

BÖLÜM 40

GRAM NEGATİF BAKTERİLERİN TANISI, DİRENÇ VE KONTROLÜNDE MOLEKÜLER YÖNTEMLERİN KULLANIMI



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Gram negatif bakteriler ile gelişen enfeksiyonlar dünyada hızlı artış göstermektedir. Antimikrobiyal direncin seçilmesi ile yeni antimikrobiyal direnç mekanizmalarının kazanılması *Escherichia coli*, *Klebsiella* gibi Enterobacterales ailesine ait gram negatif basillerde sık görülmektedir. Gram negatif bakterilerde direncin hızlı artışı, sağlık ilişkili mortaliteyi ve maliyeti artırmaktadır¹. Dünya Sağlık Örgütü, 2017 yılında üçüncü kuşak sefalosporin ve/veya karbapenem dirençli Enterobacterales, *Acinetobacter baumannii*, *Pseudomonas aeruginosa*'da yeni antibiyotik keşfini ve geliştirilmesini küresel olarak öncelik verilmesi gereken en önemli konu olarak açıklamıştır (<https://www.who.int/news.room>).

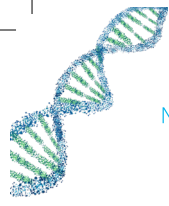
Yeni enfeksiyonların ortaya çıkışı, dirençli mikroorganizmaların artışı, geleneksel yöntemlerle bakterilerin saptanmasında yaşanan zorluklar özellikle hastane enfeksiyonlarının artmasında önemli rol oynamaktadır. *P.aeruginosa*, gram negatif nozokomiyal enfeksiyonların ilk sırasında yer almakta ve bunları bakteriyemi, pnömoni, endokardit ve menenjitin yanı sıra idrar yolu, oküler,

kemik ve deri/yumuşak doku enfeksiyonlarına neden olan iki önemli gram negatif patojen olan *A. baumannii* ve *Stenotrophomonas maltophilia* takip etmektedir^{2,3}.

Multipleks moleküler tanı sistemleri, tek bir klinik sendroma neden olabilen birçok patojeni tanımlayabilme kapasitesine sahip sistemlerdir. İki binli yılların sonuna doğru ortaya çıkan bu yaklaşıma 'sendromik panel' adı verilmektedir. Bu testlerin tasarımında ve geliştirilmesinde yaşanan yenilikler, birçok üretici firmanın son 10 yıl içinde klinik mikrobiyoloji laboratuvarlarında ileri düzeyde portföylerinin genişlemesine neden olmuştur⁴.

Antibiyotik direncinin saptanmasında mikroorganizmanın üremesine dayalı konvansiyonel fenotipik testler direncin saptanmasını sağlasa da, klinik örneğin alınmasından sonucun bildirilmesine kadar geçen sürenin 36-72 saat gibi uzun olması nedeniyle tanı ve tedavi açısından dezavantajlara sahiptir. Mikrobiyal üremeye dayalı olmayan moleküler yöntemler çok daha hızlı bir şekilde 1-4 saat içinde sonuç vererek tedavi kararının erken verilmesinde hayati önem taşımaktadır⁵.

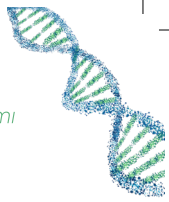
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moleküler tiplendirme yönteminin epidemiyolojik olarak ilişkisiz izolatların ayırım gücünü etkilemektedir. Birçok tiplendirme yönteminin avantajlı yönleri olduğu gibi kısıtlılık gösteren yönleri de bulunmaktadır. Bazı durumlarda moleküler tiplendirme yönteminin ayırt ediciliği ve tekrarlanabilirliğinin yüksek olması söz konusuysa, diğer yandan aynı yöntemde elde edilen sonuçların yorumlanması zor olabilmekte ve pahalı ekipman gerektirmektedir. Gram negatif bakterilerin moleküler tiplendirmesinde seçilecek yöntemin amaçlanan hedefe uygun olarak laboratuvarın alt yapısı ve kaynakları göz önüne alınarak karar verilmesi doğru bir yaklaşım olacaktır.

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