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O’pkaning Surunkali Obstruktiv Kasalligi Bo'lgan Bemorlarda Buyrak Funksiyasi Yomonlashishini Bashorat Qiluvchi Omillar

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Annotatsiya: O’pkaning surunkali obstruktiv kasalligi (O’SOK) keng tarqalgan tizimli yallig'lanish kasalligi bo'lib, doimiy nafas yetishmovchiligi belgilari va havo oqimining cheklanishi bilan tavsiflanadi. Surunkali obstruktiv o'pka kasalligi (O’SOK) keng tarqalgan tizimli yallig'lanish kasalligi bo'lib, turg’un nafas olish simptomlari va havo oqimining cheklanishi bilan tavsiflanadi, ko'pincha to'liq qaytarilmaydi [1]. O’SOK genetik sezuvchanlik va tamaki tutuni va havo ifloslanishini o'z ichiga olgan atrof-muhit stimullariga ta'sir qilish o'rtasidagi murakkab o'zaro bog'liqlikdan kelib chiqadi [2]. O’SOK o'lim va kasallanishning asosiy sababi bo'lib, keyingi yillarda uning kasallanishi ortib boradi. O’SOK bilan bog'liq individual yuk, shuningdek, uning sog'lig'i uchun xarajatlari gipertenziya, diabet, kognitiv pasayish, osteoporoz/osteopeniya, surunkali buyrak kasalligi (SBK) kabi yurak-qon tomir (CV) va yurak-qon tomir bo'lmagan komorbidiyalarning keng spektri bilan kuchli bog'liqdir. [3,4].

Kalit so’zlar: o’pkaning surunkali obstruktiv kasalligi, surunkali buyrak kasalligi.

O’SOK bilan og'rigan bemorlarda umumiy populyatsiyaga qaraganda SBK rivojlanish xavfi yuqori [5], yosh, qandli diabet, arterial gipertenziya va ortiqcha vazn SBKning yangi boshlanishi uchun eng keng tarqalgan xavf omillari hisoblanadi [6]. SBK patogenezi buyrak qon aylanishida patologik o'zgarishlarga olib keladigan yallig'lanishga qarshi va prooksidant yo'llarning faollashishi tufayli aterosklerotik shikastlanishni o'z ichiga oladi [7,8,9]. Shu nuqtai nazardan, interleykin-6 (IL-6) eng mashhur sitokin bo'lib, o'pka hujayralari tomonidan ishlab chiqariladi va tizimli qon aylanishiga etib boradi va boshqa organlarni nishonga oladi va shu bilan keyingi yallig'lanish ta'sirini ko'rsatadi. IL-6 ga qo'shimcha ravishda interleykin-1b (IL-1b), interleykin-8 (IL-8), interleykin-10 (IL-10) va o'simta nekrozi omil-a (TNF-a) ham hisobga olinishi kerak. [10]. IL-6, IL-1, TNF-a va monotsitlarni kamaytiruvchi oqsil (MCP-1) muhim vositachilar bo'lib, makrofaglar va monotsitlarni jalb qilish, shuningdek trombotsitlarni yig'ish omilini (PAF) faollashtirish orqali yallig'lanishli buyrak naychalarining shikastlanishini keltirib chiqarishga qodir. [11]. Buyrak ishemiyasi, o'z navbatida, angiotenzinga aylantiruvchi ferment (ACE) ta'siriga ta'sir qilishi va o'pka tomirlarining o'tkazuvchanligini oshirishi mumkin, bu esa o'pka alveolalari darajasida suyuqliklarning qayta so'rilishi uchun mas'ul bo'lgan ion kanallarining funktsiyasini buzishi mumkin [12]. Buyrak shikastlanishining diagnostikasi asosan buyrak albuminlarining chiqarilishini baholashga asoslanadi [13]. Buyrak shikastlanishining boshqa ko'rsatkichlari siydik cho'kindisining o'zgarishi, qon testidagi anormallik va tasviriy o'zgarishlardir [14]. Katta tadqiqot populyatsiyalarida buyrak funktsiyasining yomonlashuvini baholash uchun ishlatiladigan tegishli parametr taxminiy glomerulyar filtratsiya tezligidir (eGFR), uning o'zgaruvchanligi yomon prognoz bilan bog'liq [15].

Darhaqiqat, O’SOK bilan og'rigan bemorlarda SBKning bir vaqtning o'zida paydo bo'lishi ham global salomatlik holatiga, ham umumiy o'limga salbiy ta'sir ko'rsatadi [16,17,18]. Xususan, so'nggi tadqiqotlar shuni ko'rsatadiki, O’SOK va giperurikemiya bilan og'rigan O’SOK bilan og'rigan

bemorlarda siydik kislotasi (UA) darajasi kasallanish va erta o'limning mustaqil prognozchisi bo'lishi mumkin [19,20,21]. Biroq, O'SOK va UA o'rtasidagi patofiziologik munosabatlar hali to'liq tushunilmagan [22]. Shunisi e'tiborga loyiqki, 6,9 mg / dL dan yuqori UA darajasi O'SOK kuchayganidan keyin 30 kun ichida o'limning mustaqil prognozchisi hisoblanadi, lekin bir yil ichida emas [19]. Bundan tashqari, UA darajasi yuqori bo'lgan bemorlar uzoqroq kasalxonaga yotqizishni, invaziv bo'lmagan ventilyatsiyani va keyingi 30 kun ichida intensiv terapiya bo'limiga tez-tez yotqizishni talab qiladi [19]. Bundan tashqari, yuqori plazma UA kontsentratsiyasi bir yil ichida O'SOK kuchayishi uchun qayta kasalxonaga yotqizish xavfi bilan bog'liq [19]. Qizig'i shundaki, tadqiqot shuni ko'rsatadiki, qon zardobidagi UA darajasi va jadal nafas hajmi (FVC), shuningdek, UA va birinchi soniyada jadal nafas chiqarish hajmi (FEV1) o'rtasida sezilarli teskari korrelyatsiya mavjud [23]. Ushbu kuzatuvga muvofiq, giperurikemiya o'pka funktsiyasining yomonlashishi va O'SOKda nafas olish belgilarining yuqori xavfi bilan bog'liqligi aniqlandi, hatto to'g'ridan-to'g'ri sabab-oqibat aloqasi ko'rsatilmagan bo'lsa ham [24]. Va nihoyat, qo'shimcha dalillar shuni ko'rsatadiki, O'SOK bilan og'rigan bemorlarda klinik yomonlashuv va kuchayish xavfini bashorat qilish uchun nafaqat sarum UA darajasini o'lchash, balki UA va kreatinin o'rtasidagi munosabatlar ishonchli bo'lishi mumkin [25]. Shunday qilib, yuqori UA darajalari SBK rivojlanishiga yordam berish orqali O'SOK bilan og'rigan bemorlarda klinik natijalarga salbiy ta'sir ko'rsatishi mumkin deb taxmin qilish mumkin.

O'SOK tashxisi kurs bo'yicha qo'yildi. Surunkali obstruktiv o'pka kasalligi (GOLD) bo'yicha global tashabbusni ijaraga oling [26]. Spirometriya Amerika Ko'krak Jamiyati (ATS)/Yevropa Nafas olish Jamiyati (ERS) ko'rsatmalariga muvofiq amalga oshirildi [27]. Ushbu tadqiqot shuni ko'rsatadiki, UA buyrak funksiyasining tez pasayishi va GOLD 1 va 2 bosqichlarida bo'lgan O'SOK bilan kasallangan bemorlarda buyrak kasalligi xavfining oshishi bilan bog'liq. Bizning tadqiqotimizga kiritilgan O'SOK bemorlarida asosiy buyrak disfunktsiyasi juda keng tarqalgan. Haqiqatan ham, 77,8% buyrak funktsiyasi normal bo'lgan, yollangan ishtirokchilarning 22,2% esa eGFR <60 ml/min/1,73 m2 ga ega edi. Bizning topilmalarimizga o'xshab, oldingi tadqiqotlarda jalb qilingan O'SOK bilan kasallangan bemorlarning 20% va 31% ochiq SBKdan shikoyat qilganlar [32,33], keyingi tadqiqotlar esa O'SOK bilan og'rigan bemorlarda ayollarda atigi 9,6% va erkaklarda 5,1% ni tashkil etgani ma'lum bo'ldi [34]. Biroq, bu aniq tafovutlar uzoq geografik hududlarda yashovchi turli etnik populyatsiyalarga ham genetik, ham atrof-muhit omillarining ta'siri bilan izohlanishi mumkin. Bundan tashqari, diabetning mavjudligi buyrak disfunktsiyasini rivojlanish xavfini 5% ga oshirdi. Darhaqiqat, 2-toifa diabet bilan og'rigan keksa bemorlarda buyrak etishmovchiligi va albuminuriya rivojlanishi mumkin [35]. Biroq, diabet bilan og'rigan bemorlarda bu ikki patologik holat bir vaqtning o'zida bir vaqtning o'zida bo'lishi shart emas, shuning uchun turli xil xavf omillari buyrak etishmovchiligi yoki albuminuriyaga olib kelishi mumkinligini ko'rsatadi [36]. Qanday bo'lmasin, diabet bilan og'rigan bemorlarda buyrak funktsiyasini kuzatish juda muhim, bu kabi kasalliklarni imkon qadar erta aniqlash va buyraklar faoliyatining progressiv yomonlashuvini sekinlashtirishdir. Shunisi e'tiborga loyiqki, O'SOK bilan og'rigan bemorlar umumiy populyatsiyaga qaraganda SBK namoyon bo'lishiga ko'proq moyildirlar [5,6]. O'SOK bilan og'rigan bemorlarda SBK rivojlanishi salomatlik holatiga salbiy ta'sir qiladi va o'limga olib keladi [16,17,18]. Qizig'i shundaki, SBK va giperurikemiyadan shikoyat qiladigan O'SOK bilan og'rigan bemorlarda UA darajasini kuchayishi va erta o'limning ishonchli bashorat qiluvchi omili deb hisoblash mumkin [19,20,21].

O'SOK bilan og'rigan bemorlarda yuqori qon zardobidagi UA darajasi va SBK bilan kasallanish o'rtasidagi bog'liqlik UA ni yallig'lanish va endotelial disfunktsiya bilan bog'laydigan bir nechta patofizyolojik mexanizmlar bilan izohlanishi mumkin [37]. Masalan, peroksinitrit bilan reaksiyaga kirishib, UA kuchaytirilgan oksidlovchi stress bilan bog'liq bo'lgan ko'plab patologik vaziyatlarni yaxshilashi ko'rsatilgan [38]. Biroq, boshqa tomondan, UA va peroksinitrit o'rtasidagi reaktsiyaning o'zi erkin radikallarni hosil qiladi va UA ning potentsial prooksidant faolligini rag'batlantiradi [38]. Ushbu oxirgi hodisa UA ning yuqori qiymatlari semizlik, metabolik sindrom, buyrak kasalliklari, yurak-qon tomir kasalliklari va shuningdek, O'SOK kabi oksidlovchi stressning kuchayishi sharoitlari bilan bog'liq bo'lganida sodir bo'lishi mumkin [39]. Giperurikemiyali kalamushlarda

o'tkazilgan ba'zi tadqiqotlar shuni ko'rsatdiki, yuqori darajadagi UA plazma nitrat oksidi (NO) kontsentratsiyasining pasayishi va NO katabolizmining yakuniy mahsulotining siydik bilan chiqarilishining o'zgarishi bilan bog'liq [40,41]. Qon tomir endotelial funktsiyasiga ta'sir qilib, giperurikemiya buyrak tomirlarining vazokonstriksiyasiga, arterial va glomerulyar gipertenziyaga va preglomerulyar arteriolopatiyaga olib kelishi mumkin [42]. Xususan, oksidlovchi stressning kuchayishi UA intrarenal NO mavjudligini cheklaydigan mexanizmlarda ishtirok etadi [43]. UA darajasining oshishi tizimli arterial gipertenziya va buyrak ishemik shikastlanishi bilan bog'liqligini ko'rsatdi, bu kollagen cho'kishi, makrofag infiltratsiyasi va osteopontinning quvurli ko'payishi bilan tavsiflanadi [44]. UA buyrak shikastlanishi va arterial gipertenziyani keltirib chiqarishi mumkin bo'lgan boshqa molekulyar mexanizm UA RAAS tizimini faollashtirish va NO darajasini pasaytirish qobiliyati bilan bog'liq ko'rinadi [45]. Bunday topilmalarga mos ravishda, giperurikemiyali kalamushlarda makula densada azot oksidi sintaza 1 (NOS1) ning kamayishi, shuningdek, jukstaglomerulyar tizimda renin kontsentratsiyasining ortishi aniqlangan [44]. Enalapril va L-argininni qo'llash arterial gipertenziya va buyrak shikastlanishining oldini olishga muvaffaq bo'ldi [44].

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