COVID-19 O‘TKAZGAN BOLALARDA REABILITATSIYA SAMARADORLIGI

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ANNOTATSIYA. *Ushbu maqolada COVID-19 infeksiyasini o‘tkazgan bolalarda uchraydigan jismoniy, psixologik va funksional asoratlar, hamda ularni bartaraf etishga qaratilgan reabilitatsiya choralarining samaradorligi tahlil qilinadi. Pandemiyadan keyingi davrda bolalar salomatligida kuzatilayotgan “Long COVID” sindromi, mushak-skelet tizimi zaifligi, nafas olish tizimi muammolari, kognitiv va emotsional buzilishlar bo‘yicha ilmiy adabiyotlar tahlil qilinadi. Reabilitatsiya jarayonida qo‘llanilayotgan zamonaviy uslublar – fizioterapiya, respirator reabilitatsiya, psixologik qo‘llab-quvvatlash, nutq va harakat terapiyalari kabi yo‘nalishlar samaradorligi yoritiladi.*

Kalit so‘zlar: *COVID-19, bolalar reabilitatsiyasi, post-COVID sindromi, fizioterapiya, psixologik yordam, jismoniy tiklanish, nafas mashqlari, tibbiy yondashuvlar.*

EFFECTIVENESS OF REHABILITATION IN CHILDREN RECOVERING FROM COVID-19

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ABSTRACT. *This review article analyzes the physical, psychological, and functional complications observed in children who have recovered from COVID-19, as well as the effectiveness of rehabilitation measures aimed at addressing these issues. Scientific literature on post-COVID syndrome (“Long COVID”) in children, musculoskeletal weakness, respiratory problems, cognitive and emotional disturbances is reviewed. The article highlights the effectiveness of modern rehabilitation approaches, including physiotherapy, respiratory rehabilitation, psychological support, speech and motor therapies.*

Keywords: *COVID-19, pediatric rehabilitation, post-COVID syndrome, physiotherapy, psychological support, physical recovery, breathing exercises, medical approaches.*

ЭФФЕКТИВНОСТЬ РЕАБИЛИТАЦИИ У ДЕТЕЙ, ПЕРЕНЁСШИХ COVID-19

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АННОТАЦИЯ. *В данном обзорном статье рассматриваются физические, психологические и функциональные осложнения у детей, перенесших инфекцию COVID-19, а также эффективность реабилитационных мероприятий, направленных на их устранение. Анализируются научные данные о постковидном синдроме ("Длительный COVID ") у детей, слабости опорно-двигательного аппарата, нарушениях дыхательной, когнитивной и эмоциональной функций. Особое внимание уделено современным методам реабилитации, таким как физиотерапия, дыхательная реабилитация, психологическая поддержка, речевая и двигательная терапии.*

Ключевые слова: *COVID-19, детская реабилитация, постковидный синдром, физиотерапия, психологическая помощь, физическое восстановление, дыхательная гимнастика, медицинские подходы.*

COVID-19 pandemiyasi dunyo bo‘ylab sog‘liqni saqlash tizimlari, xususan, pediatriya sohasiga keskin ta’sir ko‘rsatdi va yangi chaqiriqlarni yuzaga keltirdi. Bolalar odatda infeksiyani yengil kechirishiga qaramay, so‘nggi tadqiqotlar post-COVID sindromining bolalar orasida ham keng tarqalganini ko‘rsatmoqda (6,7). Bu sindrom uzoq muddatli charchoq, kognitiv buzilishlar e’tibor pasayishi, xotira buzilishi, nafas qisilishi, uyqu buzilishi, asab tizimi va ruhiy holatdagi o‘zgarishlarni o‘z ichiga oladi (2,24). Natijada, bolalarning jismoniy sog‘ligi va psixologik barqarorligi buzilib, ularning kundalik hayoti, ta’lim jarayoni va ijtimoiy aloqalari salbiy ta’sirga uchraydi.

Bunday murakkab simptomatikaning mavjudligi reabilitatsiya xizmatlariga bo‘lgan talabni oshirmoqda. Reabilitatsiya bolalar salomatligini tiklash, normal rivojlanishni ta’minlash hamda ularni jamiyatga muvaffaqiyatli qaytarishda muhim vositadir (20,22). Shu bilan birga, reabilitatsiya jarayoni nafaqat jismoniy, balki psixologik va ijtimoiy yo‘nalishlarni ham qamrab olishi lozim, chunki post-COVID holatlarning ko‘pligi multidisiplinar yondashuvni talab qiladi (12).

Jahon sog‘liqni saqlash tashkiloti (JSST) va boshqa yetakchi tashkilotlar COVID-19dan keyingi reabilitatsiya bo‘yicha maxsus protokollar ishlab chiqmoqda (4,21). Shu bilan birga, yetakchi mamlakatlarda — AQSh, Buyuk Britaniya, Germaniya va Italiya kabi davlatlarda bolalar uchun maxsus rehabilitatsiya markazlari tashkil etilib, standartlashtirilgan yondashuvlar qo‘llanilmoqda (13,17). Ammo rivojlanayotgan mamlakatlar, jumladan O‘zbekiston kabi mintaqalarda bu

borada yetarli ilmiy asoslar va klinik amaliyotlar rivojlanmagan bo‘lib, shuningdek resurslar va malakali kadrlar yetishmasligi jiddiy muammo hisoblanadi (1,15,16).

Pandemiyaning ijtimoiy-iqtisodiy oqibatlari bolalar sog‘lig‘iga sezilarli ta’sir ko‘rsatdi. Uzoq muddatli maktab ta’limining onlayn shaklda bo‘lishi, oilalardagi stress, ijtimoiy izolyatsiya va moliyaviy qiyinchiliklar bolalarda ruhiy kasalliklar, xususan depressiya va bezovtalik holatlarining ko‘payishiga olib keldi (9,14). Bu esa reabilitatsiya jarayonida psixologik yordam va ijtimoiy qo‘llab-quvvatlashni yanada muhimroq qilmoqda.

Shuning uchun ham O‘zbekiston sog‘liqni saqlash tizimida bolalar uchun post-COVID davridagi kompleks reabilitatsiya strategiyalarini ishlab chiqish va joriy etish muhim vazifaga aylandi. Bu nafaqat tibbiy yordam sifatini oshirishga, balki bolalar salomatligi, ularning ta’lim va ijtimoiy faolligini tiklashga xizmat qiladi. Shuningdek, mazkur yo‘nalishdagi ilmiy-tadqiqotlar milliy sog‘liqni saqlash tizimining barqarorligini ta’minlashda, pediatriya va reabilitatsiya sohalarida innovatsiyalarni joriy etishda asosiy omil bo‘lib xizmat qiladi (3,8,21).

COVID-19 infeksiyasidan so‘ng bolalarda yuzaga keladigan funksional cheklovlar, mushaklar zaifligi, psixologik buzilishlar, kognitiv muammolar va nafas yetishmovchiligi ularning hayot sifati va ijtimoiy faolligiga salbiy ta’sir ko‘rsatadi. Shu sababli reabilitatsiya jarayonida ko‘p tarmoqli yondashuv muhim ahamiyat kasb etadi. COVID-19’ni o‘tkazgan bolalar uchun reabilitatsiya usullari tanlanayotganda individual yondashuv, bolaning yoshiga moslik, kasallik kechish darajasi va mavjud bo‘lgan asoratlar inobatga olinadi.

Nafas olish reabilitatsiyasi (pulmonar reabilitatsiya)da COVID-19 bolalarda eng ko‘p o‘pka faoliyatiga ta’sir etgani sababli, nafas olishni tiklash reabilitatsiya jarayonining asosiy yo‘nalishlaridan biridir. Nafas olish mushaklarini faollashtirish, alveolyar ventilatsiyani yaxshilash va bronxial drenajni normallashtirish uchun maxsus mashqlar qo‘llaniladi. Diafragmatik nafas olish texnikasi, spirometriya asosida mashg‘ulotlar qo‘llaniladi. 2021-yilda bolalar uchun moslashtirilgan pulmonar reabilitatsiya dasturlari 4 haftalik amaliyotdan so‘ng o‘pka sig‘imini 20–30% gacha yaxshilagan (19).Tadqiqotda mashqlar o‘yinga asoslangan bo‘lib, bolalar motivatsiyasini oshirishga yordam bergan.

Fizioterapiya va mushak-skelet tizimi reabilitatsiyasida uzoq yotib qolish (immobilizatsiya), faoliyatdan cheklanish va infeksiya organizmga ta’sir qilgani tufayli mushaklar zaiflashadi, mushak-tonus buziladi. Fizioterapiya bu holatlarni tuzatishda yumshoq to‘qimalarni massaj qilish, past kuchli elektroterapiya, individual jismoniy mashqlar dasturi, yurish-qadam tashlashni tiklash (gait training), qomatni to‘g‘rilash mashqlari qo‘llaniladi. COVID-19 o‘tkazgan bemorlarda mushaklarning tonusini tiklashda 6 hafta davomida davom etgan past intensivlikdagi mashqlarni tavsiya qilgan (18).Tadqiqotda ushbu yondashuv bolalarda charchoq sindromi va

mushak kuchsizligining kamayishiga olib kelgan**.** Yo‘ldosheva G.X. (2022) ma’lumotlariga ko‘ra, 6 haftalik reabilitatsiya kursi o‘tkazilgan 120 nafar bolada umumiy funksional faollik 35–42% ga yaxshilangan (23).

Kognitiv va neuropsixologik reabilitatsiyasida COVID-19ni yengil o‘tkazgan bolalarning o‘zida ham e’tibor pasayishi, qisqa muddatli xotira zaiflashuvi, emotsional labillik kabi belgilar kuzatiladi. Kognitiv-mashq terapiyasi (logik mashqlar), logopedik muolajalar, emotsional ifoda terapiyasi (art-terapiya, musiqiy terapiya), psixopedagogik qo‘llab-quvvatlash ishlatiladi. Bolalarda kognitiv yetishmovchilikni tiklashda erta bosqichda boshlangan psixologik reabilitatsiya seanslari 3 oy ichida sezilarli ijobiy natijalar bergan (7).

Telemeditsina va raqamli reabilitatsiya texnologiyalarida COVID-19 davrida an’anaviy tibbiy xizmatlar cheklanganligi sababli telemeditsina asosida reabilitatsiya keng joriy etildi. Videoaloqa orqali o‘tkaziladigan mashg‘ulotlar, mobil ilovalar yordamida nazorat qilinadigan mashqlar, virtual jismoniy terapiya seanslari — bularning barchasi pandemiya sharoitida juda foydali bo‘ldi. Telemeditsina yordamida uy sharoitida o‘tkazilgan reabilitatsiya mashg‘ulotlari, ayniqsa, yurish va qomat tiklash bo‘yicha dasturlar katta ijobiy samara bergani isbotlangan (5).

COVID-19 infeksiyasidan so‘ng bolalarda reabilitatsiya usullarining samaradorligi bo‘yicha o‘tkazilgan tadqiqotlar natijalari bir nechta asosiy jihatlarni ko‘rsatdi. Pulmonar reabilitatsiya samaradorligi Wang va hamkasblari (2021) tomonidan olib borilgan tadqiqotda 60 nafar COVID-19’ni o‘tkazgan bolalar ishtirokida 4 haftalik nafas olish mashqlari dasturi qo‘llanildi. Natijalarga ko‘ra, o‘pka sig‘imi va funksional nafas olish ko‘rsatkichlari o‘rtacha 25% gacha yaxshilandi, bu esa nafas olish mushaklarining samarali tiklanishini tasdiqlaydi(18). Fizioterapiya ta’siri 6 haftalik fizioterapiya dasturini o‘tkazildi, 45 bolada mushak kuchi va chidamlilik o‘rtacha 30% gacha oshdi. Shuningdek, charchoq darajasi 40% gacha kamaygan, bu esa bolalarning jismoniy holatining sezilarli yaxshilanishini ko‘rsatadi (18). Kognitiv mashqlar bo‘yicha 3 oylik dasturda 50 bola qatnashdi. Diqqat va xotira ko‘rsatkichlari o‘rtacha 35% gacha yaxshilandi ($p < 0.01$), shuningdek, emotsional holat bo‘yicha ham ijobiy o‘zgarishlar kuzatildi (7). telemeditsina usuli yordamida 40 bolada reabilitatsiya amalga oshirildi. Natijalar shuni ko‘rsatdiki, uy sharoitida masofadan boshqariladigan mashqlar samaradorligi an’anaviy muolajalar bilan taqqoslaganda 90% darajada teng bo‘lib, bolalarning faollik darajasi oshdi (5). Oilaviy ishtirok asosida o‘tkazilgan reabilitatsiyada bolalarda depressiya va xavotir simptomlari 50% ga kamaygani aniqlangan ($p < 0.01$). Psixologik yordam va oilaning faol yordami reabilitatsiya natijalariga katta ta’sir ko‘rsatishini tasdiqlaydi (6).

Telemeditsina yordamida uy sharoitida olib borilgan reabilitatsiya dasturlari an’anaviy usullar bilan deyarli teng samaradorlikka ega bo‘lib, pandemiya sharoitida

bemorlarga sifatli va uzluksiz yordam ko‘rsatishni ta’minlaydi (5).Bu esa innovatsion texnologiyalarni joriy etish zarurligini ta’kidlaydi.

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