

Bölüm 3

PERİODONTAL TEDAVİDE ANTİBİYOTİK KULLANIMI

Fatma KARACAOĞLU¹

Canan ÖNDER²

Zeliha GÜNEY³

Periodontal hastalıkların gelişimi, yumuşak dokuların kronik enflamasyonuna, diş destekleyen kollojen liflerin yıkımına ve alveol kemiğin rezorpsiyonuna neden olan subgingival bakteriyel kolonizasyon ve biyofilm oluşumu ile ilişkili dir. Periodontal patojenler, hyaluronidaz, proteinaz, kollajenaz gibi enzimler ile ekstraselüler matriksi ve konak hücre membranlarını yıkabilir ve ürettikleri çeşitli biyomoleküllerle kendi büyümelerini uyarıp doku invazyonuna olanak sağlayabilirler (Kirkwood & ark., 2007). Ancak son yıllarda yapılan birçok çalışma, konak enfamatuar immun cevabının da periodontal doku yıkımında önemli role sahip olduğunu göstermektedir (Howell & ark., 1993).

Periodontal hastlığın konvansiyonel tedavisi, etkin plak kontrolüyle beraber mekanik temizlikten oluşan cerrahi ve cerrahi olmayan periodontal tedaviyi kapsar (Ryan, 2005). Bununla birlikte, mekanik temizlik, derin ceplere erişilememesi, yüzey düzensizlikleri ve furkasyon bölgeleri gibi sınırlamalar sebebiyle zorlu bir prosedürdür (Jepsen & ark., 2011). Bu aşamada, mekanik olarak yok edilmesi mümkün olmayan patojenik mikroorganizmaların, antimikrobiyal tedavi ile sayıca azaltılması veya elimine edilmesi hedeflenir (Walker & Karpi na, 2002).

Periodontal tedavide farmasötik ajanlardan esas olarak üç şekilde faydalansılır: 1) Profilaktik antibiyotik uygulamaları, 2) Konvansiyonel periodontal tedaviye ilaveten antibiyotik uygulamaları, 3) Konak modülasyonu

¹ Dr. Dt., Ankara Üniversitesi Diş Hekimliği Fakültesi Periodontoloji Anabilim Dalı, fatmaboke@yahoo.com

² Doç. Dr., Ankara Üniversitesi Diş Hekimliği Fakültesi Periodontoloji Anabilim Dalı, gulec_canan@yahoo.com

³ Dt., Ankara Üniversitesi Diş Hekimliği Fakültesi Periodontoloji Anabilim Dalı, zelihaguney89@gmail.com

KAYNAKLAR

1. Ainamo, J., Lie, T., Ellingsen, B.H. (1992). Clinical responses to subgingival application of a metronidazole 25% gel compared to the effect of subgingival scaling in adult periodontitis. *J Clin Periodontol* 19(9 Pt 2):723-9.19:723.
2. Bilgin Çetin, M. (2016). Prophylaxis in periodontal practice. *Turkiye Klinikleri J Periodontol-Special topics* 2(3): 61-68.
3. Bonito, A.J., Lux, L., Lohr, K.N. (2005). Impact of local adjuncts to scaling and root planing in periodontal disease therapy: a systematic review. *J Periodontol* 76(8):1227-1236.
4. Ciancio, S.G. (2001). *FDA approves Arestin marketing*. In *Biological therapies in dentistry*, 17(1):1, Hamilton, Ontario, Canada, 2001, BC Decker (newsletter).
5. Ciancio, S.G. (1990). Antibiotics in periodontal therapy. In Newman MG, Kornman K. *Antibiotic/antimicrobial use in dental practice*, Chicago, Quintessence.
6. Ciancio, S.G. (2001). *Biological therapies in dentistry*, 17(1):1, Hamilton, Ontario, Canada.
7. Ciancio, S.G. (1983). Use of antibiotics in periodontal therapy. In Newman MG, Goodman A, editors: *Antibiotics in dentistry*, Chicago, Quintessence.
8. Ciancio, S.G. (2000). Antiseptics and antibiotics as chemotherapeutic agents for periodontitis management. *Compend Contin Educ Dent* 21(1):59-62.
9. Drisko, C.H. (2001). Nonsurgical periodontal therapy. *Periodontol 2000* 25:77-88.
10. Durand, R. (2015). Adjunct local antimicrobials provide statistically significant benefits over subgingival debridement alone in patients with chronic periodontitis. *J Am Dent Assoc.* 146(5):341-343.
11. Forner, L., Larsen, T., Kilian, M., Holmstrup, P. (2006). Incidence of bacteremia after chewing, tooth brushing and scaling in individuals with periodontal inflammation. *Journal of Clinical Periodontology* 33(6):401-7.
12. Gladue, R.P., Snyder, M.E. (1990). Intracellular accumulation of azithromycin by cultured human fibroblasts. *Antimicrob Agents Chemother* 34(6):1056-60.
13. Golub, L.M., McNamara, T.F., D'Angelo, G., Greenwald, R.A., Ramamurthy, N.S. (1987). A non-antibacterial chemically-modified tetracycline inhibits mammalian collagenase activity. *J Dent Res* 66:1310-1314.
14. Goodson, J.M., Cugini, M., Kent, R.L. (1991). Multicenter evaluation of tetracycline fiber therapy. II. Clinical response. *J Periodontal Res* 26(4):371-9.
15. Goodson, J.M. (1989). Pharmacokinetic principles controlling efficacy of oral therapy. *J Dent Res* 68:1625-1632.
16. Goodson, J.M., Cugini, M.A., Kent, R.L., Armitage, G.C., Cobb, C.M., Fine, D., Fritz, M.E., Green, E., Imoberdorf, M.J., Killoy, W.J., et al. (1991). Multicenter evaluation of tetracycline fiber therapy: I. Experimental design, methods, and baseline data. *J Periodontal Res.* 26(4):361-70.
17. Greenstein, G.(2005). Changing periodontal concepts: treatment considerations. *Compend Contin Educ Dent* 26(2):81-2.
18. Haas, A.N., de Castro, G.D., Moreno, T. (2008). Azithromycin as an adjunctive treatment of aggressive periodontitis: 12-months randomized clinical trial. *J Clin Periodontol* 35(8):696-704.

19. Haffajee, A.D., Cugini, M.A., Dibart, S., Smith, C., Kent, R.L. Jr, Socransky, S.S. (1997). The effect of SRP on the clinical and microbiological parameters of periodontal diseases. *J Clin Periodontol* 24(5):324-34.
20. Haffajee, A.D., Socransky, S.S., Gunsolley, J.C. (2003). Systemic anti-infective periodontal therapy. A systematic review. *Ann Periodontol* 8(1):115-181.
21. Haffajee, A.D., Socransky, S.S. (1994). Microbial etiologic agents of destructive periodontal diseases. *Periodontol 2000* 5:78-111.
22. Herrera, D., Alonso, B., Leon, R., Roldan, S., Sanz, M. (2008). Antimicrobial therapy in periodontitis: the use of systemic antimicrobials against the subgingival biofilm. *J Clin Periodontol* 35(8):45-66.
23. Howell, TH., Williams, RC. (1993). Non-steroidal anti-inflammatory drugs as inhibitors of periodontal disease progression. *Crit Rev Oral Biol Med* 4(2):177- 196.
24. Jeffcoat, M., Bray, KS., Ciancio, SG. (1998). Adjunctive use of a subgingival controlled-release chlorhexidine chip reduces probing depth and improves attachment level compared with scaling and root planing alone. *J Periodontol* 69(9): 989-997.
25. Jepsen, S., Deschener, J., Braun, A., Schwarz, F., Eberhard J. (2011). Calculus removal and the prevention of its formation. *Periodontol 2000* 55(1): 167-188.
26. Jorgensen, MG., Slots, J. (2000). Practical antimicrobial periodontal therapy. *Compend Contin Educ Dent* 21(2):111-114.
27. Jorgensen, MG., Slots, J. (2000). Responsible use of antimicrobials in periodontics. *J Cal Dent Assoc* 28(3): 185-193.
28. Kirkwood, KL., Cirelli, JA., Rogers, JE., Giannobile, WV. (2007). Novel host response therapeutic approaches to treat periodontal diseases. *Periodontol 2000* 43:294-315.
29. Klinge, B., Attström, R., Karring, T. (1992). Three regimens of topical metronidazole compared with subgingival scaling on periodontal pathology in adults. *J Clin Periodontol* 19 (9):708-714.
30. Larsen T. (1991). Occurrence of doxycycline-resistant bacteria in the oral cavity after local administration of doxycycline in patients with periodontal disease. *Scand J Infect Dis* 23(21):89-95.
31. Lee, HM., Ciancio, SG., Tuter, G. (2004). Subantimicrobial dose doxycycline efficacy as a matrix metalloproteinase inhibitor in chronic periodontitis is enhanced when combined with a non-steroidal antiinflammatory drug. *J Periodontol* 75 (3):453-463
32. Lowenguth, RA., Chin, I., Caton, JG., Cobb, CM., Drisko, CL., Killoy, WJ., Michalowicz BS., Pihlstrom, BL., Goodson, JM. (1995). Evaluation of periodontal treatments using controlled-release tetracycline fibers: microbiological response. *J Periodontol* 66(8):700-707.
33. Malizia, T., Tejada, MR., Ghelardi, E. (1997). Periodontal tissue disposition of azithromycin. *J Periodontol* 68 (12):1206-1209.
34. Marsh, PD. (2005). Dental plaque: biological significance of a biofilm and community life-style. *J Clin Periodontol* 32(6):7-15.
35. Milberg, P., Eckardt, L., Bruns, HJ., Bieritz, J., Ramtin, S., Reinsch, N. (2002). Divergent proarrhythmic potential of macrolide antibiotics despite similar QT prolongation: fast phase 3 repolarization prevents early after depolarizations and torsade de pointes. *J Pharmacol Exp Ther* 303 (1):218-225.

36. Morrison, SL., Cobb, CM., Kazakos, GM., Killoy WJ. (1992). Root surface characteristics associated with subgingival placement of monolithic tetracycline-impregnated fibers. *J Periodontol* 63(2):137-143.
37. Newman, MG., Takei,H., Klokkevold, PR., and Carranza, FA. (2015). Carranza's Clinical Periodontology, 12th edition, Elsevier
38. Offenbacher, S., Braswell, LD., Loos, AS., Johnson, HG., Hall, CM., McClure, H., Orkin, JL., Strobert, EA., Green, MD., Odle, BM. (1987). Effects of flurbiprofen on the progression of periodontitis in Macaca mulatta. *J Periodontal Res* 22 (6):473-481.
39. Pihlstrom, BL., Ammons, WF. (1997). Treatment of gingivitis and periodontitis (Position paper). The Research, Science and therapy Committee of the American Academy of Peridontology. *J Periodontol* 68 (12): 1246-1253.
40. Preshaw, PM. (2008). Host response modulation in periodontics. *Periodontol 2000* 48:92-110.
41. Quirynen, M., Teughels, W., De Soete, M., van Steenberghe, D. (2002). Topical anti-septics and antibiotics in the initial therapy of chronic adult periodontitis: microbiological aspects. *Periodontol 2000* 28:72-90.
42. Rams, TE., Feik,D., Slots.J.(1992).Ciprofloxacin/metronidazole treatment of recurrent adult periodontitis. *J Dent Res* 71:319.
43. Ryan, ME., Golub, LM. (2000). Modulation of matrix metalloproteinase activities in periodontitis as a treatment strategy. *Periodontol 2000*; 24:226-238.
44. Ryan, ME. (2005). Nonsurgical approaches for the treatment of periodontal diseases. *Dent Clinics North Am* 49:611-636.
45. Sgolastra, F., Petrucci, A., Gatto, R., Monaco, A. (2012). Effectiveness of systemic amoxicillin/metronidazole as an adjunctive therapy to full-mouth scaling and root planing in the treatment of aggressive periodontitis: a systematic review and meta-analysis. *J Periodontol* 83(6):731-743.
46. Slots, J.(2004).Research, Science and Therapy Committee. Systemic antibiotics in periodontics. *J Periodontol* 75 (11):1553-1565
47. Söder, PO., Frithiof, L., Wikner, S., Wouters, F., Engström, PE., Rubin, B., Nedlich, U., Söder, B. (1990). The effects of systemic metronidazole after non-surgical treatment in moderate and advanced periodontitis in young adults. *J Periodontol* 61(5):281-288.
48. Soskolne, WA., Heasman, PA., Stabholz, A., Smart, GJ., Palmer, M., Flashner, M., Newman, HN. (1997). Sustained local deliver of chlorhexidine in the treatment of periodontitis: a multi-center study. *J Periodontol* 68 (1):32-38.
49. Stabholz, A., Kettering, J., Aprecio, R., Zimmerman, G., Baker, P.J., Wiksjö, U.M.E. (1993). Antimicrobial properties of human dentin impregnated with tetracycline-HCL or chlorhexidine. AN in vitro study. *J Clin Periodontol* 20(8): 557-562
50. Stelzel, M., Flores-De-Jacoby, L. (1996). Topical metronidazole application compared with subgingival scaling: a clinical and microbiological study on recall patients. *J Clin Periodontol* 23(1):24-9.
51. Tonetti, M., Cugini, A.M., Goodson, J.M. (1990). Zero order delivery with periodontal placement of tetracycline loaded ethylene vinyl acetate fibers. *J Periodontal Res* 25(4):243-9.

52. Termine, N., Panzarella, V., Ciavarella, D., Lo Muzio, L., D'Angelo, M., Sardella, A., Compilato, D., Campisi, G.(2009). Antibiotic prophylaxis in dentistry and oral surgery: use and misuse. *Int Dent J.* 59(5):263-270.
53. Tyler, K., Walker, C.B., Gordon, J. (1985). Evaluation of clindamycin in adult refractory periodontitis: antimicrobial susceptibilities. *J Dent Res* 64:360.
54. Van Steenberghe, D., Bercy, P., Kohl, J. (1993). Subgingival minocycline hydrochloride ointment in moderate to severe chronic adult periodontitis: a randomized, double-blind, vehicle-controlled, multicenter study. *J Periodontol* 64(7):637-44.
55. Walker, C., Karpinia, K. (2002). Rationale for use of antibiotics in periodontics. *J Periodontol* 73(10):1188-96. Review.
56. Walker, C.B., Gordon, J.M., Magnusson, I., Clark, W.B. (1993). A role for antibiotics in the treatment of refractory periodontitis. *J Periodontol* 64(8):772-781.
57. Walker, C.B., Gordon, J.M., Magnusson, I. (1993). A role for antibiotics in the treatment of refractory periodontitis. *J Periodontol* 64(Suppl 8S):772-781.
58. Walker, C.B. (1996). Selected antimicrobial agents: mechanisms of action, side effects and drug interactions. *Periodontol 2000* 10:12-28.
59. Walker, C.B. (1996). The acquisition of resistance of antibiotic resistance in the periodontal microflora. *Periodontol 2000* 10:79-88.
60. Weiner, R.D., Sambomoorthi, U., Jurevic, RJ. (2015). Local antimicrobials. *JADA* 146 (0):717
61. Wilson W, Taubert KA, Gewitz M, et al. (2007). Prevention of infective endocarditis: guidelines from the American Heart Association: a guideline from the American Heart Association Rheumatic Fever, Endocarditis, and Kawasaki Disease Committee, Council on Cardiovascular Disease in the Young, and the Council on Clinical Cardiology, Council on Cardiovascular Surgery and Anesthesia, and the Quality of Care and Outcomes Research Interdisciplinary Working Group. *Circulation* 116: 1736-1754.