ROBOTİK REHABİLİTASYON

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GİRİŞ

Robot, sensörler aracılığıyla çevresini algılayan, algıladıklarını yorumlayan, bu sonuçlara göre karar veren, verdiği kararın sonucuna göre davranan (yapay-zeka), eylem olarak hareket organlarını çalıştıran veya durduran (multifonksiyonel-manipülatörler) teknolojik bir aygıt (bir görevi yerine getiren ve tekrar programlanabilen özelleşmiş cihazlar) olarak tanımlanır (1).

Robotik teknolojinin gelişimi ile rehabilitasyonda robotik cihazların kullanımı yaygınlaşmıştır. Robotlar ile yapılan rehabilitasyon sürecinde hastaya ait veriler toplanıp analiz edilir, hareket istenilen aralıkta ve yoğunlukta planlanır, hedefe yönelik egzersizler veya eylemler gerçekleştirilir.

Rehabilitasyon ve davranış eğitimi sırasında uygulanacak doğru hareket paternleri ve çok sayıda tekrar, nöral bağlantılarda reorganizasyon veya davranışsal adaptasyona imkan sağlayarak nöroplastisiteyi olumlu etkilediğinden oldukça önemlidir (2). Rehabilitasyon programı hedefe yönelik (sık tekrar ve spesifik aktiviteler öğrenme), yoğun ve kişiye özgü olmalıdır.

Konvansiyonel Tedavi (KT) terapist tarafından yapılır. KT bol tekrarlı olup, el emeği ve bedensel güç kullanımını gerektiren manuel bir terapidir. Bu nedenlerle yoğun emek ister ve zaman alır. Tekrarlayan hareketler ile hastada istenmeyen kas zorlanmaları ve yorgunluk görülebilir. Terapistler arasında rehabilitasyon sonuçları açısından bireysel farklılıkların da olabileceği unutulmamalıdır.

Robotik Rehabilitasyon (RR) ile hareket paternlerinin doğru uygulanabilmesinin yanı sıra, egzersizler hızlı, yoğun ve bol tekrarlı şekilde yapılabilir. Bu

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Robotik teknolojinin rehabilitasyon işlemlerinde en önemli avantajı yüksek dozda ve yüksek yoğunlukta ve standardize bir eğitime izin vermesidir ve bu özelliği ile robotik terapi motor bozukluğu (İnme, SKY, MS vb) olan hastalarda faydalı olabilir. Genel kanı RR ve KT kombine edildiğinde rehabilitasyonun daha etkin olduğudur.

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