

# БИОМЕДИЦИНА ВА АМАЛИЁТ ЖУРНАЛИ

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# БИОМЕДИЦИНА ВА АМАЛИЁТ ЖУРНАЛИ


ЖУРНАЛ БИОМЕДИЦИНЫ И ПРАКТИКИ | JOURNAL OF BIOMEDICINE AND PRACTICE

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## EFFECTIVENESS OF MIRROR THERAPY IN EARLY REHABILITATION AFTER STROKE: CLINICAL OBSERVATION

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### ANNOTATION

**Aim of the research:** To evaluate the effectiveness of mirror therapy in the early stage of stroke rehabilitation. **Materials and methods:** The study involved 9 patients suffering from upper limb motor function impairment following a stroke. **Results:** Out of 9 patients, 7 showed improvement, with their condition progressing from plegia to paresis. In 2 patients, the intervention was unsuccessful due to visual and cognitive impairments, which prevented full implementation of mirror therapy. **Conclusion:** Mirror therapy is an effective method for reducing upper limb plegia during the early stage of post-stroke rehabilitation.

**Keywords:** early rehabilitation, mirror therapy, neuroplasticity, mirror neuron system, sensorimotor feedback, neurorehabilitation, cognitive impairments.

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## ОЦЕНКА ЭФФЕКТИВНОСТИ ЗЕРКАЛЬНОЙ ТЕРАПИИ В РАННЕЙ РЕАБИЛИТАЦИИ ПАЦИЕНТОВ ПОСЛЕ ИНСУЛЬТА: ДАННЫЕ КЛИНИЧЕСКОГО НАБЛЮДЕНИЯ

### АННОТАЦИЯ

**Цель исследования:** Оценить эффективность зеркальной терапии на раннем этапе реабилитации после инсульта. **Материалы и методы:** В исследовании приняли участие 9 пациентов, страдающих нарушением моторной функции верхней конечности после инсульта. **Результаты:** Из 9 пациентов у 7 наблюдалось улучшение — состояние верхней конечности изменилось от плегии к парезу. У 2 пациентов терапия оказалась неэффективной из-за нарушений зрительных и когнитивных функций, что затруднило полноценное проведение зеркальной терапии. **Заключение:** Зеркальная терапия является эффективным методом снижения плегии верхней конечности на раннем этапе постинсультной реабилитации.

**Ключевые слова:** ранняя реабилитация, зеркальная терапия, нейропластичность, система зеркальных нейронов, сенсомоторная обратная связь, нейрореабилитация, когнитивные нарушения.

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## INSULTDAN KEYINGI ERTA REABILITATSIYADA OYNA TERAPIYASINING SAMARADORLIGI: KLINIK KUZATUV

### ANNOTATSIYA

**Tadqiqot maqsadi:** Insultdan keyingi erta rehabilitatsiya bosqichida oyna terapiyasining samaradorligini baholash. **Materiallar va usullar:** Tadqiqotda insultdan keyingi qo'l motor funksiyasi buzilgan 9 nafar bemor ishtirok etdi. **Natijalar:** 9 nafar bemordan 7 nafarida ijobiy o'zgarish kuzatildi - ularning qo'llari plegiyadan parez holatiga o'tdi. 2 nafar bemorda esa, ko'rish va kognitiv funksiyalar buzilganligi tufayli oyna terapiyasi to'laqonli sifatda amalga oshirilmagan va shu sababli muolaja kutilgan natijani bermagan. **Xulosa:** Oyna terapiyasi insultdan keyingi erta rehabilitatsiya davrida qo'ldagi plegiyani kamaytirishda samarali usul hisoblanadi.

**Kalit so'zlar:** erta rehabilitatsiya, oyna terapiyasi, neyroplastiklik, oyna neyron tizimi, sensor-motor aloqasi, neyrorreabilitatsiya, kognitiv buzilishlar.

**Kirish. Insult** - bu bosh miya qon aylanishining o'tkir buzilishi bilan kechadigan jarayon bo'lib, bunda miya hujayralari shikastlanishi yoki nobud bo'lishi mumkin. Insultni asosan 2 guruhga bo'lishimiz mumkin [9]. Ular: ishemiik va gemorragik. Ishemiik insultda bosh miya arteriyalaridan biri yoki bir nechtasining tromb tiqilishi natijasida berkilib qolishi va qon oqimi to'xtagan soxa hujayralar nekrozini ko'rishimiz mumkin [14]. Gemorragik insult esa qon tomirlarning yoki anevrizmaning yuqori qon bosimi natijasida yorilishi va undan qonning atrof to'qimalarga sizib chiqishini anglatadi [12].

Insultdan so'ng bemorlarda turli darajadagi **nevrologik, nutqiy, kognitiv va motor buzilishlar** uchraydi. Ushbu asoratlar **zararlangan miya sohasining joylashuvi, hajmi va insultning og'irlik darajasiga** bog'liq bo'ladi [8, 13]. Harakat buzilishlari - bu insultdan keyingi eng keng tarqalgan asorat bo'lib, barcha bemorlarning 80 - 90% da uchraydi. Asosiy ko'rinishlari: Gemiplegiya - tananing bir yarmida to'liq falajlik ya'ni qo'l va oyoq harakatining yo'qolishi. Gemiparez - bir tomondagi harakat kuchining qisman pasayishi. Spastiklik - mushak tonusining oshishi, bu esa harakatlarni cheklaydi. Ataksiya - harakatlarning nomutanosibligi. Yelka subluksatsiyasi - yelka bo'g'imining mushak tonusi pasayganligi tufayli qo'lning osilib turishi [3, 6].

Insultdan keyin bemorlar neyrorreabilitatsiya xizmatiga muhtoj bo'lishadi. Neyrorreabilitatsiya - bu, markaziy asab tizimi zararlanishidan so'ng, xususan insult, bosh miya shikastlanishi yoki neyrodegenerativ kasalliklardan keyin, nevrologik funksiyalarni tiklashga qaratilgan kompleks, ko'p bosqichli tibbiy jarayon hisoblanadi [4, 5]. Uning asosiy maqsadi - bemorning yo'qotilgan motor, sensor, nutq, kognitiv va psixologik funksiyalarini imkon qadar tiklash hamda mustaqil hayot faoliyatiga qaytarishdir. Neyrorreabilitatsiya tibbiyot, fizioterapiya, psixologiya, nutq terapiyasi va ijtimoiy rehabilitatsiya sohalarini birlashtiruvchi multidisiplinar yondashuvni talab qiladi. Neyrorreabilitatsiyaning samaradorligi miya plastiklik xususiyatiga asoslanadi [1, 2].

Neyroplastiklik - bu, miya neyronlari va neyron tarmoqlarining strukturaviy va funksional qayta tashkil topish qobiliyatidir [1, 7]. Insultdan keyin saqlanib qolgan sog'lom miya sohalarini zararlangan hudud funksiyasini o'z zimmasiga olishi mumkin. Bu jarayon quyidagi mexanizmlar orqali yuz beradi:

Sinaptogenez - yangi sinapslarning hosil bo'lishi,

Dendritik o'sish - neyronlararo aloqa tarmoqlarining kengayishi,

neyron tizimi - kuzatilgan harakatlarni tasavvur qilish orqali motor yo'llarning faollashuvi.

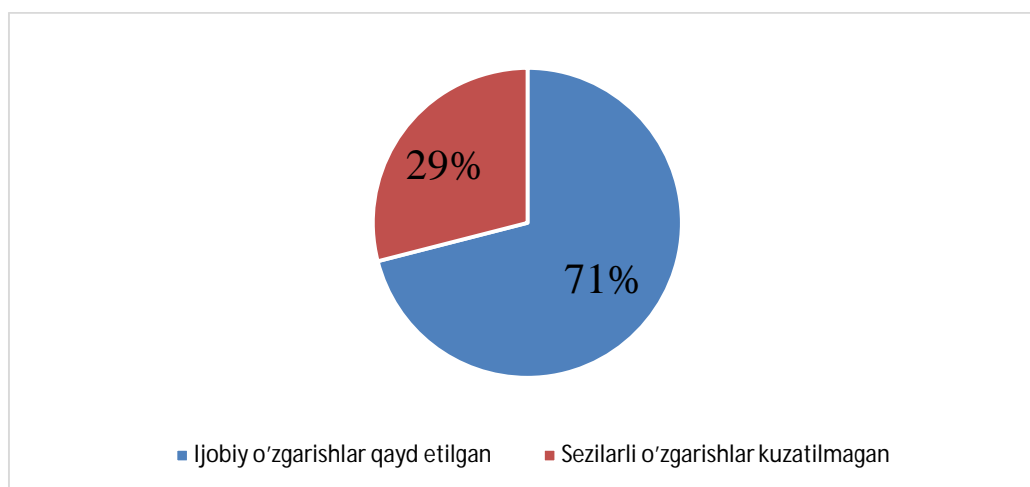
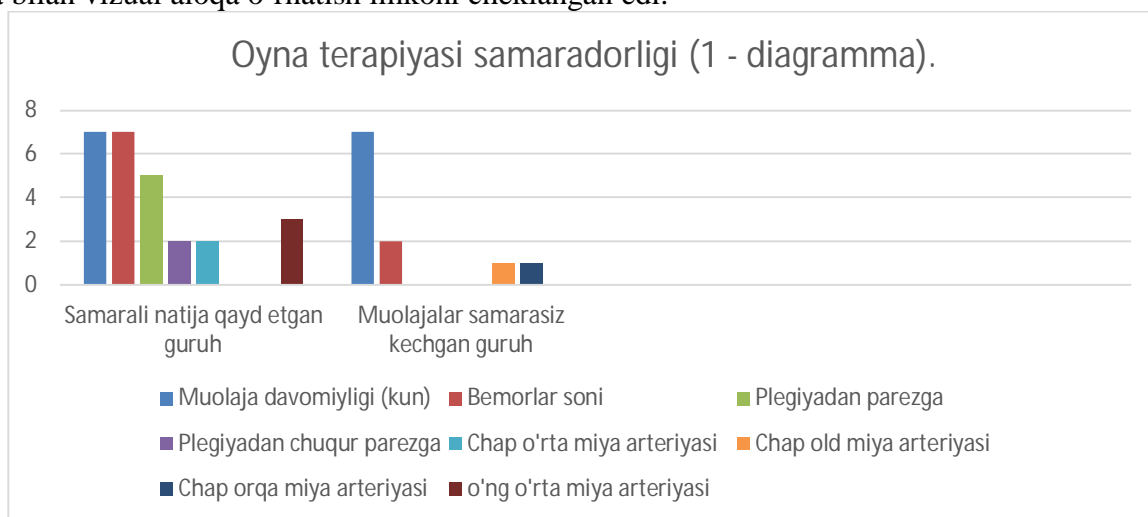
Kortikal qayta tashkil topish - miya po‘stlog‘ining yangi funksional xaritasi shakllanishi [8, 13].

**Materiallar va usullar:** Tadqiqot Samarqand shahridagi “ReaMed” klinikasida o‘tkazilgan bo‘lib, insultning erta reabilitatsiya bosqichidagi 9 nafar bemor tadqiqotga jalb etildi. Bemorlar tanlash mezoniga ko‘ra; insultdan keyingi reabilitatsiyaning erta davridagi, qo‘l motor funksiyasi buzilishlari (parez hamda plegiya) mavjud bo‘lgan va xushi ravshan kishilar tanlandi.

Oyna terapiyasi sog‘lom qo‘l bilan bajarilayotgan harakatlarni oyna orqali kuzatish hamda zararlangan qo‘lda ushbu harakatni vizual tarzda “his qilish” tamoyiliga asoslangan mashqlar orqali amalga oshirildi. Reabilitolog tomonidan bemorning har ikkala qo‘liga bir xil taktil, termik ta‘sir ko‘rsatildi va bir xil passiv harakatlar amalga oshirildi. Har bir bemorda mashg‘ulotlar 7 kun davomida, har kuni bir necha seans tarzida o‘tkazildi. Fizioterapiya, massaj va umumiy reabilitatsion muolajalar bilan birgalikda olib borildi (1 - diagramma).

**Natijalar:** Oyna terapiyasi yakunida bemorlarning 7 nafari (77.8%) da ijobiy klinik o‘zgarishlar qayd etildi. Dastlab plegiya holatida bo‘lgan qo‘llarda qisman motor faoliyat tiklanib, parez shakliga o‘tish kuzatildi. Harakat amplitudasi va mushak tonusi sezilarli oshganligi aniqlandi. Shuningdek, 2 bemorda (22.2%) sezilarli klinik ijobiy o‘zgarishlar qayd etilmadi (1 – rasm). Tahlil natijalariga ko‘ra:

- Bir nafar bemorda miyaning frontal sohasining zararlanishi sababli diqqatni jamlash va oyna orqali mashqni bajarishda qiyinchilik kuzatildi.
- Yana bir bemorda ensa soha zararlanishi natijasida ko‘rish nuqsoni mavjud bo‘lib, oyna bilan vizual aloqa o‘rnatish imkoni cheklangan edi.



1-rasm.

Oyna terapiyasi insultdan keyingi motor tiklanishni tezlashtirishda yordamchi, ammo klinik jihatdan muhim ahamiyatga ega usul ekanligini qayd etildi. Tadqiqot natijalari shuni tasdiqlaydiki, terapiya samarasi bemorning kognitiv holati, ko'rish funksiyasi va mashqni to'g'ri bajarish kabi omillarga ham bevosita bog'liq.

Insult bemorlarda bosh miyaning frontal va ensa sohalarning zararlanishi oyna terapiyasining to'liq natija berishiga to'sqinlik qilishi mumkin. Shuning uchun ushbu usulni qo'llashdan avval bemorning neyropsixologik va ko'rish qobiliyatini baholash maqsadga muvofiq [10, 11].

Kelgusida ko'proq ishtirokchilar jalb qilingan, standart baholash mezonlari (masalan, Fugl-Meyer Assessment, Barthel Index) asosida olib boriladigan tadqiqotlar oyna terapiyasining ilmiy asoslangan samaradorligini yanada chuqurroq aniqlash imkonini beradi.

**Xulosa:** Statsionar sharoitda oyna terapiyasi insultdan keyingi erta reabilitatsiyada qo'l harakatlarini tiklashda ijobiy natija beradi. Undan reabilitatsiya jarayoninig boshqa muolajalariga bilan birga foydalanish bir qator samarali deb ayta olamiz. Biroq, usulning samaradorligi bemorning kognitiv va vizual imkoniyatlariga ham bevosita bog'liq. Bu esa har bir bemorga individual reabilitatsiya dasturini tuzish paytida inobatga olinishi kerak bo'lgan bir muhim jihatdir.

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