13 BÖLÜM

YOĞUN BAKIM VE RESÜSİTASYON YÖNETİMİNDE YAPAY ZEKÂ

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GİRİŞ

21. yüzyıl, biyomedikal yenilikler ile dijital dönüşümün birleşimine tanıklık etmiş, bu evrimin ön saflarında yapay zekâ (YZ) yer almıştır. Tıbbın hiçbir alanında bu devrim, kritik bakım ve resüsitasyon kadar önemli olmamıştır; çünkü burada yaşamla ölüm arasındaki fark saniyelerle ölçülmekte ve klinik karar verme sürecinin karmaşıklığı ileri teknolojik desteği zorunlu kılmaktadır (1). Yoğun bakım ünitesi (YBÜ) ve resüsitasyon ortamları, veri açısından zengin yapıları ve hasta yönetimindeki yüksek risk nedeniyle YZ uygulamalarından en fazla fayda sağlayabilecek alanlardır (1).

YZ; makine öğrenimi (ML), derin öğrenme (DL), doğal dil işleme (NLP) ve bilgisayarla görme gibi çeşitli teknolojileri kapsar (2). Bu araçlar; hayati bulgular, laboratuvar sonuçları, görüntüleme çalışmaları ve elektronik sağlık kayıtları (ESK) gibi büyük ve heterojen veri kümelerini analiz ederek öngörücü içgörüler oluşturabilir, gizli klinik desenleri ortaya çıkarabilir ve gerçek zamanlı karar desteği sunabilir. APACHE ve SOFA gibi geleneksel YBÜ skorlama sistemleri statik değişkenlere dayanırken, YZ tabanlı sistemler yeni bilgilere göre sürekli öğrenip uyum sağlayarak dinamik ve kişiselleştirilmiş bakım sağlar (2).

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Bununla birlikte, YZ'nin kritik bakım ve resüsitasyondaki tüm potansiyelini gerçekleştirmek, temel etik, hukuki ve operasyonel zorlukların ele alınmasına bağlıdır. YZ modellerinde şeffaflık, adalet ve hesap verebilirliğin sağlanması; klinisyen güveninin inşası ve hasta güvenliğinin korunması açısından hayati önemdedir. Ayrıca, sağlık ekosistemi, yeni teknolojilere uyum sağlamak üzere düzenleyici çerçevelerin, klinik eğitimlerin ve iş akışı tasarımlarının güncellenmesini gerektirir.

İleriye dönük olarak, bu alanda YZ'nin gelişimi, klinisyenler, veri bilimcileri, mühendisler, etikçiler ve politika yapıcılar arasında disiplinler arası iş birliğini gerektirecektir. YZ'nin yetenekleri geliştikçe, bu araçların sorumlu ve adil biçimde kullanımı konusundaki kararlılığımız da artmalıdır. Uygun koruyucu önlemler ve vizyoner bir uygulama ile YZ, yalnızca kritik hastalar için sonuçları iyileştirmekle kalmayıp, aynı zamanda acil ve yoğun bakım tıbbının geleceğini de yeniden şekillendirme gücüne sahiptir.

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