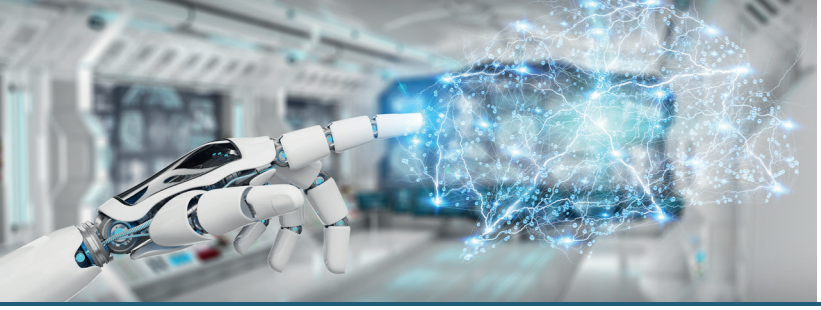

25.
BÖLÜM

PET/ BT GÖRÜNTÜLEMEDE RADYOMİK UYGULAMALAR

Nurşin AGÜLOĞLU [1]

GİRİŞ

Pozitron Emisyon Tomografisi (PET) malign tümörlerin varlığını araştıran noninvaziv fonksiyonel bir görüntüleme tekniğidir. ^{18}Flor-Fluorodeoksiglukoz(18F-FDG) kullanılarak yapılan Pozitron Emisyon Tomografisi/ Bilgisayarlı Tomografi (PET/BT) çeşitli malignitelerde tanı, evreleme, yeniden evreleme, tedaviye yanıt değerlendirilmesi ve tedavi sonrası rekürrensi saptamak amacıyla kullanılan görüntüleme cihazıdır (1,2). ^{18}F-FDG PET/BT görüntüleme klinik uygulamada, özellikle onkoloji alanında başarıyla kullanılmaktadır (3). Bugüne kadar PET/BT görüntülemede elde edilen standardize edilmiş tutulum (SUV) değerleri, metabolik tümör volümü (MTV), total lezyon glikolizi (TLG) gibi konvansiyonel parametre ölçümleri ile araştırmalar yapılmıştır (4,5). Tümör FDG tutulumu tümör agresifliği ile ilişkili olduğundan, SUV olarak ifade edilen analizde pozitif tümör tutulumu ve tutulum yoğunluğu malign hastalıkları olan hastalarda prognoz ile ilişkilidir (6). Ayrıca MTV ve metabolik olarak aktif tümör hacmini FDG tutulumu ile entegre eden TLG'yi içeren hacimsel parametreler klinik sonuçlarla önemli ilişki göstermektedir (7).

Kanser hücreleri kararsız hücrelerdir. Bunun sebebi de tümör heterojenitesidir. Tümörde tanımlanan reseptörler, tümör hipoksisi, anjiogenez, nekroz, fibrozis, hücre proliferasyonu ve inflamatuvar süreçler tümör heterojenitesinde rol oynar. Genel olarak tümör FDG tutulumu, intratümöral heterojenitesinde rol alan altta yatan biyolojik tümör durumlarına bağlı olarak düzensiz dağılım göstermektedir (8). Tümörler hem genetik hem de fenotipik olarak heterojen hale gelir (9). Tümör içi heterojenite tedaviye direncin ana nedenlerinden biri

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yatan gen ekspresyon paternleri ile ilişkili intratümör heterojenitesini belirlemede ve prognostik fenotipi tanımlamada yol göstericidir. Radyomik analiz kolay ulaşılabilir olması, kolay klinik uygulama sağlaması ve düşük maliyetle imajlamaların elde edilmesi kanser tedavisinde karar-destek sisteminin geliştirilmesinde yeni bir fırsat olarak düşünülmektedir.

Hedefe yönelik tedavilere hız verilen bu dönemde genomik, proteomik teknolojiler kullanılarak moleküler karekterizasyon üzerinde odaklanılmıştır. Tümörün heterojen yapısı onu anlamamız için daha fazla veri toplamamızı gerektirmektedir. Metabolik görüntülemede elde edilen parametrelerin ve radyomik kantitatif değerlerinin, genomik ve proteomik verilerin multidisipliner bir yaklaşım ile erken tanı, doğru ve hedefe yönelik tedavilerin belirlenmesinde, hastalığın spesifik karekterine dayalı bilgi verebileceğine inanıyoruz.

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