# RADYOTERAPİ İLİŞKİLİ PULMONER TOKSİSİTE

24. BÖLÜM

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## GİRİŞ

Radyasyona bağlı akciğer hasarı (RILI) ilk kez 1898'de, röntgenogramlar geliştirildikten sonra tanımlanmıştır [(1)]. İki ayrı RILI türü olan radyasyon pnömonisi ve radyasyon fibrozu arasındaki ayrım 1925'te yapılmıştır [(2)]. Günümüzde akciğer, meme veya hematolojik malignitelerin tedavisi için torasik ışınlama uygulanan hastalarda her iki tip akciğer hasarı görülmektedir. Normal akciğer parankiminde radyasyona bağlı hasar, göğüs radyoterapi (RT) sinde doz sınırlayıcı bir faktör olmaya devam etmektedir ve akciğerlere ek olarak göğüs kafesindeki diğer yapıları da kapsayabilmektedir.

Geniş bir literatür, akciğer hücrelerinin iyonlaştırıcı radyasyona karşı histopatolojik, biyokimyasal, kinetik, fizyolojik ve moleküler tepkilerini tanımlamaktadır [(3-7)]. Bununla birlikte, RILI'nin klinik teşhisi, malignite, enfeksiyon ve kardiyojenik pulmoner ödem dahil olmak üzere diğer koşulların varlığıyla genellikle karmaşık bir hal almaktadır [(8)]. RILI burada incelenecektir.

## PATOGENEZ

İyonize radyasyon, güçlü kimyasal bağları kırmak ve oldukça reaktif serbest radikal türleri oluşturmak için yeterli enerjinin lokalize salınmasına neden olur. Peptidler, lipidler ve DNA dahil hücresel moleküller, iyonize radyasyonun dokudaki su ile etkileşimi yoluyla doğrudan veya dolaylı olarak etkilenebilir. RILI, normal akciğer dokusu üzerindeki direkt sitotoksisitenin kombinasyonundan ve belki daha da önemlisi, radyasyonla indüklenen hücresel sinyal iletimi ile tetiklenen fibroz gelişiminden kaynaklanır. Sitotoksik etki, büyük ölçüde, normal akciğer epitel hücrelerinde klonojenik ölüme neden olan DNA hasarının bir sonucudur. Ancak apoptotik yollar da radyasyonla indüklenir. Akciğer fonksiyonunu tehlikeye atabilen fibroz gelişimine bir dizi farklı sitokin aracılık eder.

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