BÖLÜM 11

Dijital Ortodonti ve Yapay Zekâ Uygulamaları

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GİRİŞ

Dijital teknolojilerin ve yapay zekanın ortodontiye entegrasyonu, geleneksel uygulamalarda devrim yaparak tanı, tedavi planlaması ve ortodontik aparey üretiminde gelişmiş hassasiyet ve öngörülebilirlik sağlamıştır (1). Ortodontinin dijital dönüşümü, büyük veri analitiği ve gelişmiş iletişim teknolojileriyle desteklenen bilgisayar kaynaklı veri işleme ve gelişmiş üretim teknikleriyle ağız ve diş sağlığı hizmetlerinin sunumunu kolaylaştırmaktadır (2). Bu teknolojik gelişmeler yalnızca klinik iş akışlarını optimize etmekle kalmaz, eş süreli olarak hasta konforunu ve sonuçlarını da iyileştirmeyi sağlamaktadır (3). Dijital ortodonti, ağız içi tarayıcılar, konik ışınlı bilgisayarlı tomografi, CAD/CAM sistemleri ve üç boyutlu baskı dahil olmak üzere bir dizi tekniği kapsayarak ve ortodontistlerin hastanın dental yapısının sanal modellerini oluşturmasına, ayrıntılı analizler yapmasına ve daha yüksek doğrulukla özelleştirilmiş apareyler üretmesine imkân tanımaktadır (4). Yapay zekâ, büyük veri kümelerinin analiz edilmesinde, örüntülerin belirlenmesinde ve klinik karar alma, tedavi planlaması ve otomatik değerlendirme süreçlerine yardımcı olmada önemli rol oynamaktadır (5). Yapay zekâ algoritmaları, malkoklüzyonları tespit etmek için radyografileri, görüntüleri ve hasta verilerini analiz edebilmektedir (6).

Bu bölüm, dijital ortodonti ve yapay zekânın entegrasyonunu kapsamlı bir şekilde inceleyerek, klinik prosedürler, teşhis olanakları, tedavi stratejileri ve hasta bakımının iyileştirilmesi üzerindeki etkilerini ayrıntılı olarak açıklamayı sağlamaktadır.

11.1. Dijital Model Analizi ve CAD/CAM Sistemleri

Dijital model analizi, ortodontistlerin dental modellerin daha yüksek hassasiyet ve verimlilikle değerlendirmelerini sağlayarak ortodontik tanıyı dönüştürmeyi hedeflemekte-

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DOI: 10.37609/akya.3787.c597

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