

33.d Ekstrakorporeal Şok Dalgası Tedavisi

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Giriş

Şok dalga tedavilerinin tıbbi amaçlı kullanımı 1970'li yıllarda belgelenmeye başlamıştır (1). Şok dalgaları üriner, renal ve parotis bezi kalkülle-ri gibi dahili hastalıkların tedavisi yanında, tıpta tendinopati, kalsifikasyon, non-union gibi ortopedik patolojilerin de tedavisinde kullanım alanı bulmuştur. Bu bölümde şok tedavisinin (extracorporeal shock wave therapy=ESWT) fizyoterapide kullanılan yerleri derlenecektir. ESWT çok sayıda kas-iskelet sistemi yaralanmasının tedavisi için yararlı bir rejeneratif tıp tekniği olarak büyük bir potansiyel göstermektedir (2).

Klinik uygulamada, uygulamada kullanılan cihaz türlerine göre farklılık gösteren odaklanmış şok dalgası tedavisi (FSWT) ve radyal şok dalgası tedavisi (RSWT) olmak üzere iki farklı ESWT türü kullanılmaktadır. RSWT nispeten yenidir ve ESWT'yi daha uygun fiyatlı ve daha yaygın olarak kullanılabilir hale getirmiştir. FSWT odaklama cihazlarını (elektro-hidrolik, piezo-elektrik, elektromanyetik düz, elektromanyetik silindirik) içerirken, RSWT radyal (balistik) cihazlardan oluşur. Ayrıntılı olarak, FSWT, 2-8 mm çapındaki küçük

bir odak alanında odaklanmış bir dalga üretir, böylece dokuda belirli bir derinlikte oval şeklindeki bir odak bölgesinde maksimum enerji değişim dansitesi (maximal energy flux density, EFD) üretir. Buna karşılık, RSWT'nin balistik kaynağı, ciltte radyal olarak dağılan ve kaynakta maksimum basınca ulaşan odaklanmamış bir dalga ile sonuçlanır (3). Dalgalar bir akustik lens ve yansıtıcı sistem yardımıyla odaklanabilir (4). Böylece, odaklanmış şok dalgaları (fSW) vücudun kısıtlı bir bölgesinde yoğunlaşır ve dokuya daha derine nüfuz edebilir, oysa radyal şok dalgaları (rSW) daha yüzeyseldir; bu nedenle, rSW genellikle vücudun daha geniş alanlarını tedavi etmek için kullanılır (2). Bununla birlikte, mevcut ortopedik araştırmaların çoğu, odaklanmış şok dalgalarının kas-iskelet sistemi üzerinde uygulanmasına odaklanmıştır (5). Fokuslanan odak, pozitif basınç pikinin uygulandığı alandır. Birim alana yoğunlaştırılan şok dalga enerjisi, oluşum yönüne dik olarak yansıtılan şok dalga akımını gösteren enerji değişim dansitesi (Energy Flux Density, EFD) ile ifade edilir ve bu terim şok dalgalarının dozajını gösterir (6). EFD birimi mJ/mm^2 dir (Şekil-1).

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Komplikasyon oranları düşük ve ihmal edilebilir düzeydedir. Şok dalgası tedavisinin kesin mekanizması bilinmemektedir. Hayvan deneylerinde, ESWT, neovaskülarizasyonu ve anjiyogenetik büyüme faktörlerinin hiperregülasyonu dahil olmak üzere bir dizi moleküler değişiklikleri indükler. Bu da dolaşım ve doku rejenerasyonu faaliyetiyle iyileşmeyi sağlar.

ESWT'nin etkinliğini değerlendiren çalışmalar genellikle subakut ve kronik semptomlu hastalarda yapılmıştır. Akut durumlardaki etkileri ile ilgili randomize kontrollü çalışmalar yoktur.

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