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Editör
Servet KESİM
ORCID iD: 0000-0002-7846-3131

Yayın Koordinatörü
Yasin DİLMEN

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Dr. Öğr. Üyesi Sema Nur SEVİNÇ GÜL
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Arş. Gör. Ayşe ŞEN
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Doç.Dr. Mustafa Özay USLU
Alanya Alaaddin Keykubat Üniversitesi, Periodontoloji AD

Bölüm 1

DİŞ HEKİMLİĞİNDE MİKROCERRAHİ YÖNTEMLER VE KULLANIM ALANLARI

Kübra ESKİN[1]
Mehmet GÜZEL[2]
Hacer ŞAHİN AYDINYURT[3]

GİRİŞ

Klinik diş hekimliğinde el becerisi çok önemlidir. Görme keskinliği ile kontrol edilen cerrahi hassasiyet manuel olarak sağlanabilir, ancak iyi büyütme cihazlarından faydalanılarak da geliştirilebilir. Mikroskobik büyütme cihazlarının kullanımı diş hekimliği uygulamalarında devrim yaratmaktadır. Bu gerçekten de geleneksel makrodentistry yöntemlerinden yüksek hassasiyetli bir microdentistriye evrimdir. Hassasiyet gerektiren neredeyse tüm diş hekimliği alanlarında bu mikroskobik aygıtlar kullanılabilmektedir. Geleneksel makrocerrahi prosedürlerle karşılaştırıldığında mikrocerrahi tekniklerde bazı büyük avantajlar vardır. Mikrocerrahinin etkisi, daha öngörülebilir terapötik sonuçlar, azalmış hasta rahatsızlığı ile daha az invaziv prosedür, daha hızlı iyileşme, gelişmiş estetik sonuçlar ve daha fazla hasta kabulünü içermektedir. Bu makale, mevcut çeşitli büyütme sistemlerine, ilkelerine ve farklı diş hekimliği alanlarında mikrocerrahi alanındaki sayısız uygulamalara ışık tutmaktadır.

MİKROCERRAHİNİN TARİHÇE VE TERMİNOLOJİSİ

Cerrahi mikroskop veya loup kullanımı ile elde edilen görme keskinliğinin artmasıyla mümkün olan temel cerrahi tekniklerin iyileştirilmesine mikrocerrahi denir (1). Mikrocerrahi işlemler için büyütmenin kullanımı yeni bir kavram değildir. 1694'te Amsterdam tüccarı Anton van Leeuwenhook ilk bileşik lens mikroskobunu icat etmiştir (2). Cerrahiye yardımcı olan ilk büyüteçler, 1800'lerin

[1] Dr. Öğr. Üyesi, Van Yüzüncü Yıl Üniversitesi, Diş Hekimliği Fakültesi, Periodontoloji AD, kubraeskin93@gmail.com, ORCID iD: 0000-0001-5322-1286
[2] Dr. Dt., Hatay Ağız ve Diş Sağlığı Merkezi, dtmehmetguzel@gmail, ORCID iD: 0000-0002-9621-0496
[3] Doç. Dr., Özel Klinik-İstanbul, hacersahinay@gmail.com, ORCID iD: 0000-0002-9521-9704

PERİODONTAL MİKROCERRAHİDE YARA İYİLEŞMESİ

Mikrocerrahi hız kazandırır ve daha az granülasyon veya skar dokusu oluşumu sağlayan primer iyileşme yoluyla onarımı teşvik eder. Yara iyileşmesi çalışmaları, mikrocerrahi yaralarının 48 saat içinde anastomozunu göstermektedir. Sekonder yara iyileşmesi daha yavaştır çünkü kısmen kapalı yaranın kenarındaki boşlukları doldurmak için yeni doku oluşumu gereklidir. Mikrocerrahi sırasında cerrahi travma en aza indirildiği için, daha az hücre hasarı ve nekroz meydana gelir, bu da daha az iltihaplanma ve daha az ağrı ile sonuçlanır (67).

SONUÇ

Mikrocerrahi, operatör deneyimi, temel optik büyütme, ergonomik teknik yapısı ve teknolojiyi kullanma istekliliği ile gelişmeye devam edecek olan bir tedavi felsefesidir. Büyütme sistemleri ve mikrocerrahi aletlerin birlikte kullanımı ile özellikle de periodontal cerrahi işlemlerde gerek kesi düzenliliği gerekse yara iyileşmesi yönünden sunduğu avantajlarla mikrocerrahi geleneksel yöntemlere kıyasla daha başarılı sonuçlar vaad etmektedir. Gelişen teknoloji ile birlikte bu yöntemleri kullanarak yapılan işlemlerden daha başarılı sonuçlar elde etmek mümkün gözükmektedir.

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Bölüm 2

PERİODONTAL YARA İYİLEŞMESİ

Müzeyyen KANDEMİR[1]
Ebru Ece SARIBAŞ[2]

GİRİŞ

Yara; doku ve mukozanın kimyasal, fiziksel veya travma sebebiyle anatomik yapı ve fonksiyonlarındaki bütünlüğün bozulmasıdır. Yara iyileşmesinin temel prensibi dokudaki hasarı en aza indirmek, dokunun yeterli oksijen alınımını, düzgün beslenmesini ve nemlenmesini sağlamaktır (1).

1. YARA İYİLEŞMESİ TİPLERİ

Yara iyileşmesinin primer, sekonder ve tersiyer olmak üzere üç farklı tipi görülmektedir.

1.1. Primer yara iyileşmesi

Primer yara iyileşmesi, enfekte olmayan cerrahi insizyonla yara oluşturulduktan sonra 12-24 saat içinde yara kenarlarının sütur, doku adezivi gibi uygulamalarla direkt yaklaştırılabildiği iyileşme tipidir. İnsizyon, epitelyal bazal membranın bütünlüğünü noktasal olarak bozmuş ve az sayıda epitel ile bağ dokusu hücresi kaybına neden olmuştur. Epitelyal rejenerasyon, fibrozisten daha belirgindir. İnsizyon mesafesi küçük olduğundan, fibrinle pıhtılaşmış kan bu alanı doldurur. Granülasyon dokusu hızlı bir şekilde bölgeye invazyon yapar ve ardından o bölge yeni epitel örtüsüyle kaplanır (2).

Periodontal yara iyileşmesi ve rejenerasyonu açısından arzu edilen iyileşme türü, primer yara iyileşmesidir (3).

[1] Araş.gör, Dicle Üniversitesi Diş Hekimliği Fakültesi Periodontoloji AD, muzeyyenozyavuz@gmail.com, ORCID iD: 0009-0003-4540-4981

[2] Dr Öğr. Üyesi, Dicle Üniversitesi Diş Hekimliği Fakültesi Periodontoloji AD, ebrusaribas@yahoo.com, ORCID iD: 0000-0001-8195-820X

SONUÇ

Patolojide yara iyileşmesi, yaralı dokunun canlı dokular tarafından onarılmasını ifade eder. Klinik ve biyolojik değişkenlerin derinlemesine anlaşılması, periodontal rejenerasyonu etkileyerek diş hekimlerinin, klinik sonuçları iyileştirmek ve periodontal rejenerasyonu artırmak amacıyla bu faktörleri etkili bir şekilde yönetmelerine olanak tanır. İyileşme sürecinin ideal olabilmesi için çeşitli periodontal dokuların ilişkisi ve doğası hakkında titiz bir bilgiye ihtiyaç duyulmaktadır.

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Bölüm 3

DİŞ HEKİMLİĞİNDE YAPAY ZEKA UYGULAMALARI

Mustafa Özay USLU[1]
Pınar GÜLTEKİN[2]

1. YAPAY ZEKA

1.1.Yapay zeka nedir?

Yapay Zeka (YZ), makinelerin insan zekası gerektiren görevleri gerçekleştirebilme kapasitesine verilen isimdir. Bu kavram yeni bir olgu olmasa da kökenleri 1950'lere kadar dayanmaktadır. Ancak, YZ'nin günlük hayatta pratik bir araç olarak yaygınlaşması, son yirmi yılda gerçekleşmiştir. Bunun temel nedeni, son yıllarda büyük veri (dijital cihazlarla elde edilen), hesaplama gücü ve YZ algoritmalarındaki hızlı ilerlemelerdir. Bu üç temel unsurdaki gelişmeler, YZ teknolojisinin hayatımıza kolaylık ve yenilik getirmesini sağlamıştır (1).

Önümüzdeki yıllarda yapay zekanın tıp alanında büyük bir dönüşüm yaratması beklenmektedir. Tıbbi görüntülerden hastalık tespiti gibi uzman seviyesindeki performanslar sergileyen yapay zeka algoritmaları, kısa bir süre önce çığır açıcı uygulamalarla dikkat çekmeye başlamıştır. Ancak bu kısa zaman diliminde, tıbbi yapay zeka önemli bir olgunlaşma sürecinden geçmiştir. Günümüzde, bu sistemlerin rutin klinik uygulamalara entegre edilmesi, büyük bir potansiyele sahip olmasına rağmen hala tam anlamıyla değerlendirilememiş bir fırsat olarak varlığını sürdürmektedir. Bunun yanı sıra, bu teknolojilerin güvenli ve etkili bir şekilde kullanılabilmesi için, tıbbi yapay zeka topluluğunun etik, teknik ve insan merkezli karmaşık zorluklarla başa çıkması gerekmektedir (2).

1.2.Tarihçe

İnsanlık tarihinde yapay zekaya dair ilk adımlar nörobilimci McCulloch ve mantık bilimci Pitts'in biyolojik nöronun matematiksel modelinin oluşturulması ile 1943 yılına uzanmaktadır (3).

[1] Doç.Dr., Alanya Alaaddin Keykubat Üniversitesi, Periodontoloji AD, ozay.uslu@alanya.edu.tr, ORCID iD: 0000-0002-9707-1379

[2] Arş. Gör., Alanya Alaaddin Keykubat Üniversitesi, Periodontoloji AD, pinar.gultekin@alanya.edu.tr, ORCID iD: 0009-0008-7761-0348

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Bölüm 4

PERİODONTAL HASTALIKLARDA KULLANILAN BİYOBELİRTEÇLER

Mustafa Özay USLU[1]
Ayşe ŞEN[2]

PERİODONTİTİS

Periodontitis Tanımı

Periodontitis, dişlerin etrafındaki bağ dokusu ataşmanını ve destekleyici kemiği etkileyen bir grup inflamatuar hastalıktır. Periodontitisin başlamasının ve ilerlemesinin hastalığa neden olabilen virülan mikroorganizmaların varlığına bağlı olduğu yaygın olarak kabul edilmektedir. Bakteriler periodontitiste başlatıcı ajanlar olsa da patojenik enfeksiyona karşı konak tepkisi hastalığın ilerlemesi için kritik öneme sahiptir (1). Başladıktan sonra hastalık, kolajen liflerinin kaybı ve sement yüzeyine ataşman, bağlantı epitelinin apikal göçü, derinleşmiş periodontal ceplerin oluşumu ve alveolar kemiğin rezorpsiyonu ile ilerler (2). Hastalık tedavi edilmezse ilerleyici kemik yıkımıyla devam ederek diş mobilitesine ve ardından diş kaybına yol açar. Periodontal hastalık, Amerika Birleşik Devletleri'ndeki yetişkin nüfusun %50'sinden fazlasını etkiler ve yaklaşık %10'unda erken diş kaybıyla birlikte şiddetli hastalık görülür (3). Periodontal tanı prosedürlerinin bir amacı, klinisyene mevcut periodontal hastalık türü, yeri ve şiddeti hakkında yararlı bilgiler sağlamaktır. Bu bulgular tedavi planlaması için bir temel oluşturur ve tedavinin periodontal bakım ve hastalık izleme aşamalarında temel veriler sağlar (4).

Periodontitis Tanı Parametreleri

Klinik olarak kullanılan geleneksel periodontal tanı parametreleri arasında sondlama derinlikleri, sondlamada kanama, klinik ataşman seviyeleri, plak indeksi ve alveolar kemik seviyesini değerlendiren radyografiler yer alır (5). Bu

[1] Doç.Dr., Alanya Alaaddin Keykubat Üniversitesi, Periodontoloji AD, ozay.uslu@alanya.edu.tr, ORCID iD: 0000-0002-9707-1379

[2] Arş. Gör., Alanya Alaaddin Keykubat Üniversitesi Diş Hekimliği Fakültesi, Periodontoloji AD, ayse.sen@alanya.edu.tr, ORCID iD: 0009-0005-6969-8587

Kronik periodontitisin PGE 2 konsantrasyonlarının tedavinin bir sonucu olarak değişip değişmediğini belirlemek için cerrahi olmayan periodontal tedaviden önce ve sonra PGE 2 konsantrasyonlarını incelediler. Ancak tedaviden sonra önemli ölçüde daha düşük PGE 2 konsantrasyonları gösterdi (P < 0,01)

Bu çalışmada ortalama PGE2 konsantrasyonlarının sağlıklıdan hastalıklı dişeti dokularına doğru kademeli olarak arttığı bulunmuştur.

Tsai ve diğerleri (113), ileri PD'li bir grup hastada SRP'nin GCF PGE 2 düzeyleri üzerindeki etkisini değerlendirdi . Tsai ve diğerlerinin sonuçlarına göre (113), ortalama GCF PGE 2 konsantrasyonlarının periodontitis grubunda (yani 470,91 ng/ml) tedavi sonrası grupla (yani 377,32 ng/ml) karşılaştırıldığında daha fazla olduğu bulundu (P < 0,01).

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Bölüm 5

PERİODONTAL HASTALIKLAR İLE SİSTEMİK HASTALIKLAR ARASINDAKİ İLİŞKİ

Gökhan ÖZGENÇ[1]
Sema Nur SEVİNÇ GÜL[2]

Periodontal hastalıklar yetişkinlerde en sık görülen inflamatuar hastalıklardan biridir. 2010 yılında, Dünya çapında 3,9 milyar insanın periodontal hastalığa sahip olduğu rapor edilmiş olup, hafif periodontitis prevalansı %35 ve orta ile şiddetli periodontitis prevalansı %11 çıkmıştır (1). Dünya nüfusunun yaşlanma oranı arttıkça periodontal hastalıkların önemi ve ülkelerin sağlık sistemine maliyeti artmıştır (2). ABD Hastalık Kontrol ve Önleme Merkezi periodontal hastalıkların pek çok probleme yol açabilecek dünya çapında bir salgın olduğundan bahsetmiştir (2).

Periodontal patojenler ve inflamasyonla ilgili çalışmalar, sadece diş hekimlerinin değil aynı zamanda çeşitli sistemik hastalıklarla da doğrudan ya da dolaylı etkileşim içinde olduğu için diğer branş hekimlerinin de ilgisini çekmiştir. Oral bölgede görülen hastalıkların kanser, kardiyovasküler hastalıklar, diyabetin tip 2 çeşidi , solunum yoluyla ilgili enfeksiyonlarla, olumsuz gebelik sonuçlarıyla ve nörodejeneratif hastalık başta olmak üzere çeşitli hastalıklarla ilişkili olduğuna ulaşılmıştır (3,4) . Girişimsel çalışmalardan elde edilen kanıtlar, periodontitisin lokal tedavisinin, komorbid durumların temsili belirteçlerini iyileştirdiğini göstermektedir (5). Periodontitis ve eşlik eden hastalıklar arasındaki potansiyel nedensel bağlantı, periodontitisin eşlik eden bir durumu başlatabileceği veya ağırlaştırabileceği biyolojik olarak makul ve klinik olarak tutarlı mekanizmalar ortaya koyan son deneysel hayvan çalışmaları ile daha da güçlendirilmiştir (6).

Bununla birlikte, çoğunlukla, spesifik periodontal patojenlerin sistemik hastalığa ne yönden etki ettiği konusunda tam olarak bir kesinliğe ulaşılamamıştır (7). Patojenler ağız dışı hastalığa neden oluyorsa, o zaman terapötik müdahale için açık hedefleri temsil edeceklerdir. Ancak minimum olarak periodontal

[1] Diş Hekimi, Atatürk Üniversitesi, Diş Hekimliği Fakültesi, Periodontoloji AD, ozgencgokhan@gmail.com, ORCID iD: 0009-0006-5896-4373

[2] Dr. Öğr. Üyesi, Atatürk Üniversitesi, Diş Hekimliği Fakültesi, Periodontoloji AD, semanursevinc@gmail.com, ORCID iD: 0000-0003-0699-917x

Özellikle periodontal patojenlerin veya bunu takip eden inflamasyon sürecinin sistemik hastalıklara yol açtığı ya da bunların oluşumuna katkıda bulunduğu mekanizmalar açısından daha fazla çalışma gerekmektedir (101). Bununla birlikte, periodontal hastalığın yönetimi ve uygun ağız bakımı, ağız dışı sistemik hastalıklarla ilişkili morbidite, mortalite ve sağlık bakım maliyetlerini olumlu yönde etkileyecektir (102). Yapılan çalışmalar arttıkça, diş hekimliğinin sistemik hastalık teşhisinde oynadığı rol daha da önem kazanacaktır (103).

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Bölüm 6

CERRAHİ OLMAYAN PERİODONTİTİS TEDAVİLERİNDE KULLANILAN LOKAL AJANLAR VE DİĞER YARDIMCI TEDAVİLER

Tuğçe DÖNMEZER[1]

GİRİŞ

Periodontitis, dişi destekleyici dokuların ilerleyici yıkımı ile seyreden periodonsiyumun inflamatuar bir hastalığı olarak tanımlanır. Periodontitis, dişleri destekleyen dokuların bütünlüğünü etkileyen disbiyotik mikrobiyal toplulukla ilişkili kronik bir inflamatuar hastalıktır. Periodontal yıkım, yerleşik komensal mikrobiyota ile konak arasındaki homeostazın kaybından kaynaklanır ayrıca oral mikrobiyom disbiyozuna, artan bakteri yüküne ve çözülemeyen inflamasyona neden olur. Periodontitise yatkın bireylerde konak yanıtı etkisiz, düzensiz ve yıkıcıdır (1).

Hastalık, belirli bakteriyel patojenler, yıkıcı konak bağışıklık tepkileri ve sigara içme gibi çevresel faktörler arasındaki karmaşık dinamik etkileşimleri içerir. Periodontitisin ortak özellikleri arasında dişeti iltihabı, klinik ataşman kaybı, alveolar kemik kaybının radyografik kanıtı, derin sondaj derinliklerine sahip bölgeler, hareketlilik, sondaj sırasında kanama ve patolojik göç yer alır. Tütün kullanımı, konak genetik varyasyonları ve belirli sistemik koşullar gibi çeşitli risk faktörleri de periodontitisin ilerlemesini ayrıca şiddetini etkileyebilir. Tedavi edilmezse periodontitis diş kaybına yol açabilir. Etkilenen bireylerde önemli işlevsel, estetik ve psikolojik sorunlara neden olabilir (2).

Periodontitis için altın standart tedavi, etkili supragingival biyofilm kontrolü ile ilişkili subgingival debridmandır (3). Periodontal tedavi, enfeksiyonu kontrol altına alma ve iltihabı durdurma amacıyla aşamalı bir yaklaşımla uygulanan geniş bir müdahale yelpazesini içerir (4). Periodontal tedavinin ilk adımı hem hasta hem de profesyonel tarafından supragingival biyofilmin kontrolünü ve periodontal hastalıkların etiyopatogenezinde kanıtlanmış risk faktörlerinin

[1] Dr. Öğr. Üyesi, Tekirdağ Namık Kemal Üniversitesi Diş Hekimliği Fakültesi, Periodontoloji AD, tdonmezer@nku.edu.tr, ORCID iD: 0000-0003-3732-1193.

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Bölüm 7

PERİ-İMPLANTİTİSİN CERRAHİ OLMAYAN VE CERRAHİ TEDAVİSİ

Mehmet Ali GÜNENÇ[1]
Osman Fatih ARPAĞ[2]
Ayşegül SARI[3]

GİRİŞ

Modern diş hekimliğinde, hastanın kendi dişlerini sağlıklı bir şekilde uzun yıllar boyunca kullanması istenmektedir. Ancak dişler bazen restore edilememekte ve çeşitli nedenlerle kaybedilmektedir. Diş kaybı, estetiği olumsuz etkilemenin yanı sıra, hastanın yerel ve genel sağlığı üzerinde de önemli sonuçlar doğurur. Estetik bilinci yüksek bir toplumda, kayıp dişlerin dental implantlarla protetik rehabilitasyonu hastalar ve klinisyenler tarafından geniş kabul ve talep görmüştür (1).

Dental implant çene kemiğine cerrahi olarak yerleştirilen titanyum gibi biyouyumlu bir malzemeden yapılmış vida şeklinde bir parçadır (2). Dental implantlar travma, çürük veya diğer nedenlerle dişlerini kaybetmiş hastalar için popüler ve etkili bir tedavi seçeneğidir. Protez veya köprü gibi diş protezi seçeneklerine göre daha iyi fonksiyon, dayanıklılık ve estetik gibi birçok avantaj sunarlar. Dental implantlar uygun bakım ve onarımla onlarca yıl, hatta bir ömür boyu kullanılabilirler(3). Dental implantların en önemli avantajlarından biri yüksek sağkalım ve başarı oranlarıdır. Çalışmalar dental implantların %95'in üzerinde bir başarı oranına sahip olduğunu, yani çoğu vakada başarılı olduklarını göstermiştir (3). Bu yüksek başarı oranı, implant materyalinin çene kemiği ile kaynaşmasını ve restorasyon için stabil bir temel oluşturmasını sağlayan biyouyumluluğundan kaynaklanmaktadır (4).

[1] Arş. Gör., Hatay Mustafa Kemal Üniversitesi Diş Hekimliği Fakültesi Periodontoloji AD, mehmetali.gunenc@mku.edu.tr, ORCID iD: 0009-0008-9383-0535

[2] Doç. Dr., Hatay Mustafa Kemal Üniversitesi Diş Hekimliği Fakültesi Periodontoloji AD, ofarpag@mku.edu.tr, ORCID iD: 0000-0002-1510-8917

[3] Doç. Dr., Hatay Mustafa Kemal Üniversitesi Diş Hekimliği Fakültesi Periodontoloji AD, aysegulsari@mku.edu.tr, ORCID iD: 0000-0001-6180-9776

özellikle ilerlemiş lezyonlarda sınırlı klinik iyileşmeler göstermiş olup hastalığı tamamen elimine edememiştir. Bu nedenle, cerrahi olmayan tedaviden sonra hastalık belirtileri gösteren vakalarda peri-implant defektlere daha iyi erişim sağlayan cerrahi tedaviler genellikle gereklidir. Peri-implantitisin cerrahi tedavi protokolleri daha etkili bir şekilde klinik ve radyografik iyileşmeler sağlamış olup ancak hastanın ağız hijyenini sağlayabilmesi ve destekleyici bakım randevuları ile bu iyileşmeler sürdürülebilir olmaktadır (104).

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Bölüm 8

PERİODONTAL HASTALIKLAR İLE ROMATOİD ARTRİT ARASINDAKİ İLİŞKİ

Ziynet Gül GÜRSES[1]
Osman Fatih ARPAĞ[2]
Ayşegül SARI[3]

1. GİRİŞ

Periodontal hastalık, disbiyotik mikrofloranın neden olduğu enflamatuar bir hastalıktır ve periodontal ligament, alveolar kemik, sement dahil diş çevre dokularının progresif yıkımıyla sonuçlanır (1). PH'nın ana nedeni ağız hijyenine dikkat edilmemesi sonucu diş yüzeyinde biriken dental plaktır. Dental biyofilmlerde 700'den fazla oral bakteri türü tanımlanmıştır (2). Periodontal hastalıklar gingivitisle başlar ve epitel ve bağ dokusunu kapsayan diş eti iltihabı ile sınırlıdır ve hastalık ataşman kaybı, kemik yıkımını kapsayan periodontitis ile devam edebilir (2). Konağın direnç faktörleri (risk faktörleri ve bağışıklık durumu) periodontal yıkımın ilerlemesi için çok önemlidir (3). Bu yıkımın seyri genetik ve çevresel faktörler tarafından değiştirilebilir (4). Lokal doku yıkımının yanı sıra sürekli düşük dereceli enflamasyonun sistemik durumu da etkileyebileceği gibi, periodontal hastalığın varlığı ve şiddetiyle diyabet, kardiyovasküler hastalık ve romatoid artrit gibi sistemik hastalıklar arasında bir bağlantı olabilir (1). Oral enfeksiyonların romatoid artrit (RA) patogenezinde rol oynadığı, hastalığın erken ve geç evrelerinde RA hastalarının hem serumunda hem de sinoviyal sıvısında anaerob bakteriyel DNA'nın ve bu bakterilere karşı yüksek antikor titrelerinin tespit edilmesiyle desteklenebilir (3). RA eklemlerde enflamasyonla karakterize, yaygın ve kronik enflamatuar bir hastalıktır ve sıklıkla eklem yıkımına ve sonuç olarak fonksiyonel bozukluğa yol açar (5). RA hastalarında görülen

[1] Arş. Gör., Hatay Mustafa Kemal Üniversitesi, Diş Hekimliği Fakültesi, Periodontoloji AD, ziynetgul.gurses@mku.edu.tr. ORCID iD: 0009-0004-9592-6873

[2] Doç. Dr., Hatay Mustafa Kemal Üniversitesi, Diş Hekimliği Fakültesi, Periodontoloji AD, ofarpag@mku.edu.tr, ORCID iD: 0000-0002-1510-8917

[3] Doç. Dr., Hatay Mustafa Kemal Üniversitesi, Diş Hekimliği Fakültesi, Periodontoloji AD, aysegulsari@mku.edu.tr, ORCID iD: 0000-0001-6180-9776

SONUÇ

Sonuç olarak, periodontal enflamasyonun varlığı, sentetik ve biyolojik hastalık modifiye edici antiromatizmal ilaçların kullanılması durumunda romatoid artrit tedavisini etkiliyor gibi görünmektedir (145). Cerrahi olmayan periodontal tedavinin, C-reaktif protein, eritrosit sedimentasyon hızı ile DAS-28 skoru ve romatoid artrit hastalığı klinik aktivite seviyelerinin azaltılması yoluyla ve ayrıca biyolojik hastalık modifiye edici antiromatizmal ilaçlara yanıt vermeyen hastalarda romatoid artrit hastalık aktivitesinin kontrolünde rol oynadığı görülmektedir (145). Bu veriler ışığında hem tıp hem de diş hekimliği meslekleri romatoid artrit hastalarında periodontal sağlığın öneminin farkında olmalı ve bu nedenle bu hastalarda periodontal rahatsızlıkları önlemeye ve tedavi etmeye yönelik çalışmalar yapılmalıdır. Buna ek olarak, periodontitisin önlenmesi ve tedavisinin henüz tanımlanmamış hasta gruplarında romatoid artritin hem başlangıcını hem de ilerlemesini iyileştirip iyileştiremeyeceğini kesin olarak belirlemek için daha büyük örneklem büyüklüğüne çalışmalara ihtiyaç vardır. Eğer kanıtlanırsa, periodontal tedavi, periodontal sağlığı korumanın bilinen lokal ve sistemik faydalarına ek olarak romatoid artriti iyileşme sürecine katkıda bulanabilecek ucuz ve ilaçsız bir yolu olabilir. Bununla birlikte, romatoid artrit teşhisi konan tüm hastaların periodontal değerlendirmeden geçmesini tavsiye etmek için yeterli kanıt sağlanmıştır, çünkü bu hastaların kronik periodontitis olma riski yetişkin nüfusun geri kalanından daha yüksek olabilir (109).

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Bölüm 9

PERİODONTOLOJİ VE YAPAY ZEKA

Gurbet Alev ÖZTAŞ ŞAHİNER[1]
Güler BAŞYİĞİT[2]

GİRİŞ

1.PERİODONTOLOJİ VE KAPSAMLARI

Periodontoloji, periodontal hastalıkların önlenmesi, teşhisi ve tedavisi ile birlikte dişsizlik durumlarında dental implantların yerleştirilmesini hedefleyen bir diş hekimliği dalıdır. Periodontal hastalık dişetini, dişleri ve dişleri destekleyen bağ dokusunu ve alveol kemiğini etkileyen spesifik hastalıkları tanımlamak için kullanılan genel bir terimdir. Periodontal hastalıklar toplumlarda çokça görülen hastalıklardandır. Periodontitis yetişkinlerde yaygın olarak görülmekte olup çocuklarda ve ergenlerde de ortaya çıkabilmektedir.(1)

Periodontal hastalıkların başlıca etiyolojik faktörü mikrobiyal dental biyofilmdir.(2) Genellikle dişler ve çevresindeki sert ve yumuşak dokuları etkisi altına alan histolojik olarak ise dişeti ekstrasellüler bağ dokusunda enflamatuar hücre birikimine sebep olur. Klinik olarak dişeti kanaması bulgusu ile başlayan periodontal hastalıklar ilerlemesi durumunda alveolar kemik kaybının da izlenebildiği kronik enflamatuar hastalıklardır.(3)

2. PERİODONTOLOJİNİN TOPLUM SAĞLIĞINDAKİ ÖNEMİ

Bilinçli bir toplum ve motive hastalar periodontal sağlığın korunmasında en önemli etkenlerdir. Periodontal hastalık belirtileri çoğunlukla hastalar tarafından görmezden gelinir.(4) Periodontal problemlerin toplum tarafından bilinmesi ve bunların diş hekimleri tarafından değerlendirilmesi periodontal sağlık düzeylerini etkilemektedir. Ancak literatürde toplumdaki bireylerin periodontal farkındalığını

[1] Dr. Öğr. Üyesi, Atatürk Üniversitesi Diş Hekimliği Fakültesi, Periodontoloji AD, alev.oztas@atauni.edu.tr. ORCID iD: 0000-0002-0565-6194

[2] Arş. Gör., Atatürk Üniversitesi Diş Hekimliği Fakültesi, Periodontoloji AD, gulerbasigit@gmail.com. ORCID iD: 0009-0009-4335-1859

yaygınlaşması ve tedavi süreçlerinin daha verimli hale gelmesi beklenmektedir. Sonuç olarak, yapay zeka, diş hekimliğini sadece bir tedavi süreci değil, aynı zamanda hasta memnuniyetini ve klinik başarıyı artırmaya yönelik bir fırsat olarak yeniden şekillendirmektedir.

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