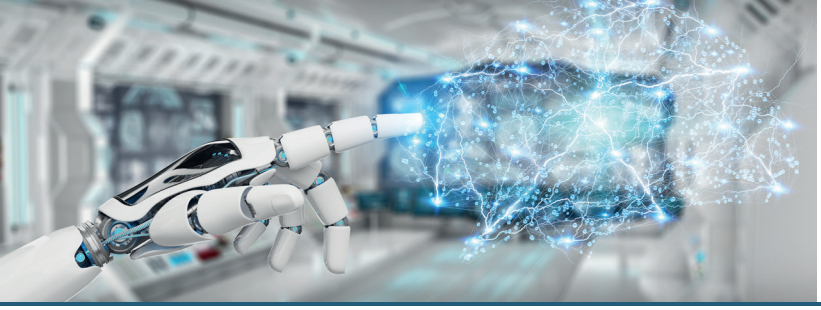

24. BÖLÜM

ÜROLOJİDE YAPAY ZEKA VE DERİN ÖĞRENMENİN KULLANIMI

Caner BARAN [1]

GİRİŞ

Yapay Zeka (YZ); insanın düşünme, öğrenme ve problem çözme gibi bilişsel fonksiyonlarını taklit ederek, kompleks paternleri analiz etmeye ve zorlu problemleri çözmeye yarayan ve insan tarafından yapıldığında zeka olarak adlandırılan davranışların, bilgisayar ya da makinelerce taklit edilmesi olarak tanımlanabilir.

Bir makinenin, insan gibi düşünebilmesi zeki olduğuna karar verilebilmesi için, ünlü İngiliz matematikçi Alan Turing tarafından tanımlanan ve 'Turing Testi' olarak bilinen teste göre; bir makine ve bir insana aynı sorular sorularak, alınan cevapların makineye mi yoksa insana mı ait olduğu anlaşılamadığı durumda, makinenin yapay zekaya sahip olduğu kabul edilir (1). Bu tanım temelinde bazı kusurlar içerse de, YZ konusundaki beklentiyi tanımlamak açısından belirleyici olmuştur.

Medikal teknolojideki ilerlemeler, bilgisayarların sağlık sistemi içerisinde vazgeçilmez bir yer edinmelerini sağlamıştır. Tıbbi kayıtların bilgisayarlar üzerinde saklanmaya başlanması, çok büyük miktarda verinin depolanması, bu verinin hastalıkları öngörme ve tedaviye karar vermede kullanılması, hastaların ve sağlık profesyonellerinin lehine önemli avantajlar sağlamıştır.

Yüksek miktarda veriye rağmen, bu veriler ile hızlı, verimli ve doğru çıkarımların yapılması, YZ teknolojilerindeki gelişmeler ile mümkün olmuştur. Yapay zeka teknolojisi olarak adlandırılabilecek birçok farklı yaklaşım ve yöntem mevcuttur. Tüm bu yönetmler tek bir yapay zeka şemsiyesi altında top-

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konvansiyonel cerrahi işlemlerin yerine otonom ameliyathanelerin geçmesine neden olabilir (59).

Bu gelişmelerin ilk adımları hayvanlar üzerinde yapılan araştırmalar ile atılmaktadır. Deney hayvanı (domuz) üzerinde uygulanan Robotik parsiyel nefrektomi sırasında, böbrek sınırlarının belirlenmesi amacıyla geliştirilen YZ modelinde başarılı sonuçlar elde edilmiştir (60). Robotik cerrahiye entegre YZ modelinin, bir organın sınırlarını doğru şekilde belirlemesi, yeterli veri ve model eğitimi ile kendi başına ameliyat yapabilen algoritmaların çok uzakta olmadığının işareti sayılabilir.

SONUÇ

Sağlık sisteminin tüm alanlarında olduğu gibi, ürolojide de teknolojik gelişmeler, günlük pratiğin değişmesine ve gelişmesine neden olmaktadır. Yapay zeka alanındaki baş döndürücü ilerlemeler, bireyselleştirilmiş tıbbın gelişmesi ve eğitimi oldukça zor olan insan gücüne bağımlılığın azalması anlamına gelmektedir. Yıkıcı yenilik olarak adlandırılan bu durumdan ürologların da etkileneceği aşikardır.

Yapay zeka alanındaki gelişmelerin ürologlarca takip edilmesi, bu konudaki temel bilgilere hakimiyet ile mümkün olabilir. Üroloji pratiğinde, özellikle üro-onkolojideki yapay zeka araştırmalarının ilerleyen dönemde tüm alt branşlarda yaygın olarak yapılacağı ve güncel pratikte uygulama alanları bulacağı bir gerçektir.

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