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ORCID iD: 0000-0001-5488-5316

Yayın Koordinatörü
Yasin DİLMEN

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ÖNSÖZ

Fizyoterapi ve rehabilitasyon alanı, bilimsel ilerlemeler, teknolojik yenilikler ve değişen klinik gereksinimler doğrultusunda sürekli olarak gelişmekte ve çeşitlenmektedir. Bu dinamik yapı, fizyoterapistlerin yalnızca temel yaklaşımlarla yetinmeyip, farklı hasta gruplarına yönelik güncel ve kanıta dayalı uygulamaları da etkin biçimde kullanmalarını gerekli kılmaktadır. Hastalıkların klinik özelliklerindeki çeşitlilik ve hasta ihtiyaçlarının giderek daha karmaşık hâle gelmesi, alanda özelleşmiş bilgi ve becerilere duyulan ihtiyacı artırmıştır. Bu doğrultuda fizyoterapistler, farklı klinik tablolar ve alt disiplinler çerçevesinde uzmanlaşarak mesleki rollerini genişletmektedir. "Fizyoterapide Özel Konular" başlıklı bu kitap, bu gelişim sürecine katkı sunmak amacıyla fizyoterapinin farklı alt alanlarında öne çıkan güncel ve özgün konuları bir araya getirmektedir.

Bu eser, farklı hasta profilleri ve klinik gereksinimler doğrultusunda fizyoterapi ve rehabilitasyon alanında kullanılan güncel, kanıta dayalı ve yenilikçi yaklaşımları bütüncül bir bakış açısıyla ele almaktadır. Ayrıca kitapta, alanın teknolojiyle bütünleşen güncel yapısını yansıtan uygulamalara yer verilmektedir. Kitapta yer alan her bölüm, ilgili alanda uzmanlaşmış akademisyenler tarafından bilimsel kanıtlar, güncel literatür ve klinik deneyimler ışığında hazırlanmıştır. Disiplinlerarası bir yaklaşımı temel alan bu kitap, fizyoterapinin yalnızca tedavi edici yönünü değil; aynı zamanda koruyucu, geliştirici ve yaşam kalitesini artırıcı rolünü de ön plana çıkarmaktadır. Farklı klinik tablolar ve özel durumlar üzerinden yapılandırılan içeriklerin, okuyucuya sağlam bir teorik altyapı sunmasının yanı sıra klinik karar verme süreçlerine katkı sağlaması ve uygulamaya yönelik yol gösterici olması amaçlanmıştır.

Bu çalışmanın ortaya çıkmasında beni cesaretlendiren, kitap fikrinin hayata geçirilmesinde önemli katkıları bulunan Prof. Dr. Ahmet Fazıl Özsoylu'ya ve akademik yolculuğum boyunca desteğini her zaman yanımda hissettiğim Prof. Dr. Neriman İnanç'a teşekkürlerimi sunarım. Ayrıca bu değerli çalışmaya bilimsel birikimleriyle katkı sağlayan tüm bölüm yazarlarına teşekkür eder, kitabın alanımıza ve mesleki gelişime katkı sağlamasını temenni ederim. "Fizyoterapide Özel Konular" kitabının, lisans ve lisansüstü öğrenciler, akademisyenler ve sahada çalışan fizyoterapist meslektaşlarımız için güvenilir ve güncel bir başvuru kaynağı olacağına inanıyoruz.

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BÖLÜM 1

SEREBRAL PALSİ'DE ROBOT DESTEKLİ YÜRÜME EĞİTİMİ

Meltem YAZICI GÜLAY[1]

GİRİŞ

Serebral palsi (SP), beyin malformasyonları, erken doğum, beyaz cevher hasarı, hipoksik iskemik hasar, doğum öncesi, doğum sırası ve doğum sonrası felç, MSS enfeksiyonu veya travmatik beyin hasarı sonucu ortaya çıkabilen, ilerleyici olmayan beyin hasarına bağlı doğuştan ve kalıcı bir nörolojik bozukluktur (1). Çocukluk çağındaki hareket ve duruş bozukluklarının en sık görülen nedenidir. Motor bozukluklar, SP'li çocukların yaklaşık %80'inde ortaya çıkar ve kalça ağrısı, kalça çıkığı, denge sorunları, el disfonksiyonu ve ekinus deformitesi gibi ikincil komplikasyonlara neden olur (2). SP'de görülen beyin hasarı kas spazmları, hipertoni, kas güçsüzlüğü, motor kontrol kaybı, kas zayıflığı ve bozulmuş denge reaksiyonları gibi semptomlara yol açabilir. Genellikle koordinasyon, güç ve seçici motor kontrolündeki zorluklarla ilişkili olan spastisite ve kas tonusunda anormallikler bulunur. Bu durumlar, kemik ve eklemlerde spastisite kaynaklı deformitelerin gelişmesine ve beraberinde ağrı ve fonksiyonel bozulmalara sebep olur (3). Spazmlar, güçsüzlük, anormal tonus veya ağrıdan kaynaklanan kas yaralanmaları, eklem hareket açıklığını ve seçici motor kontrolünü daha da azaltabilir. Bunlarla birlikte görülen denge, gövde kontrolü ve yürüyüş değişiklikleri, SP'li bireylerde bağımsızlığı azaltan ve en çok etkilenen kaba motor fonksiyonlardır (4). SP'li çocukların denge stratejilerinin tipik geli-

[1] Doç. Dr., Ankara Yıldırım Beyazıt Üniversitesi, Sağlık Bilimleri Fakültesi, Fizyoterapi ve Rehabilitasyon Bölümü, meltem_yazici@yahoo.com, ORCID iD: 0000-0003-1616-8070

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gelişen çocuklarla karşılaştırıldığında, SP'li çocukların agonist ve antagonist kasların eş zamanlı aktivasyonlarını gösteren kas sinerjisini daha az gösterdikleri görülmektedir (100,101). SP'li çocuklarda kas sinerjilerinin özellikleri ile çocukların fonksiyonel düzeyleri arasındaki ilişkiler incelendiğinde fonksiyonel sınırlılıkların şiddeti ile kas sinerjilerinin kompozisyonlarında, zamansal aktivasyonlarındaki düzensizlik derecesinin ilişkili olduğu gösterilmektedir (101) Araştırmalara göre GMFCS seviyeleri III ve IV olan çocukların kas sinerjilerinin normatif verilerden sapmaları GMFCS I ve II'ye göre daha fazla görülmektedir (102,103). RDYE ile gerçek bir yürüyüş senaryosuna mümkün olduğunca benzer bir durumun yaratılmasıyla SP'li bireyler, yürüyüşle ilişkili farklı hareketleri kontrol etmeye teşvik edilir. Bu sayede alt ekstremite eklemleri hareket ederken, üst vücut da bu hareketlere uygun duruşu sağlayabilir ve aynı zamanda kaslar arasındaki sinerji de kontrol edilebilir (23). Bu durum yürüyüşün hızı, esnekliği ve verimliliğiyle ilgili önemli bir etki yaratır.

Sonuç olarak, RDYE aynı algoritmayla tekrarlayan, yoğun egzersizler ve hastanın aktif katılımını içeren motor öğrenme prensipleri aracılığıyla beyin nöroplastisitesini uyarır ve bu da fonksiyonel durumda iyileşmeye yol açar (104). SP'li çocuklarda RDYE kullanımı, farklı yürüyüş evrelerinin yoğun ve tekrarlayıcı simülasyonu yoluyla fonksiyonel yürüyüşün yeniden kazanılmasını sağlayabilir. Konvansiyonel rehabilitasyon ve RDYE'nin kombine kullanımının özellikle zorlu ergenlik dönemindeki SP'li çocuklar için postüral ve lokomotor fonksiyonlarının iyileştirilmesinde olumlu bir etkiye sahip olduğu söylenebilir (23). Güncel araştırmaların ortaya koyduğu gibi RDYE'nden daha yararlı sonuçlar elde edebilmek için SP'li çocukların fonksiyonel seviyelerinin dikkate alındığı, kullanım sıklığı ve şiddeti ile ilgili fikir birliğiyle oluşturulmuş bir uygulama protokolünün geliştirilmesine ihtiyaç duyulmaktadır. Bunlarla birlikte tüm bulgular bir araya geldiğinde, RDYE'nin SP'li çocuklarda motor fonksiyonu ve yaşam kalitesini iyileştirmede önemli bir potansiyele sahip olduğu görülmektedir.

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BÖLÜM 2

SEREBRAL PALSİDE ÜST EKSTREMİTE REHABİLİTASYONUNDA KULLANILAN FİZYOTERAPİ YÖNTEMLERİ

Hilal Başak CAN [1]
Hilal ATA TAY [2]
Gönül ACAR [3]

GİRİŞ

Erken çocukluk döneminde görülen fiziksel dizabilite nedenlerinin başında gelen Serebral Palsi (SP), üst ekstremitede motor ve duyusal birçok etkilenime yol açabilmektedir. SP'de üst ekstremite fonksiyonlarını geliştirmeye yönelik çeşitli rehabilitasyon yaklaşımları bulunmaktadır. Bu bölümde, SP'de üst ekstremite rehabilitasyonunda kullanılan fizyoterapi yöntemleri; nörogelişimsel tedavi, yoğun terapiler, kognitif yaklaşımlar, teknoloji tabanlı yaklaşımlar ve destekleyici yaklaşımlar başlıkları altında, literatürdeki güncel kanıtlar doğrultusunda ele alınmaktadır.

SEREBRAL PALSİ

SP, erken çocukluk döneminde görülen fiziksel dizabilite nedenlerinin başında yer alır (1). Beyinde prenatal, perinatal veya postnatal dönemde meydana gelen progresif olmayan bir hasardan kaynaklanır. Bu hasar, hareket ve postür gelişi-

[1] Arş. Gör. Dr., Trakya Üniversitesi Sağlık Bilimleri Fakültesi Fizyoterapi ve Rehabilitasyon Bölümü, hbasakcan@gmail.com, ORCID iD: 0000-0001-8991-202X

[2] Arş. Gör. Dr., Marmara Üniversitesi Sağlık Bilimleri Fakültesi Fizyoterapi ve Rehabilitasyon Bölümü, hilall.ataa.fzt@gmail.com, ORCID iD: 0000-0003-3650-7340

[3] Prof. Dr., Marmara Üniversitesi Sağlık Bilimleri Fakültesi Fizyoterapi ve Rehabilitasyon Bölümü, gonulacar34@gmail.com, ORCID iD: 0000-0002-6964-6614

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SONUÇ

SP'de üst ekstremite rehabilitasyonu ile çocuğun günlük yaşam aktivitelerine katılımını, fonksiyonel bağımsızlığını ve yaşam kalitesini artırmak hedeflenmektedir. Bu amaçlara yönelik olarak nörogelişimsel tedavi, yoğun terapiler, kognitif yaklaşımlar, teknoloji tabanlı yaklaşımlar ve destekleyici yaklaşımların yer aldığı geniş bir müdahale yelpazesi kullanılmaktadır. SP'de üst ekstremite rehabilitasyonu, bu yelpazede yer alan tek bir yönteme bağlı kalmak yerine, çocuğun bireysel ihtiyaçlarına göre farklı yaklaşımların entegrasyonunu gerektirmektedir. Rehabilitasyonun başarısı ise bireyselleştirilmiş, kanıta dayalı ve interdisipliner bir yaklaşımla mümkündür.

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BÖLÜM 3

KONJENİTAL EL ANOMALİLERİNDE FİZYOTERAPİ VE REHABİLİTASYON

Gülsena UTKU UMUT [1]
Zeynep HOŞBAY [2]

GİRİŞ

Tanım

Konjenital el anomalileri, embriyonik gelişim sürecinde üst ekstremite ve elin normal oluşumunun herhangi bir aşamasında meydana gelen yapısal veya fonksiyonel bozukluklar olarak tanımlanır. Bu anomaliler; kemik, eklem, kas, tendon, damar, sinir, deri ve tırnak gibi yapılarda şekil, boyut, sayı, pozisyon veya işlev farklılıkları ile kendini gösterebilir. Doğumda mevcut olup genetik faktörler, çevresel etkenler (teratojen maruziyeti), mekanik nedenler (intrauterin bası) veya bunların kombinasyonu sonucu gelişebilir (1). Konjenital el anomalileri, yaşamı doğrudan tehdit etmese de, çocuğun fiziksel, psikolojik ve sosyal yaşamını olumsuz yönde etkileyebilir (2).

Embriyolojik Gelişim Süreci ve Elin Morfogenezisi

Döllenmeden sonraki dördüncü haftada, gelişmekte olan embriyonun lateral duvarında üst ekstremite tomurcuğu oluşur. Ekstremite, ektodermal ve mezo-

1 Dr. Öğr. Üyesi, Biruni Üniversitesi Sağlık Bilimleri Fakültesi Fizyoterapi ve Rehabilitasyon Bölümü, gulsenautkuumut@gmail.com, ORCID iD: 0000-0002-2110-1607
2 Prof. Dr., Biruni Üniversitesi Sağlık Bilimleri Fakültesi Fizyoterapi ve Rehabilitasyon Bölümü, zhosbay@biruni.edu.tr, ORCID iD: 0000-0003-1530-2880

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BÖLÜM 4

MUSKÜLER DİSTROFİ'Lİ BİREYLERİN REHABİLİTASYONUNDA FARKLI EGZERSİZ EĞİTİMLERİNİN ETKİNLİĞİ

İpek GÜRBÜZ[1]

GİRİŞ

Musküler Distrofi'lerin (MD) yönetimi, şu anda MD'nin ilerlemesini durduracak bir tedavi olmadığından, öncelikle kuvvetlendirme ve aerobik egzersiz eğitimi, ortotik cihazlar ve yardımcı cihazlar ve teknolojiler dahil olmak üzere konservatif müdahalelere dayanmaktadır. Ancak literatürde, bu müdahalelerin etkinliğini gösteren kanıtlar halen sınırlı sayıda ve yetersizdir. Literatürdeki çalışmalar, tek başına veya diğer egzersiz müdahaleleriyle birlikte uygulanan kuvvetlendirme eğitimlerinin, önemli yapısal değişiklikler oluşturmasa da MD'li bireylerde distal üst ekstremite fonksiyonlarını, dengeyi, yürüyüşü, algılanan eforu ve yaşam kalitesini iyileştirebileceğine, bu nedenle MD'li bireylerin fizyoterapi ve rehabilitasyonunda temel bir bileşen olduğuna işaret etmektedir. Ekstremitelere yönelik, sıklıkla aerobik tipte, egzersiz eğitimlerinin etkinliği hala tartışmalı olmakla birlikte çoğu MD alt tipinde güvenli bir egzersiz müdahalesi olarak kullanılabileceğine yönelik anlayış hakimdir. Bu sonuçlar düşük kaliteli kanıtlara dayansa da geçmişte MD'li bireylerde egzersiz müdahaleleriyle ilişkili potansiyel zararlara ilişkin endişeleri azaltmak için kayda değer görünmektedir.

Musküler distrofiler (MD) kas biyopsisinde klinik ve distrofik patolojik özellikleri paylaşan, klinik, genetik ve biyokimyasal olarak heterojen bir grup bozuk-

[1] Prof. Dr., Hacettepe Üniversitesi, Fizik Tedavi ve Rehabilitasyon Fakültesi, Fizyoterapi ve Rehabilitasyon Bölümü, ipekalemdaroglu@windowslive.com, ORCID iD: 0000-0001-5556-6608

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uygulanabileceği görülmektedir. Ek olarak, düşük kaliteli kanıtlar, tek başına veya diğer egzersiz müdahaleleriyle birlikte gözetimli kuvvetlendirme eğitimlerinin, kas yapısında önemli değişiklikler yaratmasa da algılanan eforu, distal kol fonksiyonlarını, dengeyi, yürüyüşü ve yaşam kalitesini iyileştirebileceğini öne sürmüştür (11). Bu nedenle, tek başına veya çok bileşenli bir rehabilitasyon programının parçası olarak kuvvetlendirme eğitimlerinin, MD'li bireylerin rehabilitasyonuna eklenmesi gereken temel unsur olabileceği düşünülmektedir.

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BÖLÜM 5

CHARCOT-MARİE-TOOTH HASTALIĞINDA ORTEZ YAKLAŞIMLARI

Numan BULUT[1]

GİRİŞ

Charcot-Marie-Tooth (CMT) hastalığı herediter motor ve sensöri nöropati (HMSN) olarak adlandırılan 1/2500 görülme sıklığı ile en yaygın herediter periferik nöropatidir (1). CMT'nin klinik semptomları arasında distal kas zayıflığı, atrofi, duyusal kayıp, pes kavus ve çekiç parmak yer almaktadır (2). Hastalık yönetiminde en etkili tedavi modalitelerinin belirlenmesi için hastanın en erken dönemde değerlendirilmesi ve semptomların net olarak ortaya konulması gerekmektedir. Bu kapsamda her yaşta CMT'li hastaya uygulanacak sonuç ölçümleri mevcuttur. CMT'nin net bir tedavisi bulunmamaktadır. Medikal tedavi, cerrahi girişimler, fizyoterapi ve rehabilitasyon gibi multidisipliner uygulamalar her hasta için bireysel olarak planlanmalıdır (3). Ortez yaklaşımları hastanın özellikle yürüyüş parametrelerini geliştirmede en etkili fizyoterapi ve rehabilitasyon modalitelerinden birisidir.

CHARCOT-MARİE-TOOTH

Herediter nöropatiler, sistemik bir problemin parçası olarak veya sinir harabiyetinin primer patogenez olarak yer aldığı durumlarda ortaya çıkmaktadır. Primer herediter nöropatiler, minimal veya hiç duyusal tutulumun olmadığı herediter

[1] Doç. Dr., Hacettepe Üniversitesi, Fizik Tedavi ve Rehabilitasyon Fakültesi, Fizyoterapi ve Rehabilitasyon Bölümü, numanbulut@hacettepe.edu.tr, ORCID iD: 0000-0001-5427-1103

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rüteç ve tekerlekli sandalye gibi mobilite araçları da gerekli hallerde tercih edilmektedir (32).

Sadece yürüme üzerindeki olumlu etkiyi değil, aynı zamanda hastanın ortezi uyum düzeyini de göz önünde bulundurmak önemlidir. Şiddetli stepaj yürüyüşü olan 25 hastada ortez kullanım uyumunun düşük (%20) olduğu gösterilmiştir (63). Hastalar uyumun yetersiz olmasını rahatsız edici, ağrı, deri irritasyonu, estetik kaygılar, cihaz tedarik zorluğu, onarım güçlüğü, engelliği vurgulama ve duyguları kötüleştirmeye bağlamıştır (64). Yukarıda ifade edilen şikayetlerin en fazla AFO sonrası tabanlık kullanımın da olduğu belirlenmiştir (49).

SONUÇ

Net bir tedavisi bulunmayan CMT'nin hastalık yönetiminde sıklıkla ortez uygulamaları tercih edilmektedir. Ortezlerin; enerji harcamasını azaltma, yürüyüşün kinetik ve kinematik parametrelerini normalleştirme, stabiliteyi artırma, alt ekstremite eklemlerindeki kompansasyonları önleme ve üst ekstremite fonksiyonelliğini geliştirme gibi olumlu etkiler sağlayabileceği gösterilmiştir. Ancak bazı çalışmalar, ortezlerin normal ayakkabı kullanımına göre belirgin bir üstünlük sağlamadığını da ifade etmektedir.

Her bir hasta için en etkin ortezin hangisi olduğu ve kullanım süresinin ne olması gerektiğine dair bilgiler henüz netlik kazanmamıştır. Bununla birlikte önerilen orteze uyum; ağrı, deri irritasyonu ve estetik kaygı gibi çeşitli faktörlerin etkisiyle azalabilmektedir. Bu faktörlerin en aza indirilebileceği cihazların geliştirilmesi ve klinik çalışmalarda uygulanması ile ortez kullanım standartlarının belirlenmesine yönelik çalışmalara ihtiyaç vardır.

Son olarak, ortez uygulamalarının CMT yönetiminde tek başına yeterli olmadığı unutulmamalıdır. Diğer fizyoterapi ve rehabilitasyon modaliteleri ile medikal ve cerrahi yaklaşımların, hastaların bireysel ihtiyaçları doğrultusunda tedaviye entegre edilmesi, genel tedavi etkinliğini artırabilir.

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BÖLÜM 6

OTİZM SPEKTRUM BOZUKLUĞU'NDA FİZYOTERAPİ VE REHABİLİTASYON

Yağmur AYDOĞAN [1]
Elif DURGUT [2]

GIRIŞ

Otizm Spektrum Bozukluğu (OSB), genellikle yaşamın ilk yıllarında başlayan; sosyal iletişimde yetersizlik, sınırlı ilgi alanları ve tekrarlayıcı davranışlarla karakterize, nörogelişimsel bir bozukluktur (1). Günümüzde OSB; genetik, nörobiyolojik ve çevresel etmenlerin etkileşimiyle ortaya çıkan, çok boyutlu bir bozukluk olarak değerlendirilmektedir (2).

EPIDEMIYOLOJI

OSB'nin çocuklarda giderek artan bir yaygınlığa sahip olduğu güncel verilerde gösterilmektedir. 2021 Küresel Hastalık Yükü verilerine göre, dünya genelinde yaklaşık her 127 çocuk/ gençten biri OSB tanısı almaktadır. Erkek çocuklarında OSB oranı, kız çocuklarına göre yaklaşık iki kat daha yüksektir (3). Türkiye'de OSB prevalansına dair net bir veri bulunmamakla birlikte, okul çağında OSB tanısı almış 16.837 çocuk olduğu bilinmektedir (4). Son otuz yılda OSB prevalansında belirgin bir artış dikkat çekmektedir. Bu artışın temel nedenleri arasında,

1 Uzm. Fzt., Bezmialem Vakıf Üniversitesi Tıp Fakültesi, yaydin1@bezmialem.edu.tr, ORCID iD: 0000-0001-7123-9092,
2 Dr. Öğr. Üyesi, Bezmialem Vakıf Üniversitesi Sağlık Bilimleri Fakültesi, Fizyoterapi ve Rehabilitasyon Bölümü, EDurgut@bezmialem.edu.tr, ORCID iD: 0000-0003-2000-1708

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BÖLÜM 7

PEDİATRİK REHABİLİTASYONDA MOTOR İMGELEME

Merve BORA ZEREYAK [1]
Ahmet Fatih SARICA [2]

GİRİŞ

İmgeleme, zihindeki herhangi bir deneyimin -işitsel, görsel, dokunsal, kokusal, tatsal ya da kinestetik- canlandırılması anlamına gelen bilişsel bir süreçtir. Psikolojiden sanata kadar çeşitli alanlar arasında köprü kuran bir alan olarak da karşımıza çıkmaktadır (1). Motor imgeleme (Mİ) ise imgelemenin bir alt dalı olup, bir bireyin belirli bir eylemi/aktiviteyi zihinsel olarak canlandırdığı kognitif bir süreç olarak tanımlanabilmektedir. Başka bir tanımla Mİ, bir hareketi fiziksel olarak gerçekleştirmeksizin, bu hareketin zihinsel olarak hayal edilerek hareketin hazırlanmasında ve yürütülmesinde yer alan beyin bölgelerinin bilinçli aktivasyonunu gerektiren bir süreç olarak da ifade edilmektedir (2). Bu, birçok araştırmacının Mİ ve motor aktivitenin benzer nöronal yapılara ve süreçlere dayandığını öne sürmesine yol açmıştır (3-5) Jeannerod'a göre Mİ, hareketlerin plan, yürütme ve modülasyonunda yer alan eylemin temsilidir (6). Ayrıca Mİ'nin, bir bireyin hedef odaklı bir hareketi destekleyen ileriye dönük eylem modelleri oluşturma becerisi hakkında fikir verdiği de kabul edilen bir görüştür. Bu nedenle, duyusal-algısal, bellek ve motor mekanizmalar terimin daha

[1] Öğr. Gör. Dr., Nuh Naci Yazgan Üniversitesi, Sağlık Bilimleri Fakültesi, Fizyoterapi ve Rehabilitasyon Bölümü, mervebora95@gmail.com, ORCID iD: 0000-0002-0196-4691
[2] Arş. Gör., Nuh Naci Yazgan Üniversitesi, Sağlık Bilimleri Fakültesi, Fizyoterapi ve Rehabilitasyon Bölümü, ahmetfatihsarica@gmail.com, ORCID iD: 0009-0003-1054-8889

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SONUÇ

Motor imgelemenin çok boyutlu karmaşık yapısı, özellikle uygulamada özel eğitim ve yöntemsel bilgi gerektirmesi nedeniyle, araştırma bulgularının doğrudan klinik pratiğe aktarılmasını güçleştirmektedir. Buna rağmen, son yıllarda Mİ tekniklerine artan ilgi, sınırlı sayıdaki bilimsel kanıta ve standart protokollerin eksikliğine rağmen, bu yöntemi klinik uygulamalardaki programlarına dahil eden profesyonellerin sayısında belirgin bir artışa neden olmuştur. Mİ'nin nörorehabilitasyon süreçlerindeki etkinliği halen tartışmalı olmakla birlikte, güncel nörobilimsel çalışmalar bu yöntemin motor öğrenme ve nöroplastisite üzerindeki olumlu etkilerini desteklemektedir. Özellikle pediatrik rehabilitasyon alanında, çocukların gelişimsel potansiyelini desteklemeye yönelik bütüncül ve yenilikçi müdahalelere duyulan ihtiyaç göz önüne alındığında, Mİ umut vadeden yardımcı bir araç olarak öne çıkmaktadır. Ancak bu popülariteye rağmen, çocukluk dönemine özgü gelişimsel özellikler dikkate alınarak tasarlanmış, yaşa ve yetenek düzeyine uygun müdahale protokollerine duyulan ihtiyaç devam etmektedir. Bu bağlamda, motor imgelemenin klinik etkinliğinin daha iyi anlaşılabilmesi için standardize edilmiş protokollere ve daha fazla bilimsel kanıta ihtiyaç duyulmaktadır.

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BÖLÜM 8

PEDİATRİK FİZYOTERAPİDE SANAL GERÇEKLİK UYGULAMALARI

Feride YARAR[1]
Fatih TEKİN[2]

GİRİŞ

Pediatrik fizyoterapi, çocukların büyüme ve gelişme sürecine özgü motor, duyusal ve fonksiyonel ihtiyaçlarını hedefleyen, gelişimsel yaklaşımlarla yürütülen uzmanlık alanıdır. Bu disiplinin nihai amaçları; hareket kabiliyetini en üst düzeye çıkarmak, günlük yaşam aktivitelerinde bağımsızlığı artırmak, katılımı desteklemek ve yaşam boyu sürecek olumlu motor öğrenmeyi teşvik etmektir. Pediatrik uygulamalar, sinir-sisteminin plastisitesinin (esnekliğinin) yüksek olduğu gelişim dönemlerinde gerçekleştirilir; dolayısıyla uygun kılavuzluk, tekrarlı ve göreve özgü alıştırmalarla kalıcı motor değişiklikler sağlanabilir (1,2).

Son yıllarda sanal gerçeklik (SG) teknolojileri —non-immersive (ekran/konsol), semi-immersive ve fully-immersive başlıklı çözümler— pediatrik rehabilitasyonda hızla benimsenmeye başlandı. SG'nin öne çıkan klinik fırsatları şunlardır: tekrarı ve görev yoğunluğunu eğlenceli, motive edici bir ortamda sürdürülebilir hale getirmesi; görevleri bireyselleştirme ve zorluk seviyesini gerçek zamanlı ayarlama olanağı vermesi; zengin görsel/işitsel geri bildirim ile motor öğrenmeyi pekiştirmesi ve uzaktan/ev tabanlı uygulamalar yoluyla erişimi ge-

1 Doç. Dr., Pamukkale Üniversitesi, Fizyoterapi ve Rehabilitasyon Fakültesi, Fizyoterapi ve Rehabilitasyon Bölümü, fyarar@pau.edu.tr, ORCID iD: 0000-0001-9938-7513
2 Doç. Dr., Pamukkale Üniversitesi, Fizyoterapi ve Rehabilitasyon Fakültesi, Fizyoterapi ve Rehabilitasyon Bölümü, fatiht@pau.edu.tr, ORCID iD: 0000-0001-7829-7957

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SONUÇ

Sanal gerçeklik, pediatrik rehabilitasyonda motor öğrenmeyi destekleyen, motivasyonu artıran ve klinik çıktıların iyileştirilmesine katkı sunan güçlü bir araçtır. Literatür, özellikle üst ekstremite ve denge alanlarında orta düzeyde güçlü kanıt sunarken, alt ekstremite ve uzun dönem etkinlik konusunda daha fazla çalışmaya ihtiyaç vardır. Klinik uygulamalarda güvenlik, erişilebilirlik ve etik konular mutlaka dikkate alınmalıdır. Gelecekte yapay zekâ, haptik geri bildirim ve tele rehabilitasyon entegrasyonu ile SG'nin daha kişiselleştirilmiş ve yaygın bir tedavi aracı haline gelmesi beklenmektedir.

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BÖLÜM 9

SKOLYOZDA GİYİLEBİLİR TEKNOLOJİLER

Fatih ÇELİK[1]

GİRİŞ

Skolyoz, omurganın üç boyutlu deformitesi ile karakterize edilen ve genellikle ergenlik döneminde ortaya çıkan kompleks bir kas-iskelet sistemi problemidir. Toplumda görülme sıklığı %2–4 arasında değişmektedir ve özellikle adolesan idiyopatik skolyoz (AİS), tüm olguların yaklaşık %80'ini oluşturmaktadır (1). Skolyozun ilerleyici doğası, postüral simetriyi, gövde dengeleme mekanizmalarını, solunum fonksiyonlarını ve yaşam kalitesini olumsuz yönde etkileyerek, multidisipliner bir tedavi yaklaşımını zorunlu kılmaktadır (2, 3).

Son yıllarda teknolojinin hızlı gelişimi, skolyozun tanı, izlem ve tedavi süreçlerinde giyilebilir teknolojilerin önemini artırmıştır. Geleneksel tedavi yöntemleri olan korseleme, manuel egzersizler ve cerrahi müdahaleler, çoğu zaman skolyoz progresyonunu yavaşlatmada yetersiz kalabilmektedir. Buna karşılık, dinamik postüral takip sistemleri, akıllı korseler, sensör tabanlı giyilebilir cihazlar ve dinamik elastomerik kumaş ortezleri gibi yenilikçi yaklaşımlar, skolyoz yönetimine kişiselleştirilmiş ve gerçek zamanlı bir boyut kazandırmaktadır (4, 5).

Giyilebilir teknolojiler, özellikle biyomekanik ölçümler, postüral simetri analizi, solunum fonksiyonlarının değerlendirilmesi ve kullanıcıya geri bildirim sağlama gibi fonksiyonları sayesinde klinisyenlere önemli avantajlar sunmakta-

[1] Dr. Fzt., Özel Sağlık Meslek Hizmet Birimi, fcelik42@hotmail.com,
ORCID iD: 0000-0003-2728-9521

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BÖLÜM 10

ÇOCUK GÖĞÜS HASTALIKLARINDA REHABİLİTASYON TEKNOLOJİLERİ

Meltem KAYA [1]
Hikmet UÇGUN [2]

GİRİŞ

Çocukluk Çağı Pulmoner Hastalıklarının Epidemiyolojisi ve Klinik Önemi

Çocukluk çağı solunum sistemi hastalıkları, dünya genelinde morbidite ve mortalitenin en önemli nedenlerinden biri olmaya devam etmektedir. Astım, kistik fibrozis, bronkopulmoner displazi, bronşektazi ve primer siliyer diskinezi gibi kronik akciğer hastalıkları, yalnızca pulmoner fonksiyonları değil, aynı zamanda çocukların büyüme, gelişme ve sosyal katılım süreçlerini de derinden etkilemektedir (1). Dünya Sağlık Örgütü raporlarına göre astım, dünya genelinde yaklaşık 300 milyon insanı etkilemekte olup, çocukluk çağında en sık görülen kronik hastalıkların başında gelmektedir (2). Özellikle okul çağındaki çocuklarda astım, acil servis başvurularının, hastane yatışlarının ve okul devamsızlığının en önemli sebeplerindendir (2).

Kistik fibrozis, daha nadir görülmesine rağmen, çocuklarda ilerleyici ve mortal seyirli kronik akciğer hastalıklarının başında gelmektedir. Gelişmiş ül-

[1] Dr. Öğr. Üyesi, İstanbul Atlas Üniversitesi Sağlık Bilimleri Fakültesi Fizyoterapi ve Rehabilitasyon Bölümü, hikmetucgun92@gmail.com, ORCID iD: 0000-0002-7211-1805
[2] Doç. Dr., İstanbul Atlas Üniversitesi Sağlık Bilimleri Fakültesi Fizyoterapi ve Rehabilitasyon Bölümü, meltem_rmglu@hotmail.com, ORCID iD: 0000-0002-9743-3341

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BÖLÜM 11

KARDİYOPULMONER HASTALIKLARDA KİNEZYOFOBİ

Seda SAKA [1]
Vildan FİDANOĞLU [2]

KİNEZYOFOBİ

Kinezyofobi, bireyin ağrılı bir yaralanma yaşama ya da mevcut bir yaralanmanın tekrar etme olasılığına ilişkin algılanan savunmasızlık hissi nedeniyle, fiziksel hareket ve aktiviteye karşı geliştirdiği irrasyonel korkudur (1). Egzersiz kaygısı terimi ise kinezyofobinin yalnızca sınırlı bir yönünü yansıtan duygusal bir tepkidir ve bu kavram, kaçınma davranışı ile tanımlanan kinezyofobiden kavramsal olarak ayrılmaktadır (2). Bu ayrımın doğru yapılması, kinezyofobiyi anlama ve klinik yönetiminde önem taşımaktadır. Son yıllarda, kinezyofobi yalnızca kas-iskelet sistemi hastalıkları ile sınırlı kalmamakta, kardiyopulmoner hastalıklarda da önemli bir psikolojik faktör olarak öne çıkmaktadır.

Kardiyopulmoner hastalıklarda kinezyofobi, ağrı ve dispne ile ilişkili olarak farklı şekillerde ortaya çıkabilmektedir. Ağrıyla ilişkili kinezyofobi, uzun yıllardır kardiyak hastalıklarda değerlendirilen bir parametredir. Bununla birlikte, 2011 yılında De Peuter ve ark. (3) tarafından dispneyle ilişkili anksiyete, 2021 yılında ise Saka ve ark. (4) tarafından dispneyle ilişkili kinezyofobi kavramları geliştirilmiştir. Bu bağlamda, kinezyofobinin tanınması, temelini oluşturan

1 Doç. Dr., Haliç Üniversitesi, Sağlık Bilimleri Fakültesi, Fizyoterapi ve Rehabilitasyon Bölümü, fztsedasaka@gmail.com, ORCID iD: 0000-0002-6920-4357

2 Arş. Gör., Haliç Üniversitesi, Sağlık Bilimleri Fakültesi, Fizyoterapi ve Rehabilitasyon Bölümü, fzt.vildanbayraktaroglu@hotmail.com, ORCID iD: 0000-0003-2542-331X

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terilmiştir (4, 80). Bu kombinasyon, hastaların doğru hastalık bilincini geliştirmesine, öz yeterliklerini artırmasına ve egzersize bağlı kaygıyı azaltmasına yardımcı olur. Aynı zamanda, egzersiz sırasında ayna gibi görsel uyaranların kullanılması, motor ve duyusal entegrasyonu güçlendirerek kinezyofobi düzeyini azaltabilir (80, 81).

4. **Egzersiz ve Solunum Kas Eğitimi:** Dayanıklılık egzersiz eğitimi ve inspiratuar kas eğitimi programlarının, hastaların solunum kapasitesini ve egzersiz toleransını artırarak, dispneyle ilişkili kinezyofobi düzeylerini azalttığı gösterilmiştir. Egzersiz programları, hastaların günlük aktivitelerde katılımını destekler ve kas atrofisini ve fiziksel fonksiyon kaybını önleyebilir (80, 82). Bu müdahaleler, mortalite ve morbidite risklerini değerlendiren göstergelerde iyileşmelerle ilişkilidir ve yaşam kalitesinin artmasına katkı sağlar (4, 80).

Kinezyofobinin yönetiminde erken müdahale kritik öneme sahiptir. Uzun süreli kaygı ve korku, dispne algısını ve hastaların günlük yaşam aktivitelerini olumsuz etkileyebilir. Bilişsel-davranışçı ve egzersiz tabanlı müdahaleler, düzenli takip, aile katılımı ve bireysel dikkatle desteklendiğinde, hem kısa hem de uzun vadeli etkiler sağlayabilir. Klinik deneyimler, kombine yaklaşımların tekil müdahalelere göre daha hızlı etkili olduğunu ve etkinliğin müdahale sonrasında da sürdüğünü göstermektedir (4, 80, 82).

SONUÇ

Kardiyopulmoner hastalıklarda kinezyofobi, hem ağrı hem de dispne ile ilişkili olarak hastaların fiziksel aktiviteye katılımını sınırlayan önemli bir biyopsikososyal engeldir. Bu korkunun yönetimi, bilişsel-davranışçı yöntemler, manuel terapiler, egzersiz ve bilişsel egzersiz kombinasyonları ile mümkün olup, hastaların hareket güvencesini artırır, yaşam kalitesini iyileştirir ve fiziksel fonksiyon kaybını önler. Müdahale stratejileri, sadece semptomları değil, aynı zamanda hastaların psikososyal durumlarını da ele alarak bütüncül bir rehabilitasyon yaklaşımı sunar.

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BÖLÜM 12

İMPLANTE EDİLEBİLEN KARDİYOVERTER DEFİBRİLATÖR (ICD) YERLEŞTİRİLMİŞ HASTADA KARDİYAK REHABİLİTASYON

Melih ZEREN [1]

GİRİŞ

İmplante edilebilen kardiyoverter defibrilatör (ICD), yaşamı tehdit eden ventriküler taşiaritmileri — özellikle sürekli ventriküler taşikardi (VT) ve ventriküler fibrilasyonu (VF) — saptayıp sonlandırmak amacıyla geliştirilmiş bir cihazdır. ICD, kalbin elektriksel aktivitesini sürekli izler ve gelişmiş algılama sınıflama algoritmaları sayesinde aritmileri hem hız hem de ritim paternine göre tanır. Aritmi tespit edildiğinde ilk tedavi seçeneği genellikle antitaşikardi pacing olarak programlanır. Antitaşikardi pacing ile aritmiyi sonlandırmak mümkün olmazsa ya da aritmi doğrudan yüksek riskli olarak sınıflandırılırsa, cihaz bu kez 25-40 joule aralığında yüksek enerjili bir defibrilasyon şoku uygular. Böylece ani kardiyak ölümün önlenmesinde etkin bir koruma sağlar. (1-2)

ICD endikasyonları temel olarak sekonder ve primer koruma başlıkları altında sınıflandırılır. Sekonder koruma, daha önce kardiyak arrest nedeniyle resüsitasyon uygulanmış ya da hemodinamik olarak instabil ventriküler taşikardi (VT) geçirmiş hastaları kapsar. Eğer aritmi geri döndürülebilir bir neden ile açıklanamıyorsa, bu hastalarda ani kardiyak ölümün önlenmesi için ICD standart tedavi olarak uygulanır. Primer koruma ise, daha önce hayatı tehdit eden aritmik olay yaşamamış ancak yüksek risk altında bulunan hastaları içerir. Özel-

[1] Doç. Dr., İzmir Bakırçay Üniversitesi, Sağlık Bilimleri Fakültesi, Fizyoterapi ve Rehabilitasyon Bölümü, fzt.zeren@hotmail.com, ORCID iD: 0000-0002-9749-315X

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BÖLÜM 13

FİZYOTERAPİ VE REHABİLİTASYONDA BASINÇ SENSÖRLERİNİN KULLANIM ALANLARI VE GÜNCEL YAKLAŞIMLAR

Fatma UĞUR [1]
Öznur TUNCA [2]

GİRİŞ

Sensörler, çevreden gelen harici uyarıları (basınç, sıcaklık, nem, gaz gibi) algılayarak elektriksel sinyale çeviren bileşenlerdir (1). Günümüzde sensör teknolojisi, modern bilim ve teknolojide kritik bir rol üstlenmekte (2, 3); özellikle basınç sensörleri, mekanik kuvvetleri algılayıp ölçülebilir elektriksel çıktılara dönüştürme kapasiteleri sayesinde elektronik deri uygulamaları (4, 5), giyilebilir cihazlar (6, 7), sağlık izlemi (8-10) ve hareket algılama sistemleri (11, 12) gibi çok çeşitli alanlarda yaygın kullanım bulmaktadır.

Basınç sensörleri, çalışma prensiplerine göre piezorezistif, kapasitif, piezoelektrik ve triboelektrik olmak üzere dört ana grupta sınıflandırılmaktadır. Piezorezistif sensörler, uygulanan mekanik basınç sonucunda dirençte meydana gelen değişimleri ölçerek elektriksel sinyal üretmekte; esnek yapıları ve düşük üretim maliyetleri sayesinde biyomedikal ve rehabilitasyon uygulamalarında yaygın olarak kullanılmaktadır (13). Kapasitif sensörler, iki iletken plaka arasındaki mesafe ve dielektrik özelliklerdeki değişime bağlı olarak kapasitans farklılıklarını algılamakta; yüksek hassasiyetleri ve düşük gürültü düzeyleri sayesinde

1 Arş. Gör. Dr., Karamanoğlu Mehmetbey Üniversitesi, Sağlık Bilimleri Fakültesi, Fizyoterapi ve Rehabilitasyon Bölümü, fatmakabakci1994@gmail.com, ORCID iD: 0000-0002-0059-5636
2 Prof. Dr., Hacettepe Üniversitesi, Fizik Tedavi ve Rehabilitasyon Fakültesi, Fizyoterapi ve Rehabilitasyon Bölümü, oznurtunca@yahoo.com, ORCID iD: 0000-0002-0855-9541

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maktadır. Artan sensör yoğunluğu, düşük maliyetli alternatiflerin geliştirilmesi ve çoklu sensör entegrasyonları ile bu sistemler, hem klinik karar süreçlerinde hem de günlük yaşamda postür ve hareket analizinde giderek daha merkezi bir rol üstlenmektedir.

SONUÇ

Basınç sensörleri, piezorezistif, kapasitif, piezoelektrik ve triboelektrik prensiplerle çalışan çeşitleri sayesinde fizyoterapi ve rehabilitasyonun farklı alanlarında giderek daha fazla kullanılmaktadır. Ortopedide plantar basınç dağılımı, cerrahi sonrası yüklenme paternleri ve eklem yüklerinin değerlendirilmesinde; nörolojide inme, MS ve Parkinson gibi hastalıklarda denge, yürüme ve üst ekstremite fonksiyonlarının nesnel takibinde; pediatride doğuştan deformitelerin izlenmesi, oturma postürü analizi ve oyunlaştırılmış rehabilitasyonda; geriatride bası yaralarının önlenmesi, düşme riski öngörüsü, sarkopeni taraması ve dil-ağız fonksiyonlarının değerlendirilmesinde; kardiyopulmoner rehabilitasyonda ise solunum fonksiyonlarının izlenmesi ve egzersiz uyumunun artırılmasında önemli katkılar sağlamaktadır. Bu sensörler, yüksek çözünürlüklü basınç haritaları, giyilebilir tabanlık sistemleri ve biyogeribildirim mekanizmaları aracılığıyla yalnızca değerlendirme değil, aynı zamanda tedaviye yön verme ve hasta motivasyonunu artırma işlevi üstlenmektedir. Kalibrasyon, dayanıklılık ve uzun süreli kullanım konularında hâlen bazı sınırlılıkları olsa da, yapay zekâ ve kablosuz iletişim teknolojileriyle desteklenen düşük maliyetli ve esnek yeni nesil sensörlerin, kişiselleştirilmiş rehabilitasyonun ayrılmaz bir parçası haline gelmesi beklenmektedir.

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BÖLÜM 14

PARKİNSON HASTALARINDA LSVT-BIG TERAPİSİ: TEORİK TEMELLER, KLİNİK UYGULAMALAR VE KANITLAR

Kamer ÜNAL EREN[1]

GİRİŞ

Parkinson hastalığı, merkezi sinir sisteminin ilerleyici ve nörodejeneratif bir bozukluğu olup, dopamin üreten nöronların Substantia Nigra Pars Compacta'daki kaybı ile karakterizedir (1). Parkinson hastalığı bradikinezi, rijidite, tremor ve postüral instabilite gibi temel motor semptomların yanı sıra, depresyon, uyku bozuklukları, otonom disfonksiyon ve bilişsel fonksiyonlarda kötüleşme gibi non-motor semptomlarla da klinik olarak çeşitlilik gösterir. Hastalığın insidansı yaşla birlikte artmakta olup, 60 yaş üzeri popülasyonda prevalansı yaklaşık %1 civarındadır (2,3).

Farmakolojik tedaviler, özellikle levodopa ve dopamin agonistleri, motor semptomlarda belirgin düzelme sağlasa da zamanla motor dalgalanmalar, diskineziler ve ilaç yan etkileri gibi komplikasyonlar ortaya çıkmaktadır. Bu nedenle, Parkinson hastalarının yönetiminde yalnızca farmakolojik tedavi değil, multidisipliner bir yaklaşım büyük önem taşır (4).

Son 20 yılda yapılan çalışmalar, egzersiz temelli rehabilitasyon yaklaşımlarının Parkinson hastalarının yaşam kalitesi ve fonksiyonel kapasitesi üzerinde önemli bir etkisi olduğunu göstermiştir. Yoğun ve tekrara dayalı egzersiz programları, motor öğrenme mekanizmalarını ve nöroplastisiteyi uyararak motor

[1] Dr. Öğr. Üyesi, İstanbul Aydın Üniversitesi Sağlık Bilimleri Fakültesi Fizyoterapi ve Rehabilitasyon Bölümü, kamerunaleren@aydin.edu.tr, ORCID iD 0000-0002-1994-7435

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çalışma, yöntemin genlik kalibrasyonu ve motor kontrol üzerine olumlu etkileri olabileceğini düşündürmektedir ancak bu konuda güçlü klinik kanıtlara ihtiyaç vardır (12,30,31).

SONUÇ

LSVT-BIG terapisi, Parkinson hastalığında motor rehabilitasyona yönelik yapılandırılmış ve etkili bir protokol olarak konumlanmıştır. Teknolojik gelişmelerin entegrasyonu ve multidisipliner yaklaşımların benimsenmesiyle, gelecekte bu yöntemin daha geniş bir hasta grubuna ulaşarak kişiselleştirilmiş rehabilitasyonun temel taşlarından biri olması beklenmektedir.

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BÖLÜM 15

NÖROLOJİK REHABİLİTASYONDA SERVİKAL SENSORİMOTOR EĞİTİM

Özlem MENEVŞE [1]
İldeniz AKÇADAĞ [2]

GİRİŞ

Sensorimotor kontrol; duyusal, motor ve bilişsel sistemlerin koordineli çalışmasıyla merkezi sinir sistemi (MSS) tarafından hareketlerin planlanması, güncellenmesi ve yürütülmesini sağlayan karmaşık bir süreç olarak tanımlanmaktadır. Hareketin gerçekleştirilmesinde motor sistemler temel rol oynasa da vücut pozisyonu ve çevreye ilişkin bilgileri sağlayan duyusal sistemler ile bu bilgileri işleyerek uygun motor stratejileri belirleyen bilişsel süreçlerin katkısı olmadan doğru hareketin ortaya çıkması mümkün değildir (1-3).

Sensorimotor kontrol için, eklemler, bağlar ve kaslarda bulunan propriyoseptörlerden gelen duyusal bilgiler, görsel ve vestibüler sistemlerden gelen bilgilerle bütünleştirilerek kullanılır. Bu sensorimotor entegrasyon sürecinde servikal bölgeden iletilen duyusal bilgiler özel öneme sahiptir (4). MSS'ye propriyoseptif bilgi sağlayan ana reseptörler olan kas iğcikleri servikal bölgede, özellikle de derin servikal kaslarda yoğun olarak bulunur. Servikal propriyoseptif sistem, başın gövdeye göre konumunun bildirilmesi, vestibüler ve görsel sistemlerin koordine edilmesi ve postür ile dengenin kontrolünde kritik rol oynar. Ayrıca propri-

[1] Dr. Öğr. Üyesi, Nuh Naci Yazgan Üniversitesi, Sağlık Bilimleri Fakültesi, Fizyoterapi ve Rehabilitasyon Bölümü, menevseozlem@gmail.com, ORCID iD: 0000-0002-5602-455X

[2] Arş. Gör, Nuh Naci Yazgan Üniversitesi, Sağlık Bilimleri Fakültesi, Fizyoterapi ve Rehabilitasyon Bölümü, ildenizakcadag@gmail.com, ORCID iD: 0000-0002-8868-5352

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81).

Zorluğu artırmak için denge egzersizleri; baş hareketleri, okülomotor görevler veya koordinasyon egzersizleriyle birleştirilerek uygulanabilir. (30, 81). Dinamik denge için dış pertürbasyonlarla stabilite limitleri zorlanabilir. Uzanma ya da adım atma gibi daha fonksiyonel görevler dahil edilebilir. Hastadan, başını aktif olarak farklı yönlere hareket ettirirken ileriye, geriye veya yanlara doğru yürümek gibi görevler de istenebilir. Bu şekilde servikal afferent girdilerin etkin şekilde uyarılması sağlanır (30, 81, 82).

SONUÇ

Nörolojik hastalıklarda MSS'deki yapısal ve işlevsel hasarlar, servikal sensorimotor entegrasyonu bozarak postüral kontrol, denge, baş-gövde oryantasyonu ve motor koordinasyonda belirgin yetersizliklere yol açabilir. Servikal sensorimotor eğitim; propriyoseptif geri bildirimi güçlendiren, derin servikal kas aktivasyonunu destekleyen ve görsel-vestibüler-somatosensoriyel bilgiyi yeniden bütünleştiren içeriğiyle sensorimotor sistemin işleyişini geliştiren bir yaklaşımdır. Mevcut bulgular çeşitli nörolojik hastalıklarda postüral stabilite ve fonksiyonel performans başta olmak üzere olumlu etkiler sağlayabileceğini düşündürmektedir. Nörolojik hastalıklarda sensorimotor bozukluklar çok yaygın görülmekle birlikte, servikal sensorimotor eğitimin rehabilitasyon programlarında kullanımı sınırlıdır. Bu eğitimin sensorimotor kontrolün yeniden kazanılmasına ve nöroplastisite süreçlerinin desteklenmesine yönelik potansiyeli göz önünde bulundurularak, nörolojik rehabilitasyonda bütüncül ve tamamlayıcı bir yaklaşım olarak kullanımı klinisyenler tarafından değerlendirilmelidir.

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BÖLÜM 16

MİGRENDE FİZYOTERAPİ VE REHABİLİTASYON

Elif Sena DÜŞGÜN[1]

GİRİŞ

Migren, 50 yaş altı bireylerde engelliliğin başlıca nedeni olarak kabul edilen bir primer baş ağrısı bozukluğudur (1). Küresel ölçekte nüfusun %14,4'ünü etkilemesine (2) ve birçok ülkede ciddi bir halk sağlığı sorunu oluşturmasına rağmen (3), hâlen yeterince tanı konulamayan ve edavisi eksik kalan bir durumdur (4). Migrenli bireylerin yaklaşık dörtte birinde ataklara, geçici nörolojik semptomlarla birlikte görsel ve/veya dil bozuklukları ile duyusal ya da motor belirtiler içeren aura eşlik etmektedir. Bunun yanı sıra, hastaların yaklaşık %2,5'i bir ayda 15'ten fazla baş ağrısı günü ile karakterize edilen kronik migren tablosuna sahiptir (5). Migrenin alt tipleri — auralı, aurasız ve kronik migren — klinikte farklı şiddet düzeylerinde ortaya çıkmakta ve sıklıkla çeşitli komorbiditelerle birlikte seyretmektedir. Bu nedenle, literatürde giderek artan sayıda çalışma, migrenli bireyler için multidisipliner ve kişiye özgü tedavi yaklaşımlarını önermektedir (6-8).

Fizyoterapi ve rehabilitasyon, migrenin farmakolojik tedavisini destekleyici ve tamamlayıcı bir yaklaşım olarak kullanılabilmektedir (9). Ancak, servikojenik ya da gerilim tipi baş ağrılarıyla karşılaştırıldığında sağlık profesyonelleri arasında yeterince yaygın değildir. Güncel kanıtlar, fizyoterapi ve rehabilitasyonun migrenli bireylerde üç temel alanda yarar sağlayabileceğini ortaya koymaktadır:

[1] Dr. Öğr. Üyesi, Fenerbahçe Üniversitesi, Sağlık Hizmetleri Meslek Yüksekokulu, Terapi ve Rehabilitasyon Bölümü, fztelifsena@gmail.com, ORCID iD: 0000-0003-0419 -1150

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Literatürde bu yaklaşımların; ağrı şiddeti, sıklığı ve süresini azaltma, kas kuvveti ve enduransını geliştirme, postüral kontrolü artırma, santral sensitizasyonu azaltma, uyku kalitesini iyileştirme ve psikososyal iyilik hâlini destekleme açısından önemli faydalar sağladığı bildirilmektedir. Hasta eğitimi, postüral eğitimi, egzersiz eğitimi, manuel tedavi yaklaşımları, gevşeme ve solunum eğitimi, nörosensoriyel eğitim, vestibüler ve sensoriomotor eğitim gibi uygulamaların bireysel ihtiyaçlara göre uyarlanması tedavi etkinliğini artırmaktadır. Fizyoterapistler, multidisipliner ekibin önemli üyeleri olarak bu süreçte aktif rol almakta; nöroloji ve algoloji birimleriyle iş birliği içinde çalışmaları migren yönetiminde kritik bir katkı sağlamaktadır. Sonuç olarak, fizyoterapi ve rehabilitasyon uygulamaları migrenin uzun dönem yönetiminde farmakolojik tedavilere güvenli ve etkili bir tamamlayıcı seçenek sunmakta; ancak etkinliğin daha güçlü kanıtlarla desteklenmesi için ileriye dönük ve kapsamlı çalışmalara ihtiyaç duyulmaktadır.

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BÖLÜM 17

VESTİBÜLER REHABİLİTASYON

Tuğba DERE[1]

GİRİŞ

Vestibüler sistem başın hem açısal hem de doğrusal pozisyonundaki hareketleri ve değişiklikleri tespit etmekten sorumlu, denge ve mekânsal yönelimde temel rol oynayan bir sistemdir. Vestibüler sistem, baş hareketi sırasında görme keskinliğini optimize etmeye katkıda bulunurken denge kontrolünü geliştirmekte ve yerçekimine göre hareket ve yönelimin algılanmasını sağlamaktadır. Günlük yaşamda oldukça karmaşık olan bu görevler sırasında duyusal inputlar için visual ve somatosensoryal sistemin entegrasyonu kullanılmaktadır. Hareketin veya uzamsal yönelimin yorumlanmasını doğrulamak için visual veya somatosensoryal hiçbir duyusal girdinin mevcut olmadığı durumlarda vestibüler girdinin de ihmal edildiği göze çarpmaktadır. Yalnızca çok hızlı vestibülo-oküler ve vestibülospinal refleksler sırasında vestibüler sistemin direkt olarak devreye girdiği bilinmektedir. Bu nedenle vestibüler sistem, başın uzaydaki açısal ve doğrusal ivmelerini regüle etmek amacıyla serebrumda bulunan özel sensörleri kullanmaktadır. Vestibüler rehabilitasyon, vestibüler sistemi uyarmak için vücut, baş ve göz hareketlerini kullanan bir dizi egzersizlerden oluşmaktadır. Vestibüler rehabilitasyon egzersizleri, vestibüler sistemin adaptasyon sürecini hızlandırırken, vestibüler semptomların da azaltılmasına yardımcı olmaktadır. Egzersizler anormal vestibüler girdileri telafi etmesi için merkezi sinir sistemini eğitmek,

[1] Dr. Fzt., Yozgat Bozok Üniversitesi, Sarıkaya Fizyoterapi ve Rehabilitasyon Yüksekokulu, tugba.dere@yobu.edu.tr, ORCID iD: 0000-0002-3048-9113

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metodolojik heterojenite nedeniyle yüksek kaliteli çalışmalara olan ihtiyaç olduğunu vurgulamıştır (48). Vestibüler nöritli hastalar için vestibüler rehabilitasyon egzersizleri, tek başına steroid kullanımına kıyasla daha etkili bir tedavi kombinasyonu olarak önerilmektedir (49). Bununla birlikte, vestibüler migren için standardize edilmiş tedavi yöntemleri üzerinde daha fazla randomize kontrollü çalışmaya ihtiyaç duyulduğu gösterilmiştir (50).

Ayrıca, vestibüler rehabilitasyon egzersizlerinin görsel-uzaysal çalışma belleği üzerinde de olumlu etkileri bulunduğu ancak BPPV, Meniere hastalığı ve vestibüler migren tanısı almış hastalarda vestibüler semptomlarını azaltmada vestibüler rehabilitasyon egzersizlerinin etkinliğine dair kanıt değeri yüksek çalışmaların yetersiz olduğu bildirilmektedir (51). Sonuç olarak vestibüler rehabilitasyon egzersizlerinin, vestibüler disfonksiyonu olan birçok bireyde denge, bakış stabilitesi ve yaşam kalitesini arttırmada etkili bir yaklaşım olmakla birlikte, santral ve periferik vestibüler disfonksiyonlar için daha fazla randomize kontrollü çalışmaya ihtiyaç duyulduğu düşünülmektedir (50).

SONUÇ

Vestibüler hipofonksiyonu olan bireyler için vestibüler rehabilitasyonun belirgin ve önemli faydalar sağladığı kabul edilmektedir. Bu nedenle, vestibüler defisitle ilişkili bozukluklar, aktivite kısıtlamaları ve katılım sınırlamaları yaşayan her yaştan bireye vestibüler rehabilitasyon yaklaşımlarının uygulanması önerilmektedir. Gelişen teknoloji ile birlikte nöromodülasyon uygulamalarının kullanımı, tele-sağlık yaklaşımlarının entegrasyonu, farklı egzersiz kombinasyonlarının etkinliği, egzersiz ilerlemesi için spesifik rehberlerin oluşturulması ve bireyin işe geri dönüşü de dahil, fonksiyonel iyileşmeyi etkileyen faktörlerle ilgili ek araştırmalara ihtiyaç duyulmaktadır.

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BÖLÜM 18

LUMBAL OMURGA PATOLOJİLERİNDE CERRAHİ SONRASI FİZYOTERAPİ VE REHABİLİTASYON

Sümeyye Zehra GÜLER [1]
Sevil BİLGİN [2]

GİRİŞ

Lumbal bölge, omurganın biyomekanik açıdan en fazla yüke maruz kalan segmentlerinden biridir ve bu nedenle dejeneratif, travmatik veya disk kaynaklı birçok patolojiye sıklıkla zemin hazırlar. Bu patolojiler sonucunda gelişen ağrı, fonksiyon kaybı ve yaşam kalitesinde azalma, konservatif yaklaşımlara yanıtsız olgularda cerrahi müdahaleyi gündeme getirmektedir. Günümüzde lumbal cerrahi teknikleri minimal invaziv yöntemlerin gelişmesiyle birlikte önemli ölçüde ilerlemiş olsada, cerrahi başarının sürdürülebilir olması postoperatif rehabilitasyon sürecine doğrudan bağlıdır. Bu nedenle cerrahi sonrası rehabilitasyon yaklaşımlarının, hastanın fonksiyonel iyileşmesini hızlandıracak ve komplikasyon riskini azaltacak şekilde bilimsel temellere dayalı olarak planlanması büyük önem taşımaktadır. Bu bölümde lumbal cerrahiye neden olan patolojiler, cerrahi endikasyonları, prehabilitasyon yaklaşımları, uygulanan cerrahi teknikler, oluşabilecek komplikasyonlar, cerrahi sonrası değerlendirme, cerrahi sonrası rehabilitasyon yaklaşımları güncel literatür eşliğinde kapsamlı biçimde ele alınmıştır.

1 Arş. Gör., Ondokuz Mayıs Üniversitesi, Sağlık Bilimleri Fakültesi, Fizyoterapi ve Rehabilitasyon Bölümü, zehraguler1906@gmail.com, ORCID iD: 0000-0003-4184-6187

2 Prof. Dr., Hacettepe Üniversitesi Fizik Tedavi ve Rehabilitasyon Fakültesi, Fizyoterapi ve Rehabilitasyon Bölümü, sevil.bilgin@hacettepe.edu.tr, ORCID iD: 0000-0003-1597-1312

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lışması ve hastanın aktif katılımının teşvik edilmesi, başarılı ve kalıcı fonksiyonel kazanımların anahtarıdır.

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BÖLÜM 19

DİZ OSTEOARTRİT TEDAVİSİNDE FİZYOTERAPİ VE REHABİLİTASYON

Hilal ATA TAY [1]
Hilal Başak CAN [2]
Gönül ACAR [3]

GİRİŞ

Diz osteoartriti (OA), dünya genelinde artan prevalansı nedeniyle, bireylerin yaşam kalitesini düşüren ve sağlık sistemleri üzerinde önemli bir yük oluşturan yaygın bir kas-iskelet sistemi hastalığıdır (1). Günümüzde diz OA yönetimi, bireyin fiziksel, psikolojik ve sosyal yönlerini bir arada ele alan multidisipliner bir anlayış gerektirmektedir. Bu kapsamda fizyoterapi ve rehabilitasyon, diz OA'inin konservatif yönetiminde ilk basamak ve temel tedavi bileşenlerinden biri olarak öne çıkmaktadır (2). Ağrının azaltılması, fonksiyonel kapasitenin korunması, yaşam kalitesinin artırılması ve bireylerin aktif yaşam biçimlerine yeniden katılımının sağlanması, fizyoterapi yaklaşımlarının ana hedefleri arasında yer almaktadır. Diz OA yönetiminde fizyoterapi ve rehabilitasyonun kanıta dayalı, kişiselleştirilmiş ve bütüncül bir yaklaşımla ele alınması gerekmektedir (2).

[1] Arş. Gör. Dr., Marmara Üniversitesi, Sağlık Bilimleri Fakültesi, Fizyoterapi ve Rehabilitasyon Bölümü, hilall.ataa.fzt@gmail.com, ORCID iD: 0000-0003-3650-7340

[2] Arş. Gör. Dr., Trakya Üniversitesi, Sağlık Bilimleri Fakültesi, Fizyoterapi ve Rehabilitasyon Bölümü, hbasakcan@gmail.com, ORCID iD: 0000-0001-8991-202X

[3] Prof. Dr, Marmara Üniversitesi, Sağlık Bilimleri Fakültesi, Fizyoterapi ve Rehabilitasyon Bölümü, gonulacar34@gmail.com, ORCID iD: 0000-0002-6964-6614

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etkinliği küçük ölçekli çalışmalarda geleneksel yaklaşımlara benzer bulunmuş olsa da henüz erken geliştirme aşamasındadır.

Genel olarak, mevcut veriler teknoloji temelli rehabilitasyonun diz OA'i yönetiminde umut vadettiğini, ancak halen büyük ölçüde gelişim aşamasında olduğunu göstermektedir. Klinik alana aktarımın sınırlı olması, kullanıcı ve klinisyen geribildiriminin yetersizliği ve uzun vadeli etkilere dair eksik kanıtlar bu alandaki temel engeller olarak öne çıkmaktadır (83). Bununla birlikte, uzaktan gerçek zamanlı performans verisi toplayıp analiz edebilen sistemlerin geliştirilmesi, gelecekte yüz yüze görüşmelere gerek kalmaksızın bireye özgü, dinamik olarak uyarlanabilen rehabilitasyon programlarının uygulanmasına olanak tanıyabilir. Bu doğrultuda, mühendislik ve sağlık bilimlerin iş birliğiyle geliştirilecek çok bileşenli, kullanıcı odaklı ve kanıta dayalı teknoloji temelli müdahaleler, diz OA rehabilitasyonunun geleceğinde önemli bir dönüm noktası oluşturma potansiyeline sahiptir (83).

SONUÇ

Diz OA'in etkin yönetimi, ağrının azaltılması ve fonksiyonel kapasitenin sürdürülmesinin ötesinde, bireylerin aktif, üretken ve anlamlı bir yaşam sürdürebilmelerini hedeflemelidir. Bu doğrultuda fizyoterapi ve rehabilitasyon uygulamaları, yalnızca semptomları hafifletmeye değil, aynı zamanda bireyin sağlık davranışlarını geliştirmeye, öz-yönetim becerilerini desteklemeye ve uzun vadeli yaşam kalitesi artışına odaklanmalıdır. Güncel literatür, yapılandırılmış egzersiz programları, hasta eğitimi, davranışsal müdahaleler ve teknoloji destekli rehabilitasyonun diz OA tedavisinde klinik olarak anlamlı katkılar sağladığını göstermektedir. Ancak, bu yaklaşımların etkilerinin daha güçlü kanıtlarla desteklenebilmesi için yüksek metodolojik kaliteye sahip, uzun dönemli ve çok merkezli araştırmalara ihtiyaç duyulmaktadır.

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BÖLÜM 20

AKSİYAL SPONDİLOARTRİTLERDE EGZERSİZ YAKLAŞIMLARI

Tuğçe ÖZEN [1]

GİRİŞ

Ortak genetik, epidemiyolojik ve klinik özellikleri sebebiyle ortak çatı altında yer alan kronik sistemik inflamatuar hastalıklar olarak bilinen spondiloartritlerin (SpA) ağırlıklı olarak aksiyal (sakroiliak eklem ve/veya omurga) tutulumu olan sınıfı aksiyal spondiloartrit (axSpA) olarak tanımlanır. Radyografik incelemelerde omurgada yada sakroiliak eklemde hasar bulunması durumunda radyografik axSpA yada ankilozan spondilit (AS), yapısal hasarın görülmediği grup ise non-radyografik axSpA olarak adlandırılır (1,2).

AxSpA tanısı için önerilen sınıflama kriterleri hastalığın kavramındaki değişiklikleri yansıtacak şekilde değişiklik göstermiştir. Roma kriterleri, NewYork kriterleri, Modifiye NewYork Kriterleri kullanılan sınıflama kriterlerindendir. Güncel olarak 2009 yılında Uluslararası Spondiloartrit Değerlendirme Cemiyeti (Assessment of Spondyloarthritis International Society; (ASAS)) axSpA tanı kriterleri öne sürülmüştür (2).

AxSpA grubu hastalarda eklem bulguları ve sistemik etkilenimler görülmektedir. En sık görülen klinik bulguları arasında kalça ve bel bölgelerinde hissedilen, hareketle azalan sinsi başlangıçlı ağrı, sabah tutukluğu, fonksiyonel limitasyon, yorgunluk bulunmaktadır (3). Ankiloz ve fonksiyonel limitasyon gelişimi

[1] Dr. Öğr. Üyesi, İzmir Bakırçay Üniversitesi, Sağlık Bilimleri Fakültesi, Fizyoterapi ve Rehabilitasyon Bölümü, tugce.ozen@bakircay.edu.tr, ORCID iD: 0000-0003-0611-6752

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te egzersizleri, kuvvetlendirme egzersizleri ve özel egzersiz konseptleriyle ilgili araştırmalarda egzersizin güvenle uygulanabilmektedir. Egzersiz tedavisinin axSpA hastalarında kısa ve/veya uzun dönemde ağrıyı, yorgunluğu, spinal mobiliteyi, fiziksel fonksiyonel kapasiteyi, kardiyorespiretuar uygunluğu geliştirme gibi olumlu etkileri olduğu belirtilmektedir. Klinik ve araştırma ortamlarında axSpA hastalarının bireysel özelliklerine göre egzersiz programı oluşturulması önerilmektedir.

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BÖLÜM 21

TEMPOROMANDİBULAR EKLEM DİSFONKSİYONLARINDA FİZYOTERAPİ VE REHABİLİTASYON YAKLAŞIMLARI

Fırat KARA [1]
Neslihan KÖSE[2]

GİRİŞ

Temporomandibular eklem (TME) çiğneme, yutma, konuşma gibi hareketlerde rol oynayan kraniomandibular sistemde bilateral şeklinde bulunan sinovial bir eklemdir (1). TME disfonksiyonu (TMED); eklem, çiğneme kasları ve bitişik segmentleri içeren, yapısal ve fonksiyonel dengenin bozulmasıyla ortaya çıkan klinik tablodur (2). Bu eklemdeki disfonksiyonlar, TME ve periartiküler kas-iskelet yapılarını içeren kompleks bir rahatsızlıktır (3). Anatomi, oklüzyon, parafonksiyon, travma ve psiko-duygusal durumlar gibi birçok faktörden etkilenebilmektedir (4).

Güncel bir sistematik derlemeye göre dünya nüfusunun yaklaşık üçte birinin (%29,5) TMED'den etkilendiği tahmin edilmektedir (5). Kıtalar arasında incelemede ise en yüksek prevalans %33.8 ile Avrupa olurken en düşük prevalans ise Kuzey Amerika'da (%19,4) rapor edilmiştir (5). Cinsiyetler arası incelendiğinde kadınlarda erkeklerden daha sık görülmektedir (6). 20-40 yaş aralığında ise daha yaygın olmakla beraber 18 yaş ve altında da görülebilmektedir (7).

1 Öğr. Gör., Nuh Naci Yazgan Üniversitesi, Meslek Yüksekokulu, Terapi ve Rehabilitasyon Bölümü, nkose@nny.edu.tr, ORCID iD: 0000-0002-2541-6905

2 Öğr. Gör., Nuh Naci Yazgan Üniversitesi, Meslek Yüksekokulu, Terapi ve Rehabilitasyon Bölümü, fkara@nny.edu.tr, ORCID iD: 0000-0003-1177-7926

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mak semptomatik tedavinin temelini oluşturmaktadır. TMED tedavisinin başlıca hedeflerinde ağrıyı azaltmak, limitasyonları önlemek ve fonksiyonu artırmak yer almaktadır. Bununla birlikte sekonder gelişen problemlerin de kontrol altına alınması diğer hedefler arasındadır. Bu amaçla TMED tedavisinin temelinde fizyoterapi ve rehabilitasyon yaklaşımları yer almaktadır. TMED hastalarında egzersiz, manuel tedavi ve diğer fizyoterapi yöntemlerinin bilimsel ve klinik olarak etkili uygulamalar olduğu gösterilmiştir. Multidisipliner bakış açısıyla desteklenen tedavi yaklaşımları, hastalığın önlenmesi ve iyileştirilmesinde faydalı olmaktadır.

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BÖLÜM 22

KOMPLEKS BÖLGESEL AĞRI SENDROMUNDA FİZYOTERAPİ VE REHABİLİTASYON

İsmail CEYLAN [1]

GİRİŞ

Şeb-i yeldayı müneccimle muvakkit ne bilir,
Mübtelâ-yı gama sor kim geceler kaç saat.

(Fuzuli)

Kompleks bölgesel ağrı sendromu (KBAS), genellikle tek tip bir yaralanmaya bağlı olmaksızın gelişen kronik bir patolojidir. Bu sendromda ağrılı alan dermatomal olarak sınırlanamaz ve ilgili ekstremitenin bazen distalinde bazen de tamamında disfonksiyon görülebilir. KBAS teşhisi ve tedavisi tecrübe gerektiren yönetilmesi zor bir süreçtir.

Bu sendrom, etkilediği bölgede inflamatuar reaksiyon ve otonom disfonksiyon gelişimi ile diğer hastalıklardan ayrışır. Bu hastalıkta gelişen otonom disfonksiyon sempatik hiperaktivasyonla karakterizedir ve ağrı yönetimi tedavinin prognozunu direkt etkiler.

KBAS, üst ekstremitede daha sık görülmekle beraber genellikle unilateral tutuluma sahiptir. Laboratuvar bulgularının ayırt ediciliği zayıf olmakla beraber radyografide bölgesel osteopeni bulguları gözlenebilir. Bu süreçte ekstremitede kalıcı fonksiyon kaybının önlenmesi için erken teşhis ve tedavi önemlidir (1).

[1] Dr. Öğr. Üyesi, Kırşehir Ahi Evran Üniversitesi Fizik Tedavi ve Rehabilitasyon Yüksekokulu, Fizyoterapi ve Rehabilitasyon Bölümü, fztceylan@gmail.com, ORCID iD: 0000-0002-6465-0243

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Resim 4: Yukarıda tanımlanan hastanın volar ve dorsal görünümü (etkilenen tarafta parmak fleksiyon kontraktürü gözlenmektedir).

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BÖLÜM 23

İZOLE GASTROKNEMİUS KAS KISALIĞI: BİYOMEKANİK ETKİLERİ VE FİZYOTERAPİ YAKLAŞIMI

Deniz TUNCER[1]

GİRİŞ

Gastroknemius-soleus kompleksi, tibiotalar eklemde plantar fleksiyonu sağlayan başlıca kas grubunu oluşturur. Kas gövdesindeki kısalık veya gerginlik, ayak bileği dorsifleksiyonunu kısıtlayarak ekinus kontraktürüne yol açabilir. Gastroknemius kası diz eklemini geçtiği için, diz ekstansiyonda kasın gerilimi maksimum düzeydedir; diz fleksiyonu ise kasın origo ve insersiyonu arasındaki mesafeyi kısaltarak kas gövdesindeki gerilimi azaltır ve ayak bileğinde dorsifleksiyon hareketinin artmasına olanak tanır. Literatürde, bu mekanik rahatlamayı sağlamak için yaklaşık 20° diz fleksiyonunun yeterli olduğu bildirilmiştir (1). Soleus kası diz eklemini çaprazlamadığından, bu kastaki gerginlik diz pozisyonundan bağımsızdır. Bu nedenle, gastroknemius kısalığı, diz ekstansiyonda ve fleksiyonda tibiotalar eklemde elde edilebilen maksimum dorsifleksiyon arasındaki fark olarak tanımlanır. Diz ekstansiyondayken gözlenen ve diz fleksiyonu ile düzelmeyen dorsifleksiyon kısıtlılığı ise soleus veya gastroknemius-soleus kompleksinin kısalığı olarak değerlendirilebilir (2).

Nörolojik sorunlar ekinus kontraktürünün başlıca nedenleri olsa da, Hill (3) ve DiGiovanni ve ark. (4) gastroknemius kontraktürünün herhangi bir patolojik yatkınlığı olmayan sağlıklı bireylerde de görülebileceğini vurgulamıştır.

[1] Dr. Öğr. Üyesi, Bezmialem Vakıf Üniversitesi Sağlık Bilimleri Fakültesi Fizyoterapi ve Rehabilitasyon Bölümü, dtuncer@bezmialem.edu.tr, ORCID ID: 0000-0003-4975-827X

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Bir çalışmada, halluks valgus, gastroknemius kısalığı ve genu valgumun belirli bir hasta grubunda birlikte görülebildiği bildirilmiştir (62). Bu ilişkinin tanınması, klinisyenlerin olguları değerlendirirken ve uygun tedavi seçeneklerini belirlerken daha kapsamlı bir bakış açısı geliştirmelerine katkı sağlayabilir. Tedavinin ilk basamağı ise konservatif, yani cerrahi dışı yöntemlerin etkin biçimde uygulanmasını hedeflemelidir. Aktivite düzeyinin düzenlenmesi, uygun ayakkabı seçimi ve gerektiğinde tabanlık ya da pedli ayakkabılarla destek sağlanması; ayrıca kilo kontrolü gibi yaşam tarzına yönelik düzenlemeler bu yaklaşımın temel unsurlarıdır (63, 64).

SONUÇ

İzole gastroknemius kas kısalığı, ayak bileği dorsifleksiyonunu sınırlayarak alt ekstremite biyomekaniğini değiştirebilen ve çok sayıda ayak–ayak bileği patolojisine zemin hazırlayabilen bir durumdur. Erken tanı, uygun değerlendirme yöntemlerinin seçilmesi ve bireye özgü fizyoterapi yaklaşımlarının uygulanması, komplikasyonların önlenmesinde kritik rol oynar. Özellikle hedefe yönelik germe, kuvvetlendirme ve intrinsik/ekstrinsik kasları destekleyen egzersizlerin, biyomekanik dengeyi ve fonksiyonel kapasiteyi geliştirmede etkili olduğu gösterilmiştir. Klinik pratiğin, güncel bilimsel kanıtlar doğrultusunda kişiselleştirilmiş konservatif yaklaşımları öncelemesi, uzun dönemde hem semptom kontrolü hem de ayak–ayak bileği sağlığının korunması açısından önem taşımaktadır.

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BÖLÜM 24

GÖRÜNMEYENİ DOKUMAK: TEMEL BEDEN FARKINDALIK TERAPİSİ

Tuğçe Şirin KORUCU[1]

GİRİŞ

Günümüzün hızlı ve yoğun yaşam temposu, bedensel ve zihinsel sağlığımız üzerinde derin etkiler bırakmaktadır. Stres, düzensiz uyku ve sürekli zihinsel yüklenme; hem bedenimizi hem de zihnimizi yoran en önemli faktörler arasında yer almaktadır. Oysa sağlık yalnızca hastalıkların yokluğu değil, zihinsel denge, duygusal dayanıklılık ve bedensel farkındalıkla desteklenen bütüncül bir iyilik hâlidir. Mental sağlık, bu bütünlüğün merkezinde durmaktadır. Duygularımızı anlamak, stresle başa çıkabilmek ve bedenimizin verdiği sinyalleri fark edebilmek; yaşam kalitemizi belirleyen temel becerilerdir. Bu noktada uyku, sinir sistemini düzenleyen ve bedenin kendini onarmasına izin veren hayati bir süreç olarak öne çıkmaktadır. Ancak uyku sorunlarının kökeninde çoğu zaman fark edilmeyen stres yükü ve bedenden kopuk bir yaşam tarzı yatmaktadır.

Temel beden farkındalık terapisi (TBFT), bireyin kendi bedeniyle yeniden bağlantı kurmasına yardımcı olan bütüncül bir yaklaşım sunmaktadır. Nefes, hareket ve farkındalık pratikleri sayesinde birey stresin bedendeki izlerini gözlemlemeyi, uyku düzenini desteklemeyi ve zihinsel dinginliği artırmayı öğrenir. Böylece sağlık, yalnızca bir hedef değil, her an içinde yaşanabilen bir deneyime dönüşür. Bu kapsamda sağlık ve mental sağlık arasındaki ilişkinin anlaşılması,

[1] Öğr. Gör. Dr., İzmir Bakırçay Üniversitesi Sağlık Bilimleri Fakültesi, Fizyoterapi ve Rehabilitasyon Bölümü, tugcesirin.korucu@bakircay.edu.tr, ORCID iD: 0000-0002-9534-2446

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SONUÇ

Stres, uyku döngüsü ve sirkadiyen ritim arasındaki etkileşimler, hem fiziksel hem de mental sağlık üzerinde belirleyici bir rol oynamaktadır. Literatür, stresin HPA ekseni aracılığıyla uyku düzenini bozduğunu, uyku yetersizliğinin ise stres yanıtlarını şiddetlendirdiğini ve bu sürecin özellikle duygu durum bozukluklarıyla yakından ilişkili olduğunu ortaya koymaktadır. Aynı zamanda sirkadiyen ritim bozuklukları, bu döngüyü daha da karmaşık hale getirerek hem bilişsel işlevlerde hem de duygusal düzenlemede önemli olumsuzluklara yol açmaktadır.

Bu bağlamda, stres yönetimi ve sirkadiyen ritimle uyumlu yaşam alışkanlıklarının geliştirilmesinde yalnızca biyolojik süreçlere odaklanmak yeterli değildir; bireyin beden farkındalığını artıran, stresle başa çıkma becerilerini destekleyen ve uyku düzenini olumlu yönde etkileyen müdahalelere ihtiyaç duyulmaktadır. TBFT, bireyin bedeniyle olan ilişkisini güçlendirerek zihinsel ve duygusal süreçlere bütüncül bir denge kazandırmayı amaçlayan bir yöntem olarak öne çıkmaktadır. Literatürde TBFT'nin, stres düzeylerini azaltma, uyku kalitesini iyileştirme ve otonom sinir sistemi regülasyonunu destekleme açısından etkili bir yaklaşım olabileceği belirtilmektedir.

Sonuç olarak, stres, uyku ve sirkadiyen ritim etkileşimlerini bütüncül bir çerçevede ele almak; biyopsikososyal modeller kapsamında TBFT gibi beden odaklı terapötik yaklaşımları sağlık politikalarına ve klinik uygulamalara entegre etmek önem taşımaktadır. Gelecekte yapılacak araştırmaların, bu üçlü etkileşimi daha ayrıntılı incelemesi, biyopsikososyal yaklaşımların güçlendirilmesine katkıda bulunacaktır.

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BÖLÜM 25

DİASTAZİS REKTİ'DE FİZYOTERAPİ VE REHABİLİTASYON

Hilal DENİZOĞLU KÜLLİ [1]
Merve BİLGİÇ [2]

GİRİŞ

Diastazis rekti abdominis (DRA), linea albanın genişlemesi sonucunda rektus abdominis kaslarının orta hattan ayrılması ve buna bağlı bağ dokusu zayıflığı ile karakterize edilen, ancak fasya defekti bulunmayan bir durumdur (1-3). **Orta hattaki kas-fasya sürekliliğinin korunması ve gerçek bir herni kesesinin olmaması, DRA'yı ventral hernilerden ayıran temel özelliklerdendir.** Bununla birlikte linea alba'nın incelmesi ve gerilmesi, göbek, epigastrik, trokar ve insizyonel herniler gibi orta hat fıtıklarının gelişiminde önemli bir risk faktörü olarak değerlendirilmektedir (4).

[1] Doç. Dr., Atlas Üniversitesi, Sağlık Bilimleri Fakültesi, Fizyoterapi ve Rehabilitasyon Bölümü, hilal_denizoglu_7@hotmail.com, 0000-0002-8003-4440

[2] Uzm Fzt., Atlas Üniversitesi Lisansüstü Eğitim Enstitüsü Fizyoterapi ve Rehabilitasyon Anabilim Dalı, mrvblgc@hotmail.com, 0009-0005-8316-8152

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BÖLÜM 26

ÜRİNER İNKONTİNANSDA DEĞERLENDİRME VE TEDAVİ YÖNTEMLERİ

Hanife ABAKAY[1]

GİRİŞ

Üriner inkontinans (Üİ), istemsiz idrar kaçırma ile karakterize, bireyin fiziksel, psikolojik ve sosyal yaşam kalitesini olumsuz yönde etkileyen yaygın bir sağlık sorunudur. Her yaşta görülebilmekle birlikte, özellikle kadınlarda gebelik, doğum, menopoz ve pelvik taban yapılarında yaşa bağlı değişiklikler; erkeklerde ise prostat cerrahisi ve nörolojik hastalıklar Üİ riskini oldukça artırmaktadır.

Üİ, yalnızca semptomatik bir problem değil; aynı zamanda düşme riskinde artış, cilt lezyonları, uyku bozuklukları, depresyon ve sosyal izolasyon gibi çok boyutlu olumsuz sonuçları beraberinde getiren bir durumdur. Bu nedenle, etkili bir yönetim için ayrıntılı değerlendirme ve kişiselleştirilmiş tedavi yaklaşımları büyük önem taşır.

Tedavi seçenekleri; yaşam tarzı değişiklikleri, mesane eğitimi, pelvik taban kas eğitimi, mesane eğitimi, farmakolojik tedaviler ve cerrahi girişimler gibi çok yönlü yöntemleri kapsar. Multidisipliner bir ekip çalışması ile bireye özel olarak planlanan bu müdahaleler, hem semptom kontrolünde hem de yaşam kalitesinin artırılmasında yüksek başarı sağlamaktadır.

Bu bölümde, Üİ'nin değerlendirme basamakları ve güncel tedavi yaklaşımları bilimsel kanıtlar ışığında ele alınacak, klinik uygulamalara yönelik pratik bilgiler sunulacaktır.

[1] Doç. Dr., Kayseri Üniversitesi, İncesu Ayşe ve Saffet Arslan Sağlık Hizmetleri Meslek Yüksekokulu, Terapi ve Rehabilitasyon Bölümü, fzthanifeabakay@gmail.com, ORCID iD: 0000-0003-4047-7965

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BÖLÜM 27

LENFÖDEMDE FİZYOTERAPİ VE REHABİLİTASYON

Gözde BAŞBUĞ [1]

GİRİŞ

Lenfödem, lenfatik sistemin ilerleyici patolojik bir durumu olup, proteinden zengin sıvının interstisyel aralığa birikimesi nedeniyle oluşan inflamasyon, yağ dokusu hipertrofisi ve fibrozis ile karakterize bir ödem şeklidir. Etkilenen bölgede şişliğe ve fibrozis oluşumuna, ilerleyen dönemlerde sertleşme ve hatta eklem hareket açıklığında kayıplara neden olabilmektedir. Hastalarda genellikle fonksiyon bozukluğu ve yaşam kalitesinin olumsuz etkilenmesi de duruma eşlik eder (1).

Lenfödem, eski çağlardan bu yana bilinen bir hastalık olmasına rağmen, günümüzde kanser tedavilerinin yaygın bir komplikasyonu olarak ortaya çıkması sebebiyle daha çok dikkat çekmektedir. Konservatif olarak kontrol altına alınması süreç gerektirdiği için hastalar açısından hem fiziksel hem de psikolojik olarak ciddi bir hastalık yüküne ve morbiditeye neden olmaktadır. Ayrıca lenfödem gelişen olgularda teşhis, uzmana ulaşım ve tedavi sürecinde oluşan gecikmeler nedeniyle hastaların bu kronik hastalık karşısında yaşadıkları hayal kırıklığı artmakta ve yaşam kalitesi düşmektedir (1).

[1] Dr. Öğr. Üyesi, İstanbul Aydın Üniversitesi, Sağlık Bilimleri Fakültesi, Fizyoterapi ve Rehabilitasyon Bölümü, gozde.basbug@gmail.com, ORCID iD: 0000-0002-3747-8193

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Gevşeme egzersizleri ve nefes çalışmaları ise hem sempatik sinir sistemi aktivitesini azaltarak dolaşımı desteklemekte hem de ödemin subjektif şiddet algısını düşürmektedir (12).

Sonuç olarak lenfödemde alternatif ve tamamlayıcı tedavi yöntemleri tek başına küratif olmamakla birlikte standart kompleks boşaltıcı fizyoterapiye ek olarak uygulandığında klinik yarar sağlayabilmektedir (15).

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BÖLÜM 28

DİYABETTE FİZYOTERAPİNİN ROLÜ: FONKSİYONEL SONUÇLAR VE MÜDAHALE STRATEJİLERİ

Ukbe ŞIRAYDER [1]
Oğuzhan YILMAZ [2]

GİRİŞ

Diyabet mellitus, pankreastan salgılanan insülin hormonunun eksikliği veya etkisizliği sonucunda ortaya çıkan ve kronik hiperglisemi ile seyreden metabolik bir hastalıktır. Başlıca tip 1 (T1D) ve tip 2 diyabet (T2D) olarak sınıflandırılır; ayrıca gestasyonel diyabet (gebelikte ortaya çıkan) ve belirli genetik bozukluklar ve endokrin hastalıklara bağlı diğer özel diyabet tipleri de tanımlanmıştır. T1D, insülin üreten beta hücrelerinin otoimmün yıkımı sonucu gelişirken; T2D insülin direnci ve relatif insülin eksikliği ile karakterizedir. T2D tüm diyabet vakalarının yaklaşık %90-95'ini oluşturmaktadır (1). Her iki ana diyabet tipinde de kronik hiperglisemi, uzun vadede çoklu organ hasarına yol açabilen ciddi komplikasyonlar doğurur.

Diyabet, prevalansı küresel ölçekte hızla artan önemli bir halk sağlığı sorunudur. Dünya Sağlık Örgütü'ne göre 2022'de yetişkin nüfusun yaklaşık %14'ü diyabetlidir (2). Türkiye'de de benzer bir artış söz konusu olup, 2022 Türkiye İstatistik Kurumu verilerine göre 15 yaş üzeri bireylerde diyabet oranı %11'in üzerinde bildirilmiştir (3).

1 Dr. Öğr. Üyesi, Nuh Naci Yazgan Üniversitesi, Sağlık Bilimleri Fakültesi, Fizyoterapi ve Rehabilitasyon Bölümü, ukbesirayder@hotmail.com, ORCID iD: 0000-0001-7094-3432

2 Öğr. Gör., Nuh Naci Yazgan Üniversitesi, Meslek Yüksek Okulu, Terapi ve Rehabilitasyon Bölümü, oguzhanylmz@gmail.com, ORCID iD: 0000-0003-0888-3138

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