BÖLÜM 9

DİABETES MELLİTUS VE MİNERAL İLİŞKİSİ

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Giriş

Diabetes mellitus, hiperglisemi ile karakterize edilen bir metabolik hastalık grubudur. Bu hastalık, insülin salınımı ve/veya insülin aktivitesindeki sorunlardan kaynaklanır ve karbonhidrat, yağ ve protein metabolizmasında bozukluklar görülmektedir (1) . İnsülin, anabolik bir hormon olarak işlev görür ve birçok önemli rolü vardır. Bunlar arasında glikoz ve amino asitlerin hücre zarından geçişi, karaciğer ve iskelet kaslarında glikojen oluşumu, glikozun trigliseridlere dönüşümü, nükleik asit ve protein sentezi bulunur (2).

İnsülinin metabolizmadaki en önemli işlevi ise vücut ağırlığının üçte ikisini oluşturan kalp kası, fibroblast, yağ hücreleri ve çizgili kas hücrelerine glukoz taşıyıcı tip 4 (GLUT-4) üzerinden glikoz taşınmasını sağlamaktır (3). Beta hücresine GLUT-2 glikoz taşıyıcısı tarafından yapılan transportla hücre içine alınan glikoz, glikokinaz enzimiyle glikoz-6-fosfata dönüştürülür. Glikoz-6-fosfatın glikoliz yoluyla ileri metabolizması, adenozin trifosfat (ATP) duyarlı potasyum (K+) kanallarının aktivitesini inhibe ederek ATP üretimini sağlar. Bu K+ kanallarının inhibisyonu, beta hücre zarının depolarizasyonunu tetikler ve buna bağlı olarak voltaj bağımlı kalsiyum kanalları açılır. Bu durumda kalsiyum hücre içine girer ve insülin salınımını uyarır (4).

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Sonuç

Mineraller, insülin sinyalini arttırarak, glikoz metabolizmasında yer alan enzim sistemlerine kofaktör veya bileşen olarak hizmet eder. Bu şekilde insülin reseptör sahalarının aktivasyonunu sağlar ve insülin duyarlılığını artırır. Ayrıca, dokulardaki peroksidasyonu önleyen antioksidanlar olarak işlev görürler. Bu nedenle minerallerin eksikliği veya aşırı alımının potansiyel etkilerini anlamak, diyabetin önlenmesi ve tedavisi açısından önemlidir.

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