Bölüm 24

ACİL RADYOLOJİDE DUAL ENERJİ BT UYGULAMALARI

Çisel YAZGAN[1]

GİRİŞ

Dual-enerji bilgisayarlı tomografi (BT) son yıllarda kullanıma giren yeni bir BT teknolojisidir. Dual-enerji BT sistemleri ile işlem sonrasında farklı algoritmalar kullanılarak materyallerin ölçümü veya farklılığına dayalı analizler mümkündür. Tekniğin bu özellikleri sayesinde kullanımı ve çeşitliliği giderek artan klinik uygulamalar tanımlanmıştır. Bu uygulamaların birçoğu acil radyolojide de kullanım alanı bulmuştur. Bu bölümde ana hatları ile sanal kontrastsız görüntüler, üriner taş analizi, perfüzyon görüntüleme gibi Dual-enerji BT'nin acil radyolojideki klinik uygulamalarına yer verilecektir.

Dual Enerji BT Görüntülemede Temel Prensip

Konvansiyonel tek enerjili BT sistemlerinde dokuların ayırt edilmesinde X-ışını atenüasyon değerleri temel alınır. Atenüasyon incelenen dokuda radyasyonun saçılması ve soğurulması ile ilişkilidir. Doku ile X ışınının etkileşimi sonucu oluşan fotoelektrik etki ve Compton saçılımı görüntü oluşumunu sağlayan esas olaylardır. Konvansiyonel tek enerjili BT tekniğinde görüntüleme 120-140 kilovolt (kVp) arasında gerçekleşir ve ağırlıklı olarak Compton saçılımı etkileşimi meydana gelmektedir. Enerji seviyesi düştükçe fotoelektrik olay etkileşimi artar.

[1] Uzm. Dr., Radyoloji, yazgancisel@hotmail.com

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