TOShKENT ShAHRIDA 5- 11 YoShDAGI BOLALARDA COVID-19 INFEKSIYaSINING OLDINI OLIShDA BNT162B2 (Pfizer–BioNTech) VAKSINASINING SAMARADORLIGI

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Rezyume: 2022 yil yanvar oyidan JSSTning bayonnomasiga muvofik BNT162b2 (Pfizer–BioNTech) vaksinasi bolalar uchun qo‘llanilishi ma’qullangandan so‘ng, 10 oy o‘tib, 5-11 yoshgacha bo‘lgan Toshkent shahrida yashovchi 584 181nafar boladan 7238 ta bola(1,23%) bolalar COVID-19 infeksiyasiga qarshi to‘liq emlandi.

Annotatsiya: 2019 yilda boshlangan global COVID-19 pandemiyasi aholi salomatligi uchun xavfli tahdid bo‘ldi. Oxirgi o‘n yillikda uchta yangi beta-koronavirus - ogir, o‘tkir respirator sindromi (SARS)-CoV, Yakin Shark; sindromi (MERS-CoV va SARS-CoV2 ko‘zgatuvchilari epidemiyani keltirib chiqarib, odamlar o‘rtasida o‘lim darajasini yukoriligi bilan ajralib turdi. Xozirgi kunda odam uchun virulent koronavirus (hCoVs) COVID-19 ni keltirib chiqaradigan SARS-CoV2 hisoblanadi [1,3,9] PZR usuli virus RNK sini aniqlash buyicha yuqori sezgirlikka ega va COVID-19 ni erta davrlarida ishonchli tasdiklashi mumkin. Ogir, o‘tkir respirator sindrom (SARS) va Yakin Shark respirator sindromi (MERS) ni tekshirishlarning ko‘rsatishicha, kasallik belgilari paydo bulgandan 2 hafta o‘tib virusga karshi antitanacha 80- 100% bemorlarda aniqlanadi [2,5]. PZR usulida salbiy natija kayd etilganda va kasallik belgilari mavjud bo‘lmagan holda IgG va/yoki IgM antitanachani aniqlanishi COVID-19 pandemiyasi masshtabini anik baholashda serologik tekshirishlar muhim axamiyatga ega ekanligini yana bir tasdiklaydi [6,7]. Virusga karshi V-xujayraviy immunitet nafakat birlamchi yukishidan, balki kaytadan yukishidan ham himoya kilish uchun xizmat kiladi. Infeksiyadan organizm tozalangandan so‘ng, kasallikning o‘tkir va sog‘ayish boskichlarida paydo bo‘ladigan plazmatik xujayralar serologik xotirani chaqirib antitanacha ishlab chikishda davom etadi. Xozirgi vaqtda SARS-CoV-2 ga gumoral javob to‘liq o‘rganilmagan.

Yosh bolalarni COVID-19 ga qarshi emlashni bir qancha afzallliklari bor bo‘lib, kasallanishlarning og‘ir holatlarini oldini oladi. Shu bilan birga

ijtimoiy, jismoniy, ruxiy jihatdan afzalliklarga ega bo‘lib bolalarni maktab darslaridan qolib ketmasliklarini ta’minlaydi, aholi orasida SARS-CoV-2 bilan

kasallanishni boshqa guruh kishilari orasida tarqalmasligiga va keyinchalik kamayishiga sabab bo‘ladi.

Odatda bolalarda kattalarga qaraganda kasallik yengilroq kechsada, nimjon bolalarda turli asoratlarga sabab bo‘lishi mumkin. Omikron varianti (B.1.1.529) yetakchilik qilayotgan hozirgi epidemiologik vaziyatda 5-18 yoshli bolalarni emlash muhim ahamiyatga egadir.

Tadqiqot maqsadi. Bolalar jamoasi orasida JSSTning bayonnomasiga va Sanitariya-epidemiologik osoyishtalik va jamoat salomatligi xizmatining 02.10.2022 yildagi 04.8.340-sonli kursatma xatiga muvofik BNT162b2 (Pfizer–BioNTech) vaksinasining 1- xamda 2-dozasi yuborilgandan so‘ng gumoral immunitetning shakllanish dinamikasi va saqlanish davomiyligini baholash.

Materiallar va usullar retrospektiv populyatsion taxlilda biz SARS-CoV-2ga qarshi vaksinaning samaradorligini baholadik.

Toshkent shaxrida istiqomat qiluvchi 584 181nafar bolalarning 7158 nafari 2 ta doza vaksina bilan emlangan, emlash amalga oshirilgan 16 oilaviy poliklinikalardagi 205 nafar bolalarning kon zardobi namunalarida SARS-CoV-2 ga karshi IgG va IgM sinfiga mansub antitanachalar (At) ni aniqlash buyicha tadkikot ishlari o‘tkazdik.

Tekshirish jarayoni MAGLUMI X3 seriyasidagi to‘lik avtomatlashtirilgan xemilyuminessent immunoanalizator (Snibe (Xitoy) kompaniyasining tibbiy uskunasi) yordamida immunoxemilyuminessent taxlili (IXLT) usulida amalga oshirildi. IgM va IgG ni aniqlash MAGLUMI 2019-nCoV IgM va MAGLUMI 2019-nCoV IgG test-tizimlarida bajarildi. Namuna olish uchun konservantlar solingan maxsus probirkalardan foydalanildi, namuna olingan zahotiyok sovutgichga solinib, avtotransport vositasida +2+8 daraja xaroratda faoliyatni amalga oshirish uchun tegishli litsenziya va guvohnomaga ega bulgan laboratoriyaga yetkazib berildi va ushbu laboratoriyada kon zardobi ajratilgandan keyin IgM xamda IgG ga tekshirildi.

Natijalar.

2022 yil 15 noyabr oyiga kelib tadqiqotimizdagi Toshkent shaxrida yashovchi 5-11yoshli 584 181nafar bolalardan 7238 nafari 1 doza ni, 7158 nafari 2 dozani qabul qilgan, buster doza bilan bolalar emlanmagan, 576 946 nafar bola umuman emlanmagan.

Tadqiqot davrida bolalar orasida COVID-19 infeksiyasi bilan 3981 nafar bolaning kasallanish holati aniqlangan, shulardan 12 nafarida kasallik og‘ir kechgan.

(56 nafar bola gospitalizatsiya qilingan 12 nafari intensiv terapeya bo‘limiga joylashtirilgan)

Tadqiqotimini 2022 yil 15 noyabr oyidan boshladik va 28 kundan keyin bolalar mRNK li BNT162b2 vaksinasini 2 dozasini oldilar.

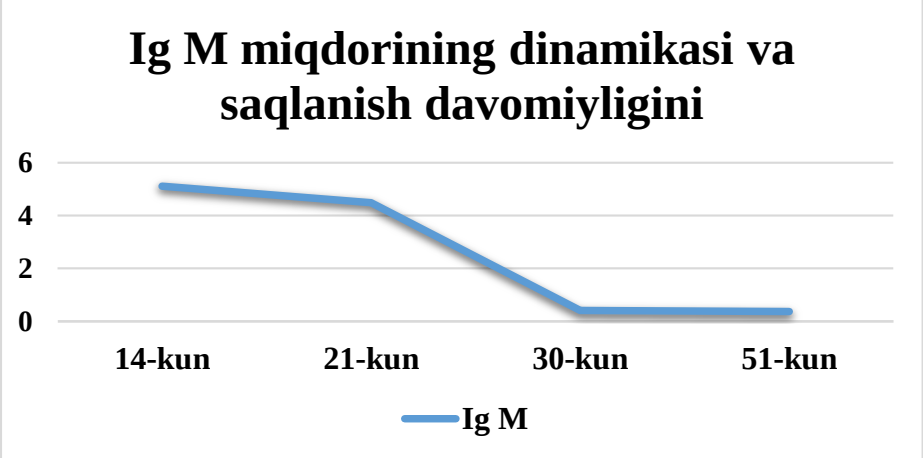
Immunitet xolatiga bogliq ravishda populyatsiyada seroprevalentlikni baholash, antitanachalarning saqlanish muddatini dinamikada o‘rganish infeksiyani qayta yuqtirish xavfi yuqori bulgan guruxlarni ajratish xamda birinchi navbatda emlash

zarur bulgan kontingentlarni aniqlash maqsadida 205 nafar bolaning qon zardobi namunalarida SARS-CoV-2 ga qarshi IgG va IgM sinfiga mansub At larni aniklash buyicha tadqiqot ishlari o‘tkazildi. Tadqiqot ishlari 2022 yilning noyabr oyidan 2023 yilning yanvar oyigacha olib borildi.

COVID-19 ga qarshi 2 bosqichli emlash amalga oshirildi,tadqiqotda qatnashgan bolalarning barchasi soglom bo‘lib, ular emlashdan oldin polimeraza zanjir reaksiyasi (PZR) usulida SARS-CoV-2 genomi va immunoxemilyuminessent taxlili (IXLT) usulida qonda SARS-CoV-2 ga qarshi AT mavjudligini aniklash buyicha tekshiruvdan o‘tkazildi. Tekshiruvda yuqori nafas yullarida SARS-CoV-2 virusining RNK si va mikdoriy IXLT da S-RBD antigeni epitopiga antitanacha aniklangan bolalar tadqiqot guruxiga kiritilmadi.

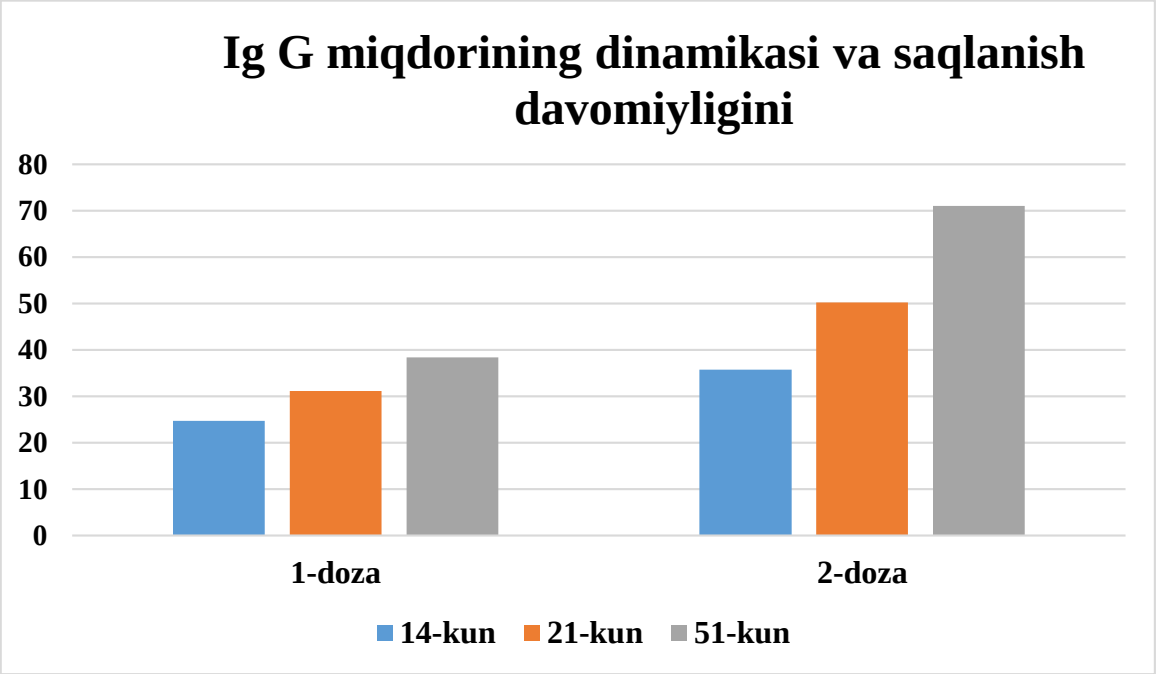
Mikdoriy IXLT da S-RBD antigeni epitopiga antitanachalar aniklandi. At miqdori dinamikada vaksinaning 1-komponenti kiritilgandan so‘ng 21-kun va 2-komponenti kiritilgandan so‘ng 14-kunda, 30-kunda xamda 2-oyda baholandi. Natijalar shuni ko‘rsatdiki, emlangan bolalar qonida vaksinaning 1-komponenti kiritilgandan keyin 21-kun SARS-CoV-2 ga qarshi IgM-At 100% holatda aniklandi (pozitivlik koeffitsientining o‘rtacha qiymati – 4,94), 30-kunda esa SARS-CoV-2ga qarshi IgM miqdorining tabiiy kamayishi kuzatildi (pozitivlik koeffitsientining o‘rtacha siymati - 0,43).

Shuni ta’kidlash joizki, emlashning 21-kunida IgM ning ko‘rsatkichlarida sezilarli darajada pasayishi aniqlandi va 51-kun da ushbu ko‘rsatkichlar tenglashdi.



SARS-CoV-2 ga qarshi IgG-At ning mikdori buyicha kuyidagilar aniklandi: 1-komponent bilan emlangandan so‘ng 21-kun SARS-CoV-2 ga qarshi IgG mikdorining pastligi emlanganlarning 31,2% da aniklandi (p=8) (pozitivlik koeffitsient – 24,07) IgG-At ning mikdori 2-chi komponent bilan emlashdan keyin ancha oshdi va 30 kungacha o‘zgarmadi (pozitivlik koeffitsientining o‘rtacha qiymati - 35,87).

Bunda, emlashdan keyin 51-kun serokonversiya darajasi 100% ni tashkil etdi. Emlanganlarning bir qismida (p=32; kuzatuvdagilarning 71,1%) emlashdan keyin 30-kunda 14-kundagiga nisbatan IgG ning miqdorining oshishi aniklandi. 1- va 2-komponentlar bilan emlashdan keyin 21-kunda IgM va IgG ning mikdori o‘rtasida 0,69 dan 0,29 gacha (r <0,05) bevosita ijobiy korrelyatsion bogliklik aniklandi, birlamchi va ikkilamchi immun javobning rivojlanish mexanizmiga ko‘ra bu xolat qonuniyatdir. Th 2 katori buyicha yuzaga keladigan gumoral immun javob dinamikasi va anti SARS-CoV-2 At ning aylanib yurish davomiyligida sezilarli geterogenlik aniklandi.



Bunday xilma-xillikning mexanizmi har bir odam organizmining begona agentga individual javob qaytarishi bilan bog‘lik bo‘lishi mumkin va geterogenlik SARS-CoV-2 ga qarshi At darajasida kuzatiladi. Bu holat virusning ma’lum tuzilmalari (SRBD ga, N-nukleoproteidga, matriksga va boshkalar) ga immun javobning rivojlanish dinamikasi va shakllanishi jarayonida At mikdorining o‘zgarishi bilan boqliq bo‘lishi mumkin.

Javob qaytarishi bilan boglik bo‘lishi mumkin va geterogenlik SARS-CoV-2 ga qarshi At darajasida kuzatiladi. Bu holat virusning ma’lum tuzilmalari (SRBD ga, N-nukleoproteidga, matriksga va boshkdlar) ga immun javobning rivojlanish dinamikasi va shakllanishi jarayonida At mikdorining o‘zgarishi bilan bog‘liq bo‘lishi mumkin.

Xulosa:

1. Emlangan bolalar qonida vaksinaning 1-komponenti kiritilgandan keyin 21-kun SARS-CoV-2 ga qarshi IgM-At 100% holatda aniklandi (pozitivlik koeffitsientining o‘rtacha qiymati – 4,94), IgG mikdorining pastligi emlanganlarning 31,2% da aniklandi (p=8) (pozitivlik koeffitsient – 24,07);

2. 2-chi komponent bilan emlashdan keyin 30-kunda esa SARS-CoV-2ga qarshi IgM miqdorining tabiiy kamayishi kuzatildi (pozitivlik koeffitsientining o‘rtacha siymati - 0,43), IgG-At ning mikdori ancha oshdi va 30 kungacha o‘zgarmadi (pozitivlik koeffitsientining o‘rtacha qiymati - 35,87).

3. Emlanganlarning bir qismida (p=32; kuzatuvdagilarning 71,1%) emlashdan keyin 30-kunda 14-kundagiga nisbatan IgG ning miqdorining oshishi aniklandi.

4. 1 va 2-komponentlar bilan emlashdan keyin 21-kunda IgM va IgG ning mikdori o‘rtasida 0,69 dan 0,29 gacha (r <0,05) bevosita ijobiy korrelyatsion bogliklik aniklandi

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