GÜNCEL PEDODONTİ ÇALIŞMALARI IV

EDİTÖR
Volkan ÇİFTÇİ

ISBN
978-625-399-783-0

Kitap Adı
Güncel Pedodonti Çalışmaları IV

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Sayfa ve Kapak Tasarımı
Akademisyen Dizgi Ünitesi

Yayıncı Sertifika No
47518

Baskı ve Cilt
Vadi Matbaacılık

Bisac Code
MED016000

DOI
10.37609/akya.3069

Kütüphane Kimlik Kartı
Güncel Pedodonti Çalışmaları IV / ed. Volkan Çiftçi.
Ankara : Akademisyen Yayınevi Kitabevi, 2024.
238 s. : resim, şekil, tablo. ; 160x235 mm.
Kaynakça ve Dizin var.
ISBN 9786253997830
1. Diş Hekimliği--Pedodonti.

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BÖLÜM 1

ÇOCUK DİŞ HEKİMLİĞİNDE DENTAL ADEZYON

Eda ODABAŞ[1]
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GİRİŞ

Adeziv materyallerin geliştirilmesi ve kullanımı diş hekimliğinde birçok alanda devrim yaratmıştır. Mekanik retansiyon için geleneksel olarak açılan kaviteler, oluklar, keskin köşeli kavite preparasyonları adeziv sistemlerin geliştirilmesiyle terk edilmiş, yerine daha konservatif, diş dokusunu koruyan ve pulpa sağlığının devamını sağlayan minimal invaziv kavitelere bırakmıştır. Adeziv sistemlerin başarısı restorasyonun sağkalımı ve yeni çürüklerin önlenmesi için önemlidir. Adezyondaki problemler mikrosızıntıya neden olmakta bunun sonucunda sekonder çürükler ve yapılan restorasyonun uzun dönemde başarısızlığına sebep olmaktadır (1).

1.ADEZYON

Adezyon, farklı moleküller arası çekim kuvveti olarak tanımlanmaktadır ve Latince "adhaerere" kelimesinden gelmektedir. Amerikan Test ve Malzeme Derneği ise adezyonu "iki yüzeyin, değerlik kuvvetleri veya birbirine kenetlenen kuvvetler veya her ikisinden birden oluşabilen arayüz kuvvetleri tarafından bir arada tutulduğu durum" olarak tanımlamaktadır (2).

1.1. Mekanik Adezyon

Adezivin substrat yüzeyindeki düzensizliklere kenetlenmesi durumudur. Dental adezyonda ise rezinin diş yüzeyine infiltre olup rezin tagler oluşturması ile kurulmaktadır (2).

1.2. Adsorbsiyon Adezyonu

Adeziv ile yüzey arasında kimyasal bağlanma ile oluşmaktadır. Bu bağlanma iyonik ve kovalent bağlar gibi primer kuvvetler veya hidrojen bağları, dipol dipol

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dan bir kompomerle restore edilmiştir. Tüm astarlar için kontrolle karşılaştırıldığında bağlama gücündeki azalmanın, hangi materyalin koruyucu astar olarak kullanıldığına bakılmaksızın, bağlanabilir dentinin azalmasından kaynaklandığı açıklamışlardır. Elde ettikleri sonuca göre ise farklı astarların bir kompomerin süt dişi dentine bağlanma dayanımına olan etkisi hakkında; koruyucu astarların süt dişlerin dentinine bağlanmayı azalttığı, azalmış bağlanma dayanımı, sadece astar alanını değil, tüm dentini etkilediğini gördüklerini ve bu materyallerin net klinik endikasyonlar olduğunda kullanılması gerektiğini bildirmişlerdir.

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BÖLÜM 2

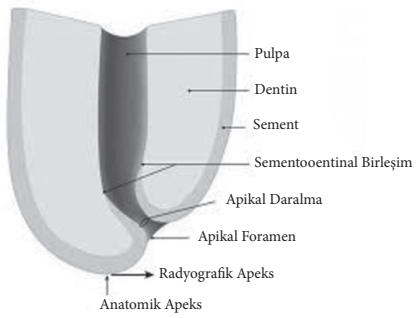
ELEKTRONİK ÇALIŞMA BOYUTU TESPİTİ (APEKS BULUCULAR)

İsmail CİHANGİR[1]

GİRİŞ

Kök kanal tedavisinin temel hedefi, enfeksiyon kaynağı olan bakteri ve ürünleri ile enfekte olmuş pulpa dokusunu uzaklaştırmaktır. Bunun için kök kanalı kemomekanik şekilde temizlenip, şekillendirilmesinin ardından kanalın biyouyumlu bir materyal ile biyolojik sınırlar gözetilerek doldurulur. Bu işlemler gerçekleştirilirken kanal sisteminin anatomik sınırları içerisinde kalınması tedavinin en önemli aşamalarından birisidir. **(1)**

Kök kanal duvarlarında sement dokusunun yer almadığı ve dentinin gözlenmeye başladığı anatomik referans sement-dentin sınırı olarak adlandırılmaktadır. Kanal tedavisi sırasında kanal dolgusunun sonlandırılması gerektiği önerilen seviye bu noktadır. Bu görüş günümüze kadar kabul edilmiş bir bilgidir. **(Resim 1)** Ancak incelenen birçok dişte sement dokusunun apikal daralım noktasının koronaline diğer bir deyişle kanal içine doğru ilerlediği görülmüştür. Bu nedenle, günümüzde kanal tedavisinde preperasyon ve dolgunun bitirilmesi gereken nokta apikal daralım olarak kabul edilmiştir. **(1,2)**



Resim 1. Kök kanal anatomisi

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BÖLÜM 3

DENTAL PULPANIN ENFLAMASYONU VE DOĞAL İMMÜN YANIT

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Hüsniye GÜMÜŞ[2]

DENTAL İNNERVASYON

Dişin bağ dokusu, vücudun en sert mineralize dokularıyla çevrelenmiş, neredeyse tamamen kapalı bir özel yaşam alanı olan pulpadır. Fiziksel ve fonksiyonel olarak dentin ve pulpa devamlılık gösteren dokulardır. Vital fonksiyonların tümünde beraber çalıştıkları için dişin fizyolojik özellikleri değerlendirilirken pulpa dentin kompleksinin bir bütün olarak ele alınması gerekmektedir (1). Güncel olarak dentinin innerve olabilen bir doku olduğu kabul edilmektedir (2). Bu innervasyon dentin tübüllerinde bulunan dentin sıvısının hareketine bağlı olarak serbest sinir uçlarının uyarılması ile gerçekleşmektedir (3,4).

Otoradyografik çalışmalar, memelilerin dentininde sinir liflerinin varlığını açıkça göstermektedir (5). Sinir lifleri dişlere apikal foramenlerden demetler halinde girer (6). Diğer periferik sinirlerden farklı olarak intradental sinirlerde perinörium bulunmaz (7). Aksonların kök kanalından geçtiğine ve Rashkow'un subodontoblastik pleksusunu oluşturmak için koronal olarak dallandığına inanılmaktadır (8). Aksonlar Rashkow pleksusunu terk ederken miyelin kılıfını kaybeder, odontoblastlar arasından geçer ve bir kısmı miyelinsiz aksonlar olarak iç dentine ulaşırlar (5,9). Bu lifler sıklıkla pulpa boynuzlarını çevreleyen dentinde bulunur ve sayıları diş apeksine doğru azalır (2,10).

İntradental miyelinsiz aksonlar, duyusal ve otonom sempatik liflerin bir karışımıdır. Histokimyasal çalışmalar, memeli dişlerinde pulpal kan damarları çevresinde sempatik innervasyonun varlığını ortaya koymuştur (11). Dental pulpada damarların serbest sinir uçları tarafından doğrudan innervasyonu kan akışının

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odontoblastlardaki rollerinin daha derin bir anlayışa ihtiyacı vardır, bu da pulpitis tedavileri için yeni terapötik stratejilerin geliştirilmesini sağlayabilir (108).

Dentinogenezis ve tamirde transforming büyüme faktörü-β (TGF-β) önemlidir çünkü pulpada matriks metalloproteinaz sekresyonunu ve dentin mineralizasyonunu indükler (109). Enflamasyonun başlangıç aşamasında pro-enflamatuar özellik gösteren TGF-β ilerleyen enflamasyon aşamalarında antienflamatuar etki gösterir. Pro-enflamasyon aşaması DH'ler gibi immün hücreleri enflamasyon bögesine toplamasını, anti-enflamatuar aşama ise lenfosit proliferasyonunu, TLR sinyalizasyonunu ve makrofajları baskılanmasını içermektedir (109).

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BÖLÜM 4

MİNİMAL GİRİŞİMSEL DİŞ HEKİMLİĞİ

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GİRİŞ

Diş çürüğü, çocuklarda en sık görülen kronik hastalıklardan olup tedavi edilmediğinde ağrıya ve enfeksiyona neden olmasının yanında sistemik sağlığı da etkileyerek yaşam kalitesini de bozabilmektedir. Ayrıca çürük ve diş ağrısının çocuklarda akademik başarıyı etkilediği, okul devamsızlığına ve düşük not ortalamasına neden olduğu bildirilmiştir (1,2).

Diş hastalıklarının nedeni ve oluşumu anlaşıldıktan sonra, tedavi felsefesi değişmiş, 90'lı yılların başında, çürük dişlerin tedavisinde diş dokusuna saygı duyan operatif restoratif girişimleri ele alan "minimal invaziv diş hekimliği" tanımlanmıştır (3). Minimal invaziv diş hekimliği, sadece diş çürüğünün sonuçlarını değil, aynı zamanda çürüğün oluşum nedenlerini de inceleyen bir konsepttir. Buradaki ilk amaç, diş çürüğü henüz oluşmadan korunmak ve kontrol altına almaktır. Diğer amaçlar ise diş çürüğünün oluşmasından ilerlemesine kadar geçen süreçte çürüğün önlenmesi, diş çürüğünün en az sağlıklı diş dokusu kaybı ile restore edilmesi ve tedavi sonrası yeniden çürük oluşumunun engellenmesidir (4).

Aralık 2019'da başlayan ve tüm dünyayı etkileyerek büyük bir tehdit oluşturan COVID-19'un iletim yollarının doğrudan temas, damlacık ve olası aerosol aktarımların olması nedeniyle pandemi sürecinde COVID-19 için yayınlanan tüm kılavuzlar, çapraz kontaminasyonun, aerosol oluşturan diş prosedürlerinin en aza indirilmesine odaklanmıştır. Bu durum, non-invaziv ve minimal invaziv çürük yönetimi tekniklerinin önemini bir kez daha ortaya koymuş ve pandemi sürecinde bu tekniklerin kullanımı artmıştır (5,6).

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%42,2'sinin lisans veya staj yıllarında MID eğitimi aldığı görülmüştür. MID'nin lisans düzeyinde müfredata dahil edildiğini görmek cesaret verici olsa da öğrencileri mesleki açıdan yeterince eğitmek için daha yeni, kanıta dayalı pedagojik yaklaşımlara ihtiyaç vardır. Yapılan bu araştırma, MID konusunda yeterli miktarda bilgi ve farkındalık olmasına rağmen etkili uygulama eksikliğinin olduğunu göstermektedir (87).

KAYNAKLAR

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BÖLÜM 5

AŞIRI MADDE KAYIPLI SÜT DİŞLERİNİN PREFABRİK KRONLAR İLE RESTORASYONU

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1.GİRİŞ

Diş çürüğü; vücuda alınan karbonhidratların bakterilerle fermantasyonu sonucu ortaya çıkan asitlerin, mine-dentin dokularında neden olduğu kayıp olarak tanımlanmaktadır (1). Gelişmekte olan ülkelerde %60-90 oranlarında görülmektedir (2). Süt dişlerinin tedavisindeki başarısızlık sürekli dişlere göre daha fazla görülüp bu duruma sebep olarak çocuklarda ağız hijyeninin sağlanmasındaki zorluk, dişlerin morfolojik farklılıkları ve yanlış materyal kullanımı olarak gösterilmiştir (3,4)

Tedavisi yapılmayan çürük süt dişlerinde madde kayıpları daha fazla olabilmekte ve birden çok yüzeyi etkilenen dişler kombine tedavi edilmektedir. Madde kaybı fazla olan süt dişlerin kron ile restorasyonu başarılı bulunmuştur. Böylece süt dişlerinin mezio-distal boyutunun korunması, dişin yapısal bütünlüğünün korunması ve böylece kullanım ömrünün artması sağlanabilmektedir (5). Günümüzde Amerika Çocuk Diş Hekimleri Akademisi (AAPD) birden fazla yüzeyinde çürük bulunan dişlerin restorasyonunda paslanmaz çelik kronları (PÇK) önermektedir (6). Buna ilave olarak aşırı madde kayıplı dişlerde cam iyonomer simanlar (CİS), amalgam, kompomer, strip kron, polikarbonat kron ve zirkonyum kronlar da tercih edilmektedir. Bu materyaller birbiriyle karşılaştırıldıklarında ayrı ayrı avantaj ve dezavantajları sıralanabilmektedir. Diş hekimi her olguya özgü materyal seçimi yapmalı ve estetik, tutuculuk, dayanıklılık, alerjik etki ve maliyet gibi etkenleri de göz önünde bulundurmalıdır (7).

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Kron ile restore edilecek dişlerin uzun dönemde periodontal olarak sağlıklı olabilmesi için, plak birikimine sebep olabilecek uygulama hatalarının yapılmaması önemlidir (29). Kullanılacak materyallerin yüzey pürüzlülüğü de plak birikimini ve biofilm oluşumunu ve dolayısıyla periodontal sağlığı etkilemektedir (67). Walia ve ark. (2014) üç farklı anterior kronun (prevener paslanmaz çelik kron, rezin strip kron, prefabrike zirkonyum kron) 6 aylık takip sonuçlarını yayınladıkları bir çalışmada, zirkonyum uygulanan dişlerde gingival sağlık durumunda düzelme olduğunu bildirmiş; bu durumu zirkonyumun parlak yüzey yapısı sebebiyle daha az miktarda plak tutunmasını sağlaması ile açıklamışlardır (64).

Zirkonyum kronların bu avantajlarına rağmen tükürüğün ve kanın zirkonyum kronun yüzeyinden kolayca uzaklaştırılamaması ve kontaminasyonun siman ile kron arasındaki bağlantıyı etkilemesi gibi dezavantajları da vardır (68). Bu dezavantajın önüne geçebilmek amacıyla NuSmile markası tarafından üretilmiş olan 'Pink Zirconia (try-in)' deneme kronları mevcuttur. Deneme kronları, kullanılacak asıl kronlarla boyut ve şekil olarak aynıdır. Otaklavlanabilmesi sayesinde tekrar tekrar kullanılabilir. Ancak prefabrike zirkonyum kron uygulamalarında deneme kronları kullanılmıyorsa, kron kan veya tükürük ile temas etmişse, kronun iç kısmının kumlama veya Ivoclean (Ivoclar Vivadent, Amherst, NY) gibi bir dekontaminasyon ajanı kullanılarak mutlaka temizlenmesi gerekmektedir (23). Preparasyonlarının subgingival düzeyde bitirilmesi gereken zirkonyum kronlar preparasyon sırasında gingival dokuda yaralanmalar meydana gelirse, uygun simantasyon için kanama kontrolü gerekmektedir, bu durumda çalışma süresi uzatmaktadır (49).

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BÖLÜM 6

AŞIRI MADDE KAYIPLI ANTERİOR SÜT DİŞLERİNDE RESTORATİF TEDAVİ SEÇENEKLERİ

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GİRİŞ

Çürük ve travma nedeniyle süt anterior dişlerde görülen madde kayıplarının tedavisi çocuğun yaşının küçük olmasına bağlı yaşanan kooperasyon problemleri, yüksek çürük riski, süt dişi boyutlarının ufak olması ve ebeveyn izni gerektirmesi gibi sorunlar nedeniyle güçleşmektedir. Süt diş yapısının daimi dişlere göre küçük olması, kaybedilen dokunun yerine konmasını da güçleştirmektedir. Bu nedenle aşırı çürüklü süt anterior dişlerde genellikle başvurulan yöntem çekim olmaktadır. (1) (2)

Ancak fizyolojik düşme zamanına kadar dişlerin ağızda tutulması; maloklüzyonların önlenmesini sağlamaktadır. Erken kaybedilen süt dişleri dikey boyutun azalmasına, dil itimi, ağız solunumu, çiğneme fonksiyonunda kayıp ve konuşma bozukluklarına neden olmaktadır. Bunun sonucu olarak estetik ve psikolojik problemler görülmekte daimi dişler için sürme rehberliği de kaybedilmektedir. (3)

AŞIRI MADDE KAYIPLI SÜT ANTERİOR DİŞLERDE TEDAVİ SEÇENEKLERİ

Günümüzde küçük yaşlardaki çocuklarda estetik restorasyon uygulamalarına verilen önem gittikçe artmaktadır. Hem çocuk hem de ebeveynleri üzerinde yapılan bir çalışmada özellikle anterior dişlerde diş renginde restoratif materyallerin tercih edildiği bildirilmiştir. (4)

Çocuklarda anterior dişlerde kullanılacak restorasyonlarda bazı hususlara dikkat edilmelidir. Çocuğun uyum derecesine göre hızlı uygulanabilmesi, tek seansta

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SONUÇ

Erken çocukluk çağı çürüğü ve travma gibi çeşitli nedenlerle aşırı madde kaybı olan süt dişlerinde artan tedavi seçenekleri ile dişin ağızda kalmasını sağlamak hekim, hasta ve ebeveyn için oldukça önemlidir. Sağlıklı bir şekilde korunan süt dişleri daimi dişlerin sürmesine rehberlik etmekte ve onlar için gerekli yeri korumaktadır. Böylece hastanın konuşma, çiğneme gibi fonksiyonlarının idamesi ve estetiği sağlanmaktadır. Ancak dişteki madde kaybının artmasıyla kaybedilen dokunun rehabilite edilmesi klinik tecrübe, malzeme kalitesi ve zaman gerektirmektedir. Hekim, hasta ve diş için uygun teknikleri kullanarak en ideal tedaviyi planlamalıdır.

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BÖLÜM 7

ÇOCUKLARDA GÖRÜLEN DİŞ ETİ HASTALIKLARI

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1. GİRİŞ

Gingivitis ve periodontitisin dahil olduğu periodontal hastalıklar çocuklar ve adolesanlar dahil olmak üzere tüm yaş gruplarında görülebilirler. En sık görülen tipi gingivitistir (1). Gingivitis diş çürüğü ile aynı prevalansa sahiptir ve ilerleyerek erişkin dönemdeki diş kayıplarının en önemli nedeni olan periodontitise yol açabilir (2, 3). Çocuklarda periodontal hastalıkların başlangıç aşamasında teşhis edilmesi ve erken dönemde tedavi edilmesi hastalığın şiddetini arttırarak olumsuz sonuçlara yol açmasını önlemektedir (4). Ağız hijyeni motivasyonunun sağlanması, olası periodontal problemlerin erken dönemde ve doğru teşhis edilerek tedavi edilmesi ve düzenli kontrollerin yapılması ağız sağlığının korunabilmesi için oldukça önemlidir.

2. PERİODONSİYUM

Diş eti, alveolar kretleri ve dişlerin servikal bölümlerini kaplar. Serbest ve yapışık diş eti olarak ikiye ayrılır. Serbest diş eti, diş eti oluğunun tabanından koronale uzanan dokudur. Yapışık diş eti serbest diş eti oluğundan apikal olarak mukogingival bileşkeye kadar uzanır. Diş eti dokularının normal rengi açık pembedir, ancak kişinin ten rengi, doku kalınlığı ve keratinizasyon derecesine bağlı olarak renk değişebilmektedir. Küçük çocuklarda artmış vaskülarite ve epitelin daha ince olması nedeniyle diş eti daha kırmızımsı renkte olabilir. Çocuklarda diş eti yüzeyi, yetişkinlere göre daha az benekli veya daha pürüzsüz görünür. Yetişkinlerde sağlıklı diş eti kenarı daha keskin, bıçak benzeri bir kenara sahiptir. Çocuklarda diş sürme döneminde ise süt dişlerinin migrasyonu ve servikal daralması nedeniyle diş etleri daha kalındır ve kenarları yuvarlaktır (5). Delaney, süt dişlerinin

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8. Diş Eti Pigmentasyonları

a. Melanoplaki (Oral pigmentasyonlar): İlaçlar, ağır metaller, endokrin bozukluklar ve sendromlar olmak üzere çeşitli eksojen ve endojen faktörlerle ilişkilidir. Fizyolojik pigmentasyonlar genellikle simetriktir ve diş eti, bukkal mukoza, sert damak, dudaklar ve dilde meydana gelir (83).
b. Sigara İçenin Melanozu: Sigara içenlerde görülen melanoz en sık mandibular anterior diş etlerinde görülmektedir. Sigara bırakıldığında melanoz yavaş yavaş iyileşir veya tamamen düzelebilir (35).
c. İlaçla Oluşan Pigmentasyon: Melanin, bazı ilaçlar veya metabolitlerinin birikmesi, bir ilacın etkisi ile bazı pigmentlerin aşırı sentezi veya damarlarda hasar sonrası demir birikmesinden kaynaklanabilir (35). Kinolon benzeri ilaçlar, sıklıkla sert damakta görülen mavimsi gri veya siyah mukozal pigmentasyonlara sebep olur. Uzun süreli minosiklin kullanan hastalarda, alveolar kemik ve dişlerin pigmentasyonuna rastlanır. Kemikteki değişiklikler sonucu diş eti gri görünebilir. Gerçek minosiklin kaynaklı yumuşak doku pigmentasyonları ise daha az görülür ve dudak, dil, bukkal mukoza ile diş eti üzerinde meydana gelir (84).
d. Amalgam Dövmesi: Ağız mukozasında amalgam kaynaklı pigmentasyon sıklıkla diş eti ve alveolar mukozada görülür. Lezyon; kabarık olmayan, iyi tanımlanmış mavimsi, siyahımsı veya grimsi bir renk değişikliğidir. Amalgam kalıntıları radyografik görüntülemede gözükebilir (35).

SONUÇ

Çocuklarda diş eti hastalıkları yaygın olarak görülmektedir. Diş eti hastalıklarının erken dönemde teşhis edilmesi ve etkili bir şekilde tedavi edilebilmesi, hastalığın ilerleyerek daha yıkıcı hale gelmesini önleyebilir. Aynı zamanda erken dönemde kazandırılacak doğru ağız hijyeni uygulamaları ile bireysel ve toplum bazında ağız sağlığının iyileştirilmesi sağlanabilir. Bu nedenle çocukları tedavi eden diş hekimleri çocuklarda görülen diş eti hastalıklarının teşhisi, etyolojik faktörleri ve tedavileri hakkında bilgi sahibi olmalıdır.

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BÖLÜM 8

ÇOCUKLARDA DAVRANIŞ YÖNLENDİRME TEKNİKLERİ

İrem İPEK[1]
Büşra KARAAĞAÇ ESKİBAĞLAR[2]

GİRİŞ

Çocuk diş hekimliği alanında sıkça karşılaşılan zorluklardan biri, çocukların diş hekimleri ve diş tedavileri konusundaki anksiyeteleridir. Anksiyete, çocuğun bilmediği bir tehlikeye karşı bilinçaltında oluşturduğu huzursuzluk ve endişe halidir (1). Dental anksiyete (DA) ve dental korku, aynı psikolojik durumun farklı ilerleyen seviyelerini temsil eder. Genellikle çocuklarda dental korku, normal bir gelişimsel aşama olarak kabul edilir (2). Ancak bu korku, dental anksiyete veya fobiye dönüştüğünde, çocukların tedavilerden kaçmasına ve sağlık durumlarını olumsuz etkileme potansiyeli taşır (3). Çocukların daha önce yaşamış olduğu olumsuz dental tecrübeler kaygı gelişiminde direkt faktör olarak rol oynarken, ebeveynler ve yakın çevresindeki kişilerden duyduğu indirekt tecrübeler de DA'nın gelişiminde oldukça önemlidir (4-6).

Çocuklarda dental anksiyete seviyesinin belirlenmesinde fizyolojik, psikolojik testler ve davranış puanlamaları gibi testler kullanılmaktadır (7-9). Bu testler, çocuğun yaşı ve çocuğun gelişim seviyesi gibi faktörlerle belirlenmektedir. Anksiyete düzeyinin kantitatif olarak ölçülmesi, objektif sonuçlara ulaştırır. Heyecan, korku gibi duygusal durumlar sonucunda salgılanan kortizol, idrar, kan, tükürükten belirlenebilmektedir. Özellikle çocuklarda, tükürükten kortizol miktarını belirlemek daha pratik ve kolay bir yöntem olduğundan tercih edilmektedir (10).

Dental tedavi sırasında korkuyu azaltmak ve etkili bir tedavi sağlamak amacıyla, çocuklar, gençler ve özel tedaviye ihtiyacı olan engellilerde diş hekimleri tarafından farmakolojik ve non-farmakolojik davranış yönlendirme teknikleri uygulanabilir (11). Korku ve anksiyete terimleri, diş hekimliğinde birbirleriyle sıkça

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siyete seviyesi azaltılabilir. Dental anksiyetenin seviyesini belirlemede çok çeşitli yöntemler kullanılmasına rağmen bu tekniklerin her yaş grubundaki çocuklara hitap etmesi zordur. Hekim kendisine en yakın davranış yönlendirme tekniklerini kullanarak küçük yaş grubu çocuk hastalarda dahi dental anksiyete düzeyini azaltarak hem hastası ile iletişim kalitesini hem de tedavinin kalitesini arttırabilir.

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BÖLÜM 9

GENÇ DAİMİ DİŞLERDE VİTAL PULPA TEDAVİLERİ

Ecem CÖMERT[1]
Beyza Ecem ALKAÇ EKİCİ[2]

GİRİŞ

İmmatür daimi dişler, henüz kök ve apikal gelişimini tamamlamamış dişlerdir. Literatürde genç daimi dişler olarak da adlandırılmaktadır. Daimi dişlerde kök gelişimi, sürme sonrası yaklaşık üç yıl içerisinde tamamlanmaktadır. Kök gelişimi tamamlandıktan sonra bu dişlere matür daimi dişler adı verilmektedir (1).

Pulpal savunma kapasitesi ve enflamatuar yanıtlarındaki üstünlüklerine rağmen immatür daimi dişlerde çürük, dental travma, restoratif ve iatrojenik nedenler pulpanın geri dönüşümsüz enflamasyonuna yol açabilmektedir (2). Bunun sonucunda fizyolojik kök gelişimi (apeksogenezis) mekanizması devam edememektedir. Kök gelişimi henüz tamamlanmadan vitalitesini kaybeden dişlerde ince kök dentin duvarları, geniş apikal açıklık ve uygunsuz kron/kök oranları gözlenmektedir. Erken dönemde vitalite kaybı sonucunda yaşanan bu sonuçlar daimi dişin fonksiyonel ömrünün kısalmasına ve sert doku desteğinin azalmasına yol açmaktadır. İmmatür daimi dişlerde vitalitenin korunması ve bu sayede apeksogenezisin devam etmesini sağlayan vital pulpa tedavileri (VPT) çocuk diş hekimliğinde öncelikli amaçtır (3).

Daimi dişlerde uygulanan VPT'ler; koruyucu liner uygulaması, indirekt pulpa kuafajı (İPK), direkt pulpa kuafajı (DPK), parsiyel pulpotomi, Cvek pulpotomisi ve total pulpotomiyi kapsamaktadır. Tedavi öncesinde detaylı klinik ve radyografik değerlendirmeler yapılarak pulpa dokusunun enflamasyon düzeyine göre uygun klinik tedavi prosedürü seçilmektedir (4).

GENÇ DAİMİ DİŞLERDE VİTAL PULPA TEDAVİLERİ

VPT'ler; çürük, travmatik dental yaralanmalar (TDY) veya başka etiyolojik faktörlerden dolayı etkilenmiş dişlerin pulpal vitalitesini devam ettirerek, dişlerin ve

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SONUÇ

İmmatür daimi dişlerin matürasyonunu tamamlayarak ağız içerisindeki fonksiyonlarını devam ettirebilmeleri için vitalitelerinin korunması gerekmektedir. Doğru endikasyon ile uygulandığında VPT'ler, bu amaçla uygulanan ideal tedavi prosedürleridir. Araştırmalar, dentin–pulpa kompleksindeki çürük lezyonlarının enfeksiyon, enflamasyon ve onarım arasındaki etkileşimin sonunda pulpitisin düzeyini etkileyeceğini vurgulasa da klinisyenlerin pulpanın gerçek enflamatuar durumunu doğru ve nesnel olarak teşhis etme yeteneği zayıf kalmaktadır. Hastanın semptomlarına dayanarak tedavi planlaması oluşturmak, her zaman doğru endikasyonu koymaya yardımcı olmamaktadır. Güncel tedavi yaklaşımlarında irreversible pulpitisli dişlerde dahi VPT'lerin uygulanabileceği literatürde mevcut olan pek çok çalışmada açıkça gösterilmektedir.

Minimal invaziv diş hekimliğinin klinik uygulamanın her alanına nüfuz etmesiyle birlikte pulpal patoloji tanımları ve tedavilerinde güncellemeler olmuştur (113). Şiddetli pulpitis bulguları olan dişlerde apikale ilerledikçe sağlıklı yanıt oluşturabilecek pulpa dokusu varlığı olabileceği düşünülmektedir. Bu nedenle güncel yaklaşımlarda VPT'ler önem kazanmaktadır. Enflamatuar değişiklikler ilerlese de parsiyel olarak sağlıklı kalan pulpadaki immün yanıt, tedavinin başarısını sağlayabilmektedir (49). VPT'ler, kök-kanal tedavilerindeki komplikasyonlar, çok seanslı tedavi süreçleri, dişin kırılmaya yatkınlığının artması, apeksogenezisin tamamlanamaması, vitalitenin korunamaması gibi dezavantajlardan kaçınmak ve apeksogenezisin devamlılığını sağlayarak diş ve çevre dokuları korumak için uygulanan tedavi prosedürleridir.

VPT'lerle ilgili literatürde çok sayıda çalışma bulunmaktadır. Daha uzun takipli klinik çalışmalar tedavi tekniklerinin gelişim göstermesinde ve doğru endikasyonu belirlemede hekimlere yol gösterici olacaktır.

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BÖLÜM 10

YAPAY ZEKA VE DİŞ YAŞI TAHMİN YÖNTEMLERİ

Oğuzhan KARAYEL[1]
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GİRİŞ

Kimliklendirme son yüzyılda giderek önem kazanan konulardan biridir. Kimliklendirmedeki ana konulardan biri bireyin yaşının doğru bir şekilde belirlenmesidir. Yaş; parmak izi, kilo, boy ve cinsiyet gibi bireyin fiziksel özelliklerinden biridir (1,2).

Yaş tahmini, kronolojik yaşın belirlenemediği durumlarda başvurulan özellikle antropolojik, adli tıp ve ortodonti alanında kendine yer etmiş önemli bir konudur. Gelişmiş ülkelerde yaş tayini genelde adli ve forensik durumlarda kimlik tayin etmek için kullanıldığı halde, özellikle üçüncü dünya ülkelerinde bireylerin zamanında kimlik kaydı yapılmamasından dolayı daha çok bireylerin gerçek yaşlarını belirlemek amacıyla kullanılır (1,2).

Bireyin gelişimi sırasında odontolojik, antropolojik ve psikolojik metotlar ile tutarlı yaş tahminleri yapılabilmekte olup bunların arasında en güvenilir ve önem arz eden anatomik alanlar dişler ve el-bilek bölgesidir. X-Ray'in bulunmasından kısa bir süre sonra Von Ranke el-bilek radyografileri incelenerek çocukların yaşlarının belirlenebileceğini öne sürmüştür. Bu bağlamda yapılan sistematik çalışmaların en başta gelenleri Tanner-Whitehouse ve Greulich-Pyle tarafından yapılanlardır (3). Ülkemizde de "Gök Atlası" başta olmak üzere Greulich Pyle (G-P) ve Tanner-Whitehouse (TW) atlasları Adli Tıp çalışmalarında yaygın olarak kullanılmaktadır (4).

Dişler kullanılarak yapılan pek çok yaş tahmin yöntemleri mevcuttur. Tahmin yönetimi olarak çevresel faktörlerden daha az etkilenmesinden dolayı dişlerin gelişim evreleri daha fazla tercih edilir. Dişlerden yaş tahmininde dişler histolojik, radyolojik ve morfolojik olarak değerlendirilebilir (5). Radyografik teknikler diş-

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Han ve ark. (46) yapay zekaya insan müdahalesinin etkisini araştırdıkları çalışmalarında 5-24 yaş arası 10257 panoramik radyografi kullanmışlardır. İnsan müdahalesi olan model (ADSE) ve tam otomatik modeli (ADAE) karşılaştırmışlardır. İnsan müdahalesi olmadan tam otomatik olarak yapılan ölçümlerin daha tutarlı sonuçlar verdiğini belirtmişlerdir. (46).

Bu bilgiler ışığında diş yaşı tayininde yapay zekanın giderek önem kazanacağı aşikardır. Yapılan çalışmaların sayısının az olması ve yapay zeka teknolojisinin gelişebileceği noktaların fazla olması sebebiyle daha büyük veri seti kullanılan ve değişik erişimsel sinir ağları türlerinin karşılaştırmalı çalışmalarına ihtiyaç vardır.

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