

# BÖLÜM 29

## EPİGENETİK MEKANİZMALAR VE B KOMPLEKS VİTAMİNLERİ

Uğur GÜNŞEN<sup>1</sup>

### GİRİŞ

Beslenme; büyüme, gelişme, sağlığı koruma ve geliştirme ve yaşam kalitesini yükseltmek amacıyla vücudun gereksinimi olan besin öğelerinin alınıp vücutta kullanılmasıdır. Bireyin kendi özelliklerine göre gereksinim duyduğu enerjiyi ve besin öğelerini alması ise yeterli ve dengeli beslenme olarak tanımlanmaktadır (1). Bireylerin ve toplumun sağlıklı yaşayabilmesi ve ekonomik yönden güçlü olması, toplumu oluşturan bireylerin sağlıklı olmalarına bağlıdır. Sağlığın temeli ise yeterli ve dengeli beslenmedir. Yeterli ve dengeli beslenme sağlıklı beslenme olarak da tanımlanmaktadır (2). İnsanın kaliteli ve sağlıklı bir yaşam sürmesi için çevresel faktörlerin en önemlilerinden birisi olan beslenmenin de doğru bir şekilde yapılandırılması gereklidir (3).

Günümüz beslenme bilimi, bireylerin sağlık durumlarını diyet ile düzeltmeyi ve böylece toplum düzeyinde sağlığı geliştirmeyi ve hastalıkların önlenmesini amaçlamaktadır. Yaklaşık 220 yıllık beslenme bilimi tarihinde ilk yaşanan gelişme “kimyasal devrim” olarak adlandırılan besinlerin

kimyasal yapısının aydınlatılması olmuş, bunu “beslenmenin altın dönemi” izlemiştir. Şu an yaşanan dönem ise “genomik devrim” olarak nitelendirilebilmektedir (4).

Tarih boyunca, üzerine çeşitli anlamlar yüklenen beslenme, 18. yüzyıla kadar ampirik düzeyde kalmıştır. Besinlerin içerikleri ve metabolik etkileri üzerine yapılan çalışmalar, 19. yüzyılın sonlarında önemli bir ivme kazanarak yayın sayısında artışlar görülmüş, 20. yüzyılın ikinci yarısından sonra ise beslenmenin sağlık ve hastalıklar üzerindeki etkisi tüm boyutlarıyla ortaya konulmaya başlanmıştır. Bugün hastalıkların pek çoğunda tıbbi tedavinin başarılı olabilmesi için hastanın beslenme düzeyinde değişiklikler yapılması ve kişiye özel diyet planı düzenlenmesi gerekmektedir (5).

İnsanların sağlıklı yaşayabilmesi, vücudunun büyümesi, gelişebilmesi, yenilebilmesi ve çalışabilmesi için yeterli ve dengeli bir şekilde beslenebilmesine bağlıdır. Vücut için gereken besin öğelerinin zamanında ve yeterli miktarlarda alınmadığı durumlarda hastalıklara karşı direnç azalmakta ve tedavileri zorlaşarak uzun sürmektedir

<sup>1</sup> Prof. Dr., Bandırma Onyedü Eylül Üniversitesi Sağlık Bilimleri Fakültesi Beslenme ve Diyetetik Bölümü, ugunsen@bandirma.edu.tr

nebilmekte ve bu durum özellikle büyüme ve gelişmenin kritik dönemlerinde önem taşımaktadır.

Gen ekspresyonu, genlerin aktif ya da susturulmuş konumunun belirlenmesini sağlamaktadır. Tek karbon ünitelerinin sağlanmasındaki değişimler, DNA metilasyonu aracılığı ile gen ekspresyonunu etkilemektedir. Maternal dönemde gerçekleşen DNA metilasyonları, gen ekspresyonunda bireylerin tüm yaşamını etkileyecek kalıcı değişikliklere neden olmaktadır. Hücresel döngü, çoğalma süreci ile başlayarak tüm hücre fonksiyonları için olumsuz sonuçlar taşıyan farklılaşma sürecine doğru değişebilmektedir. Bu yüzden besin öğesi alımının düzenlenmesi bireysel ve toplumsal düzeyde epigenetik modifikasyon süreçlerini etkileyebilmektedir.

Kardiyovasküler hastalıklar, obezite, diyabet ve kanser gibi bulaşıcı olmayan kronik hastalıkların esas nedeni olan beslenme, sağlığın geliştirilmesi sürecinde anahtar rollere sahiptir. Diyetle alınan suda çözünen B kompleks vitaminlerinden özellikle B<sub>2</sub>, B<sub>6</sub>, B<sub>9</sub> ve B<sub>12</sub> vitaminlerinin DNA metilasyonu ve histon modifikasyonları gibi epigenetik mekanizmalarda önemli rollere sahip olmaları nedeniyle bireyselleştirilmiş beslenme planlarında göz önünde bulundurulması ve ayrıca gastrointestinal sistem florasının geliştirilmesinin obezite başta olmak üzere birçok bulaşıcı olmayan kronik seyirli hastalıklardan korunmada ve tedavilerinde başarının sağlanması açısından destekleyici nitelikte olabilecektir.

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