyatsion tahlili o‘tkazildi. Bizning ishda, barcha bemorlar yoshi va Vmin ($r = -0.36$; $p < 0.05$), shuningdek Vmin va GFR ($r = 0.35$; $p < 0.05$), RI va GFR ($r = 0.49$; $p < 0.05$) o‘rtasida o‘rtacha bog‘liqlik ko‘rsatdi. 2-toifa diabet bilan og‘rigan bemorlarda kreatinin darajasi va GFR o‘rtasida yeng kuchli korrelyatsiya topildi ($r = -0.80$; $p < 0.05$).

A)



B)



Shakl 1. Korrelyatsion tahlildan so‘ng 2-toifa diabet bilan koroner yurak kasalligi bo‘lgan bemorlarda dispersiya diagrammasi. A-2-toifa diabet bilan koroner yurak kasalligi bo‘lgan bemorlarda RI va GFR o‘rtasidagi bog‘liqlik. B-2-toifa diabet bilan koronar yurak kasalligi bo‘lgan bemorlarda GFR va Vmin o‘rtasidagi bog‘liqlik.

2-toifa diabetesiz yurak tomirlari kasalligi bo‘lgan bemorlarda korrelyatsion tahlil ham o‘tkazildi. Biroq, ushbu toifadagi bemorlarda 2-toifa diabet bilan og‘rigan bemorlardan farqli o‘laroq, dopplerografik ko‘rsatkichlar va GFR va kreatinin o‘rtasida sezilarli korrelyatsiyalar yo‘q yedi. Yosh va Vmin ($r = -0.33$; $p < 0.05$), shuningdek mda darajasidagi RI va qondagi kreatinin darajalari ($r = -0.31$; $p < 0.05$) o‘rtasida o‘rtacha salbiy korrelyatsiya topildi. 2-toifa diabet bilan og‘rigan bemorlarda bo‘lgani kabi, 1-guruhdagi bemorlar kreatinin darajasi va GFR ($r = -0.87$; $p < 0.05$) o‘rtasida yeng kuchli korrelyatsiyaga yega yedi.

Adabiyotda Dmda buyrak qon ta‘minoti muammolarini ta‘kidlaydigan ko‘plab asarlar mavjud, ikkala turdagi 1 va 2 [13, 23, 37], ammo ko‘plab masalalar to‘liq o‘rganilmagan va munozarali bo‘lib qolmoqda. Juda ko‘p sonli asarlar faqat rini o‘rganish bilan cheklangan. A yorqin misol o‘rtacha RI faqat CKD holda turi 2 diabet bilan og‘rigan bemorlarda segmentar arteriyalar darajasida baholandi Italiya olimlar, ish [32]. Olingan ma‘lumotlar natijalariga ko‘ra, bemorlarda, hatto

ateroskleroz, siydik albuminlari chiqarilishi va normal yoki yuqori GFR bo'lmasa ham, RI ortishi qayd yetildi. Bu shuni ko'rsatadiki, diabetik nefropatiyaning dastlabki bosqichlarida qon tomir qarshiligining oshishi kuzatiladi.

Shipilova D. A. (2021) tomonidan olib borilgan tadqiqot natijalariga ko'ra, diabet bilan og'riqan bemorlarda buyrak gemodinamikasining xususiyatlarini o'rganayotganda, 2-toifa diabet bilan og'riqan bemorlarda CKDNING dastlabki bosqichlarini tashxislash uchun yangi informatsion dopplerografik ko'rsatkichlar intrarenal qon tomir qarshiligi ko'rsatkichlari yekanligi aniqlandi. segmental va yoy arteriyalarining darajasi (ha) [16], buyrak shikastlanishini yerta tashxislash bo'yicha tadqiqotimizda yangi informatsion o'zgarishlar RI, Vmin MDA darajasida, ayniqsa chap tomonda.

Shipilova D. A. ning ishida Ca darajasida qarshilik indeksi va pulsatsiya indeksi (PI), mda darajasida sistolik-diastolik nisbat (S/D), shuningdek da darajasida RI kabi dopplerografik ko'rsatkichlar aniqlandi. yuqori diagnostik aniqlik bilan (88,9%) va ishonchlilik 2-toifa diabet bilan og'riqan bemorlarda buyrak shikastlanish darajasini baholashi mumkin. Olingan natijalarga ko'ra, s/D ning ortiqcha miqdori 2,8 dan ortiq yekanligi isbotlandi; RI 0,68 dan ortiq va pi segmentar arteriya darajasida 1,28 dan ortiq va/yoki S/D 2,6 dan ortiq; RI 0,66 dan ortiq va PI ha darajasida 1,21 dan ortiq va siydik albuminlari chiqarilishi va GFR ning mos yozuvlar qiymatlari mavjud bo'lganda ham CKDNING dastlabki bosqichlari uchun dopplerografik mezonlardir [16]. Bu, shuningdek, s/D ortiq 3,1 Pol qadriyatlarini cheksiz deb vahiy qilingan; RI ortiq 0,70; PI o'ng segmentar arteriya darajasida ortiq 1,35 kasallikning progressiyaning va surunkali buyrak kasalligi C3 rivojlanishi uchun Dopplerografik mezonlari bor-4 A2-3 [16].

Shunga o'xshash natijalar bizning tadqiqotimizda olingan, ammo yangi muhim dopplerografik o'zgarishlar boshqa arteriyalar darajasida yemas, balki 2-toifa diabet bilan og'riqan bemorlarda Chapdagi interlobular arteriyalar darajasida aniqlangan.

Gaipov A. va boshq. (2016) funksional buyrak zaxirasining pasayishi bilan 2-toifa diabet bilan og'riqan bemorlarda RI sonining ko'payishi to'g'ri CA darajasida

munosabatlarni o'rnatdi [21]. Korrelyatsiya darajasini o'rganayotganda, RI bilan Fpr darajasining o'rtacha teskari aloqasi va chiziqli ko'rsatkichlar bilan to'g'ridan-to'g'ri: V_{max} va V_{min} [21].

H. qurbanlarning va hammualliflari (2017) A2 albuminuria va GFR darajasi o'zgarishsiz qoldi yesa V_{max} , V_{min} sezilarli darajada ri sezilarli, buyrak zarar yerta bosqichlarida allaqachon buyrak arteriyasi oshdi, kamaydi, deb topildi [42]. Bundan tashqari, bir qator olimlar nefroskleroz darajasi va RI [42] o'rtasidagi sezilarli to'g'ridan-to'g'ri bog'liqlikni aniqladilar. DM, shu jumladan, turli kasalliklar bilan bemorlarning buyrak o'zgarishlar o'rganish Xitoy olimlari bir guruh, buyrak morfologik o'zgarishlar (glomerulyar skleroz, tubulointerstitial fibroz) [19] bilan dopplerografik parametrlari (V_{max} , V_{min} va RI) muhim birlashmasidan nozil. Ushbu ishda, shuningdek, bizning tadqiqotimizda RI va GFR o'rtasidagi teskari bog'liqlik aniqlandi. Biz tomonidan olingan ma'lumotlar bizga chiziqli tezlik parametrlari va RI GFR darajasiga bog'liqligini aytishga imkon berdi.

3.2. Tekshirilgan bemorlarda yendotelin 1, interleykin 6 va qon tomir yendotelial o'sish omilining tarkibini tahlil qilish

Hozirgi vaqtda yendotelin – 1 tarkibining umumiy qabul qilingan normal qiymatlari mavjud yemasligi sababli, biz nazorat guruhi va taqqoslash guruhida olingan ma'lumotlar yordamida ushbu ko'rsatkichlarning normal va chegara mos yozuvlar qiymatlarini aniqladik. Oddiy mos yozuvlar qiymatini aniqlash bemorlarning turli guruhlarida o'rganilgan parametrlarning qiymatlarini yanada taqqoslash uchun zarur bo'lib tuyuladi.

Belgilangan kasalliklarsiz nisbatan sog'lom odamlarni o'z ichiga olgan nazorat guruhida yendotelial disfunksiyaning aylanma belgilarining normal darajasi hisoblab chiqilgan bo'lib, yendotelial uchun 22,6 pg/ml ni tashkil yetdi, natijalar normal yendotelial holatni tavsiflovchi optimal chegaralar sifatida qabul qilindi. deyarli sog'lom shaxslar.

Biz 1 – toifa diabet bilan va birga bo‘lmagan yurak tomirlari kasalligi bo‘lgan bemorlarda yendotelin-2 darajasini qiyosiy tadqiq qildik. Tadqiqot natijalari 5-jadvalda keltirilgan. Olingan ma’lumotlarning tahlili shuni ko‘rsatdiki, 1 – toifa diabet bilan yurak tomirlari kasalligi bo‘lgan bemorlarda yendotelin-2 ning tarkibi diabetesiz yurak tomirlari kasalligi bo‘lgan bemorlar guruhiga va nazorat guruhiga qaraganda ancha yuqori. Yet -1 darajasining oshishi 78,5% hollarda yurak tomirlari kasalligi bo‘lgan bemorlarning 4,1 foizida 2-toifa diabet bilan birgalikda, DMSIZ yurak tomirlari kasalligi bo‘lgan bemorlar guruhida yesa YeT-1 darajasi 43,3% hollarda oshirildi.. Nazorat guruhida faqat 2 ishtirokchi (6,7%) YeT – 1 konsentratsiyasining o‘shishini ko‘rsatdi.

Ma’lumki, yendotelin-1 yendotelinlarning asosiy shakli bo‘lib, u faqat qon tomir yendotelial hujayralarida hosil bo‘ladi va qon tomir tonusini, yurak chiqishini va qon tomir o‘tkazuvchanligini tartibga solishda yeng muhim rol o‘ynaydi. YeT-1 miyokard kontraktilligini sezilarli darajada oshiradi, koronar tomirlarning vazokonstriksiyasini keltirib chiqaradi, bu yesa ishemiya va aritmiyaning kuchayishiga olib keladi (7).

Shunday qilib, YeT-1 konsentratsiyasi biroz oshib borishi aniqlandi, 2-toifa diabet bilan bog‘liq yurak tomirlari kasalligi bo‘lgan bemorlarda bu ko‘rsatkich yuqori darajaga yetadi.

11-jadval yendotelial disfunksiyaning ko‘rsatkichlari (VEGF, YeT-1) va yallig‘lanish omili (IL 6)

DM bilan koronar yurak kasalligining ko‘rsatkichlari, (n=26) DMSIZ koronar yurak kasalligi, (n=27) R

IL-6, pg / ml 63.03 va 5.56

49.11±3.45 0.03

Yendotelin 1, pg / ml 200.6 rat 45.97

397.44±82.02 0.31

Qon tomir yendotelial o‘shish omili(VEGF), pg / ml

981.96±91.71

651.86±76.06

0,007

VEGF va IL – 6 kabi ko‘rsatkichlarni tahlil qilganda, yurak tomirlari kasalligi bo‘lgan bemorlar guruhida, 2-toifa diabet bilan bog‘liq yurak tomirlari kasalligi bo‘lgan bemorlar guruhida qonda ularning konsentratsiyasi biroz oshadi, asosiy guruhga nisbatan yuqori ishonchsiz ko‘rsatkichlar qayd yetiladi.

DM bilan bog‘liq va bo‘lmagan yurak tomirlari kasalligi bo‘lgan bemorlarning yekokardiyografi ma‘lumotlarini tahlil qilish.

Koroner yurak kasalligi bo‘lgan bemorlarda yekokardiyografi tahlili ishemiya qayta qurish doirasida yurak geometriyasida ba‘zi o‘zgarishlarni ko‘rsatdi: kamera hajmining oshishi(LP hajmi indeksining oshishi, LV icdo, RV diametri $P < 0,05$ KG bilan solishtirganda), lv bo‘shlig‘ining sferik deformatsiyasi(o‘shish). miyokard massasi (LVL, $p < 0,05$). Shu bilan birga, yurak tomirlari kasalligi + 2-toifa diabet bilan og‘rigan bemorlarning ko‘rsatkichlarini taqqoslash shuni ko‘rsatdiki, yurak va LVMH chap kameralarining o‘lchamlari diabetesiz yurak tomirlari kasalligi bo‘lgan bemorlarga qaraganda ancha katta. O‘ng qorincha (RV) hajmi DM mavjudligidan qat‘iy nazar taqqoslanadigan yedi.

Sistolik va diastolik qorincha funksiyasining buzilishi ham aniqlandi: yurak tomirlari kasalligi bo‘lgan bemorlarda LVEF o‘rtacha normal qiymatlarda qoldi, ammo KG ($p < 0,05$) ga qaraganda ancha past yedi. Batafsil tahlil shuni ko‘rsatdiki, umuman olganda, bemorlarning 52% PV 55% dan past. Shu bilan birga, yurak tomirlari kasalligi bo‘lgan bemorlarda PV ning pasayishi diabetning mavjudligi bilan bog‘liq yedi.

LV sistolik miokard funksiyasining yana bir ko‘rsatkichi, buzilgan mintaqaviy kontraktillik indeksi 17 segmentli LV modeli yordamida baholandi. Bemorlarning yarmidan ko‘pida (49%) mintaqaviy kontraktillikning buzilishi topilgan. Shu bilan

birga, mintaqaviy diskinez, shuningdek, umumiy kontraktillikning pasayishi fon diabetining mavjudligi bilan bog‘liq ($p < 0,05$).

Integral sistolik LVNI qayta qurish indeksi, strukturaviy va funksional sistolik LVNI qayta qurish parametrlarini birlashtirgan, LVEFNING sferiklik indeksiga nisbatini ifodalovchi indikator tadqiqotga kiritilgan bemorlarda nazorat guruhiga qaraganda ancha past yedi ($p < 0,05$).

Bu LV Lvning pasayishi va sferiklik indeksining oshishi va LV bo‘shlig‘ining geometriyasining o‘zgarishi bilan bog‘liq. O‘z-o‘zidan LV bo‘shlig‘ini sferik qayta qurish huni shaklidagi yejeksiyon oqimini buzadi, uning samaradorligini pasaytiradi va Lvning umumiy kontraktilligini buzilishiga qo‘shimcha hissa qo‘shadi. yeng past ko‘rsatkich DM bilan ChD bo‘lgan bemorlarda topilgan (DMSIZ ChD guruhi bilan solishtirganda).

LV diastolik funksiyasini tahlil qilish LV miokardining faol diastolik diastolik yengillik jarayonlarini buzish tendensiyasini aniqladi, bu mitral halqaning lateral chetining to‘qima dopplerografiyasi paytida aniqlangan Ye/a nisbatining pasayishi bilan namoyon bo‘ldi ($p < 0,05$, nazorat bilan solishtirganda). Qandli diabet bilan og‘rigan va bo‘lmagan ChD bemorlarini taqqoslash fon qandli diabet bilan og‘rigan bemorlarda diastolik disfunksiyaning yuqori darajasini aniqladi. Tahlil tasvirlangan naqshlarni tasdiqlaydi: diastolik disfunksiyaning yeng yuqori darajasi 2-toifa diabet bilan bog‘liq yurak tomirlari kasalligi bo‘lgan bemorlar guruhida kuzatiladi.

Tadqiqotga kiritilgan bemorlarda "valfni yopish" davrlari yig‘indisining (izometrik kuchlanish va izometrik yengillik davri) tebranish vaqtiga nisbatini aks yettiruvchi miokardning funksional holatining integral ko‘rsatkichi sezilarli darajada oshdi. nazorat ko‘rsatkichi ($p < 0,05$). Shu bilan birga, yeng yuqori qiymat DM bilan og‘rigan bemorlarda kuzatildi ($P < 0,05$ DM bo‘lmagan bemorlarga nisbatan). Lvning funksional holatining buzilishi, ayniqsa uning diastolik disfunksiyasi, postkapillyar o‘pka gipertenziyasini aks yettiruvchi Lvning ko‘payishi. Bizning tadqiqotimizda IBS bilan og‘rigan bemorlarda, ayniqsa DM

mavjud bo'lganda, nazorat guruhida kimyoga bog'liqlik aniqlandi, istak o'rtacha normal diapazonda qoldi ($P < 0,05$, dm va kg bo'lmagan IBS bilan taqqoslash).

12-jadval sistolik va diastolik yurak funksiyasining ko'rsatkichlari

Qandli diabet bilan IBS ko'rsatkichlari (n-26), diabetesiz IBS (n-27), nazorat guruhi, n-20

igdo ml / M2 $111,22 \pm 7,79$, $98,70 \pm 5,58$, $78,60 \pm 10,58$

qonda xolesterin darajasi, ml/ m2 $24,59 \pm 12,03$ $21,42 \pm 0,67^*$ $19,4 \pm 4,75^*$

immlpaper size $130,62 \pm 21,14$ $125,78 \pm 20,06^*$ $97,61 \pm 10,45^*$

O'rtacha daraja 0,78 va 0,15 0,60 va 0,11 0,57 va 0,14 ni tashkil qiladi.

F. V. Zh.D. % $55,18 \pm 6,20$ $53,56 \pm 6,87^*$ $64,85 \pm 4,91$

Ballar soni: ball 1.34 dos. 0.12 1.31 dos. 0.11 1.00 dos. 0.00 dos.

Isir, Tahr. $62,22 \pm 26,35$ $67,32 \pm 26,35$ $121,74 \pm 31,65$

Ye / A LJ, NN.Yed 0,70 0,30 0,81 0,32 1,53 0,15

Ye / A PJ. OTN.Yed 0,81 0,42 0,86 0,40 1,56 0,17

O'rtacha yosh 0,43. 0,11 0,39. 0,11 0,28. 0,06.

Tei kompyuter ATN.Yed 0,38 0,11 0,35 va 0,10 0,23 va 0,04

DZLA, mm.rt.st $18,82$ $4,83$ $17,45$ $1,1$ $10,50$ $1,8$ $1,8$

O'rtacha harorat, mmhg.. $29,86 \pm 4,76$ $28,69 \pm 4,94$ $22,64 \pm 3,49$

Taqqoslash guruhi bilan farq $r < 0.05$

Shu bilan birgalikda o'pka arteriyasidagi sistolik bosim darajasi ham aniqlandi. IBS bilan og'rigan bemorlarda qon aylanishining kichik doirasidagi bosimning yetarli darajada oshishi (kg bilan solishtirganda $p < 0,05$) IBS +DM bo'lgan bemorlarda maksimal ta'sir ko'rsatishi aniqlandi.

Miokard PJ (Tei PJ) funksional holatining integral ko'rsatkichi, shuningdek, umumiy integral funksional ko'rsatkich IBS ($p < 0,05$ kg) bilan og'rigan bemorlarda buyraklarning funksional holatining buzilishini ko'rsatdi, nima uchun yanada

kuchli buzilishlar umuman fon diabetining mavjudligi bilan bog'liq yedi va tadqiqotga kiritilgan barcha bemorlar ($p < 0.05$).

Miyokard disenergiyasi va asinergiya zonasining shakllanishi, uning davomiyliги kasallikning kechishiga va bemorning hayoti prognoziga sezilarli ta'sir qiladi. Yurak-qon tomir tizimidagi tarkibiy, funksional va yelektr qayta qurish dinamikasini baholash kasalliklarning og'irligini va yuzaga kelishi mumkin bo'lgan asoratlarni yanada samarali tekshirishga imkon beradi, shuningdek davolash taktikasiga mintaqaviy yondashuvni belgilaydi.

Yeng yuqori funksional sinflarga yega angina pektorisli bemorlarda miyokard massasining ko'payishi va LV gipertrofiyasi fonida LV bo'shlig'ining biroz kengayishi va tebranish fraksiyasining pasayishi namoyon bo'ladi. Yetimning kiyimida 1-turdagi diastolik disfunktsiya ko'rsatilgan. Buzilishlarning rivojlanishi barqaror angina pektorisining funksional sinfidan foydalanganda va asoratlari mavjud bo'lganda sodir bo'ladi. Shunday qilib, ChF tomonidan murakkab bo'lgan FC III-IV bo'lgan bemorlarda 1 va 2 turdagi diastolik disfunktsiyaning rivojlanishi (pseudonormalizatsiya), shuningdek yeksantrik gipertrofiyalangan LJ ning o'zgarishi aniqlandi. Miyokardni qayta qurishning yerta sezgir ko'rsatkichlariga yakuniy sistolik hajm va hajmning oshishi kiradi [2,4,5,7].

Miyokardning ishemik ta'mirlanishining zo'ravonligi yurak-qon tomir kasalliklarining tez rivojlanishi bilan bevosita bog'liqdir. Sistolik, diastolik disfunktsiya va Chf rivojlanishidan oldingi yekzokardiyogram ko'rsatkichlari, masalan, yakuniy sistolik hajm va yakuniy sistolik hajmning oshishi, miokard stressi, diastolik to'ldirish nuqtalari nisbati pasayishi va susayish, LVNI qayta qurishning yerta bashoratchilari [4,10,14,20].

Shunday qilib, IBS bilan og'rigan bemorlarda ChF bilan murakkablashgan yurakka yeng katta yuk bo'lgan stress angina pektorisi, nafaqat mushaklarni, balki yurakning o'ng qismlarini ham ahamiyatsiz tarkibiy va funksional qayta qurish tendensiyasi nafaqat yurak to'qimalarining hajmini, balki massasini ham oshiradi. miyokard, shuningdek, miyokardning funksional holati va sistolik va diastolik funksiyalarning buzilishi aniqlandi. Qorinchalar. Fon DM ko'p sonli virusli

kasalliklar bilan bog'liq bo'lib, koronar to'shakning shikastlanishi va ishemiyaning yuqori darajasi va zichligi, xususan, xakerlar, yurakning levix kamerasing sezilarli darajada kengayishi, umumiy kontraktillikning pasayishi bilan bog'liq yedi. va mintaqaviy ko'rsatkichlarning ko'p sonli vaqtinchalik ballari buzilishi. LJ ning maxfiyligi, o'pka arteriyasi tizimidagi ko'p sonli vaqtinchalik bosim qiymatlari, bu koronar to'shakning keng tarqalgan shikastlanishi va ishemiyaning katta darajasi va zichligi sifatida tushuntirilishi mumkin, shuningdek, hujayra metabolizmining surunkali buzilishi va diabet uchun oraliq parchalanish to'planishi.

Genetik tahlil natijalari

Genotiplarni taqsimlashda cdkn4977574b-AS10757271 genining rs2, st genotiplari 29 (55,8%) va 25 (48,1%) soni bo'yicha genotiplarning yeng katta ulushiga to'g'ri keladi (jadval). Qandli diabet bilan og'rigan 2-toifa SD bilan og'rigan bemorlarda diabetes mellitus mavjudligiga qarab bemorlarni guruhlariga ajratishda. AA, AH va GH genotiplari taxminan bir xil miqdorni tashkil yetdi, 2-turdagi SD bo'lmagan guruhda yesa AG genotiplari mos ravishda 17 (60,7%) va 19 (67,9%) yedi.

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