BÖLÜM 8

YETİŞKİN TİP KÖK HÜCRELER VE GÜNCEL KLİNİK UYGULAMALARI: HEMATOPOETİK KÖK HÜCRE VE MEZENKİMAL KÖK HÜCRE

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GİRİŞ

Kök Hücreler Nedir? Ne İşlev Yaparlar?

Kök hücreler, kendisini yenileyebilme yeteneğine ve farklı hücre tiplerine dönüşebilme potansiyeline sahip farklılaşmamış hücrelerdir. Vücudun hammaddeleridir. Vücutta veya laboratuvarda doğru koşullar altında, kök hücreler yavru hücreler adı verilen daha fazla hücre oluşturmak için bölünürler. Bu yavru hücreler, kan hücreleri, beyin hücreleri, kalp kası hücreleri veya kemik hücreleri gibi daha spesifik bir işleve sahip özelleşmiş (farklılaşmış) kök hücreler, yeni kök hücreler veya özelleşmemiş kök hücrelerdir. Vücuttaki başka hiçbir hücrenin yeni hücre türleri üretecek doğal yeteneği yoktur.[1-8] Bu özellikleri nedeniyle kök hücre temelli uygulamalar, rejeneratif tıp alanında güncel bir konu olarak yer almaktadır. Rejeneratif tıp, normal işlevi eski haline getirmek veya kurmak için insan hücrelerini, dokularını veya organlarını değiştirme veya "yenileme" süreci olarak tanımlanabilir. Bu alan, hasarlı dokuyu değiştirerek veya vücudun kendi onarım mekanizmalarını dokuları veya organları iyileştirmek için uyararak vücuttaki hasarlı doku ve organları yenileme temeline dayanır.[9] Rejeneratif tıp aynı zamanda bilim adamlarının laboratuvarda doku ve organ geliştirmelerine ve vücut kendini iyileştiremediğinde bunları güvenli bir şekilde naklet-melerine de olanak sağlayabilir. Araştırmacılar, kök hücreler ve bunların nakil ve rejeneratif tıptaki uygulamaları hakkındaki bilgilerini, birçok farklı kök hücre türünü inceleyerek ilerletmeye devam ediyor.[10]

Kök hücre tipleri:

Kök hücreler köken aldıkları kaynağa göre 2 gruba ayrılırlar. Bunlar:

1. "Pluripotent" kök hücreler (embriyonik kök hücreler ve uyarılmış pluripotent kök hücreler).[1]
2. "Embriyonik olmayan veya somatik" kök hücreler (genellikle "yetişkin" kök hücreler olarak adlandırılır).[2,7]

Kök hücreler diferansiyasyon yeteneğine göre ise totipotent, pluripotent, multipotent ve unipotent hücreler olarak ayrılırlar.[3,7]

Embriyonik kök hücreleri: Sperm ve yumurta birleşmesiyle oluşan zigot ve erken blastomerler (oosit fertilizasyonundan sonraki 1-3 gün)

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çıkan değişen klinik özelliklere sahiptir. Bununla birlikte, teşhis ve yönetim amaçları için, distrofinopatiler genellikle aşağıdaki kategorilere ayrılır:[187]

» Duchenne musküler distrofi (DMD) en ciddi klinik semptomlarla ilişkilidir
» Becker musküler distrofi (BMD), DMD' ye benzer bir sunuma sahiptir, ancak tipik olarak daha geç başlar ve daha hafif bir klinik seyir gösterir
» Orta fenotipe sahip hastalar, klinik olarak hafif DMD' ye veya şiddetli BMD' ye sahip olarak sınıflandırılabilir.

Glikokortikoidler, motor fonksiyonu ve pulmoner fonksiyonu iyileştirme, skolyoz riskini azaltma, kardiyomiyopatinin ilerlemesini geciktirme ve sağkalımı iyileştirme konusundaki yararlı etkileri nedeniyle DMD için farmakolojik tedavinin temel dayanağıdır. Fakat bugüne kadar yapılmış ve hastalığı tamamen ortadan kaldıran bir tedavi bulunmamaktadır. Bu anlamda kök hücre uygulamaları ile ilgili çalışmalara yönelinmiştir. Kardiyak progenitör hücrelerden türetilen kök hücrelerin allojenik olarak uygulanması DMD' nin tedavisi için umut vaat etmektedir; Etkinliği oluşturan mekanizmanın hastalığı modifiye edici bir anti-inflamatuar etki oluşturması yönündedir.[188,189]

Plasebo kontrollü HOPE-2 çalışması finansman sorunları nedeniyle erken durdurulmasına rağmen DMD' li 20 hasta için mevcut verilere bakıldığında her üç ayda bir 4 kez infüzyon şeklinde uygulanan kök hücre tedavisi sonrasında hastaların 1. yıl kontrollerinde üst ekstremite kuvvet skorunda plasebo grubuna göre anlamlı iyileşme elde edilmekle birlikte, 3 hastada aşırı duyarlılık reaksiyonları gelişmiştir. Hastaların ayrıca kardiyak fonksiyon testlerinde de düzelme gözlenmiştir. Kök hücre tedavisinin etkinliğini doğrulamak için daha büyük ve daha uzun denemelere ihtiyaç vardır.[190]

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