

Ausgabe: Dental Tribune German Edition 5/2018

Thema: Die nicht-chirurgische Parodontaltherapie – ein neuer Einsatzbereich für Statine?

Autor: Von PD Dr. Kristina Bertl, PhD, MSc; Malmö, Schweden und Wien, Österreich, Dr. Ilse Steiner, MSc, Taiskirchen, Österreich, und Prof. Dr. Andreas Stavropoulos , PhD, dr. odont., Malmö, Schweden.

Literatur

1. Kassebaum NJ, Bernabé E, Dahiya M, Bhandari B, Murray CJ, Marcenes W (2014) Global burden of severe periodontitis in 1990-2010: a systematic review and meta-regression. *J Dent Res* 93:1045–1053
2. Jordan RA, Micheelis W. Fünfte Deutsche Mundgesundheitsstudie (DMS V). (Eds.), Deutscher Ärzteverlag, (2016).
3. Haffajee AD, Socransky SS (1994) Microbial etiological agents of destructive periodontal diseases. *Periodontol* 2000 5:78–111
4. Teles R, Teles F, Frias-Lopez J, Paster B, Haffajee A (2013) Lessons learned and unlearned in periodontal microbiology. *Periodontol* 2000 62:95–162
5. Bartold PM, Van Dyke TE (2013) Periodontitis: a host-mediated disruption of microbial homeostasis. Unlearning learned concepts. *Periodontol* 2000 62:203–217
6. Bertl K, Pietschmann P, Stavropoulos A (2016) Chapter 12: Osteoimmunological Aspects of Periodontal Diseases. *Principles of Osteoimmunology: Molecular Mechanisms and Clinical Applications*:289–321
7. Graves D (2008) Cytokines that promote periodontal tissue destruction. *J Periodontol* 79:1585–1591
8. Gätke D, Holtfreter B, Biffar R, Kocher T (2012) Five-year change of periodontal diseases in the Study of Health in Pomerania (SHIP). *J Clin Periodontol* 39:357–367
9. Bruckmann C, Durstberger G, Matejka M (2006) Das Wiener parodontologische Behandlungskonzept, Teil I. Epidemiologie - Diagnostik - Behandlungsplan - Basistherapie. *Stomatologie* 103:5–10
10. Durstberger G, Bruckmann C, Matejka M (2006) Das Wiener parodontologische Behandlungskonzept, Teil II. Reevaluation - weiterführende Parodontaltherapie (konservativ/chirurgisch) - Recall. *Stomatologie* 103:33–38
11. Bertl K, Bruckmann C, Isberg PE, Klinge B, Gotfredsen K, Stavropoulos A (2015) Hyaluronan in non-surgical and surgical periodontal therapy: a systematic review. *J Clin Periodontol* 42:236–246
12. Eberhard J, Jepsen S, Jervøe-Storm PM, Needleman I, Worthington HV (2015) Full-mouth treatment modalities (within 24 hours) for chronic periodontitis in adults. *Cochrane Database Syst Rev* CD004622
13. Jepsen K, Jepsen S (2016) Antibiotics/antimicrobials: systemic and local administration in the therapy of mild to moderately advanced periodontitis. *Periodontol* 2000 71:82–112

14. Lang NP, Tan WC, Krähenmann MA, Zwahlen M (2008) A systematic review of the effects of full-mouth debridement with and without antiseptics in patients with chronic periodontitis. *J Clin Periodontol* 35:8–21
15. Martin-Cabezas R, Davideau JL, Tenenbaum H, Huck O (2016) Clinical efficacy of probiotics as an adjunctive therapy to non-surgical periodontal treatment of chronic periodontitis: a systematic review and meta-analysis. *J Clin Periodontol* 43:520–530
16. Delahoy PJ, Magliano DJ, Webb K, Grobler M, Liew D (2009) The relationship between reduction in low-density lipoprotein cholesterol by statins and reduction in risk of cardiovascular outcomes: an updated meta-analysis. *Clin Ther* 31:236–244
17. Edwards JE, Moore RA (2003) Statins in hypercholesterolaemia: a dose-specific meta-analysis of lipid changes in randomised, double blind trials. *BMC Fam Pract* 4:18
18. Kazi DS, Penko JM, Bibbins-Domingo K (2017) Statins for Primary Prevention of Cardiovascular Disease: Review of Evidence and Recommendations for Clinical Practice. *Med Clin North Am* 101:689–699
19. Weng TC, Yang YH, Lin SJ, Tai SH (2010) A systematic review and meta-analysis on the therapeutic equivalence of statins. *J Clin Pharm Ther* 35:139–151
20. Zhao M, Klipstein-Grobusch K, Wang X et al (2017) Prevalence of cardiovascular medication on secondary prevention after myocardial infarction in China between 1995-2015: A systematic review and meta-analysis. *PLoS One* 12:e0175947
21. Emani S, Gunjiganur GV, Mehta DS (2014) Determination of the antibacterial activity of simvastatin against periodontal pathogens, *Porphyromonas gingivalis* and *Aggregatibacter actinomycetemcomitans*: An in vitro study. *Contemp Clin Dent* 5:377–382
22. Garrett IR, Gutierrez G, Mundy GR (2001) Statins and bone formation. *Curr Pharm Des* 7:715–736
23. Liu S, Bertl K, Sun H, Liu ZH, Andrukhov O, Rausch-Fan X (2012) Effect of simvastatin on the osteogenetic behavior of alveolar osteoblasts and periodontal ligament cells. *Hum Cell* 25:29–35
24. Mundy G, Garrett R, Harris S et al (1999) Stimulation of bone formation in vitro and in rodents by statins. *Science* 286:1946–1949
25. Paumelle R, Blanquart C, Briand O et al (2006) Acute antiinflammatory properties of statins involve peroxisome proliferator-activated receptor-alpha via inhibition of the protein kinase C signaling pathway. *Circ Res* 98:361–369
26. Rosenson RS, Tangney CC, Casey LC (1999) Inhibition of proinflammatory cytokine production by pravastatin. *Lancet* 353:983–984
27. Sakoda K, Yamamoto M, Negishi Y, Liao JK, Node K, Izumi Y (2006) Simvastatin decreases IL-6 and IL-8 production in epithelial cells. *J Dent Res* 85:520–523
28. Ting M, Whitaker EJ, Albandar JM (2016) Systematic review of the in vitro effects of statins on oral and perioral microorganisms. *Eur J Oral Sci* 124:4–10
29. Lindy O, Suomalainen K, Mäkelä M, Lindy S (2008) Statin use is associated with fewer periodontal lesions: A retrospective study. *BMC Oral Health* 8:16

30. Sangwan A, Tewari S, Singh H, Sharma RK, Narula SC (2013) Periodontal status and hyperlipidemia: statin users versus non-users. *J Periodontol* 84:3–12
31. Bertl K, Steiner I, Pandis N, Buhlin K, Klinge B, Stavropoulos A (2017) Statins in nonsurgical and surgical periodontal therapy. A systematic review and meta-analysis of preclinical in vivo trials. *J Periodontal Res*
32. Bertl K, Parllaku A, Pandis N, Buhlin K, Klinge B, Stavropoulos A (2017) The effect of local and systemic statin use as an adjunct to non-surgical and surgical periodontal therapy-A systematic review and meta-analysis. *J Dent* 67:18–28
33. Garg S, Pradeep AR (2017) 1.2% Rosuvastatin and 1.2% Atorvastatin Gel Local Drug Delivery and Redelivery in the Treatment of Class II Furcation Defects: A Randomized Controlled Clinical Trial. *J Periodontol* 88:259–265
34. Kumari M, Martande SS, Pradeep AR, Naik SB (2016) Efficacy of Subgingivally Delivered 1.2% Atorvastatin in the Treatment of Chronic Periodontitis in Patients With Type 2 Diabetes Mellitus: A Randomized Controlled Clinical Trial. *J Periodontol* 87:1278–1285
35. Kumari M, Martande SS, Pradeep AR (2016) Subgingivally delivered 1.2% atorvastatin in the treatment of chronic periodontitis among smokers: a randomized, controlled clinical trial. *J Investig Clin Dent*
36. Pradeep AR, Thorat MS (2010) Clinical effect of subgingivally delivered simvastatin in the treatment of patients with chronic periodontitis: a randomized clinical trial. *J Periodontol* 81:214–222
37. Pradeep AR, Priyanka N, Kalra N, Naik SB, Singh SP, Martande S (2012) Clinical efficacy of subgingivally delivered 1.2-mg simvastatin in the treatment of individuals with Class II furcation defects: a randomized controlled clinical trial. *J Periodontol* 83:1472–1479
38. Pradeep AR, Kumari M, Rao NS, Martande SS, Naik SB (2013) Clinical efficacy of subgingivally delivered 1.2% atorvastatin in chronic periodontitis: a randomized controlled clinical trial. *J Periodontol* 84:871–879
39. Pradeep AR, Rao NS, Bajaj P, Kumari M (2013) Efficacy of subgingivally delivered simvastatin in the treatment of patients with type 2 diabetes and chronic periodontitis: a randomized double-masked controlled clinical trial. *J Periodontol* 84:24–31
40. Pradeep AR, Karvekar S, Nagpal K, Patnaik K, Guruprasad CN, Kumaraswamy KM (2015) Efficacy of locally delivered 1.2% rosuvastatin gel to non-surgical treatment of patients with chronic periodontitis: a randomized, placebo-controlled clinical trial. *J Periodontol* 86:738–745
41. Pradeep AR, Garg V, Kanoriya D, Singhal S (2016) 1.2% Rosuvastatin Versus 1.2% Atorvastatin Gel Local Drug Delivery and Redelivery in Treatment of Intrabony Defects in Chronic Periodontitis: A Randomized Placebo-Controlled Clinical Trial. *J Periodontol* 87:756–762
42. Pradeep AR, Kanoriya D, Singhal S, Garg V, Manohar B, Chatterjee A (2016) Comparative evaluation of subgingivally delivered 1% alendronate versus 1.2% atorvastatin gel in treatment of chronic periodontitis: a randomized placebo-controlled clinical trial. *J Investig Clin Dent*

43. Rao NS, Pradeep AR, Bajaj P, Kumari M, Naik SB (2013) Simvastatin local drug delivery in smokers with chronic periodontitis: a randomized controlled clinical trial. *Aust Dent J* 58:156–162
44. Rath A, Mahendra J, Thomas L, Sandhu M, Namasi A, T R (2012) A Clinical, Radiological and IL-6 Evaluation of Subgingivally Delivered Simvastatin in the Treatment of Chronic Periodontitis. *J Clin Periodontol* 4:70–81
45. Surve SM, Acharya AB, Thakur SL (2015) Efficacy of subgingivally delivered atorvastatin and simvastatin as an adjunct to scaling and root planing. *Drug Metabol Personal Ther* 30:263–269
46. Fajardo ME, Rocha ML, Sánchez-Marin FJ, Espinosa-Chávez EJ (2010) Effect of atorvastatin on chronic periodontitis: a randomized pilot study. *J Clin Periodontol* 37:1016–1022
47. Fentoğlu O, Kirzioğlu FY, Ozdem M, Koçak H, Sütçü R, Sert T (2012) Proinflammatory cytokine levels in hyperlipidemic patients with periodontitis after periodontal treatment. *Oral Dis* 18:299–306
48. Sahrman P, Puhon MA, Attin T, Schmidlin PR (2010) Systematic review on the effect of rinsing with povidone-iodine during nonsurgical periodontal therapy. *J Periodontol Res* 45:153–164
49. Sgolastra F, Petrucci A, Gatto R, Giannoni M, Monaco A (2011) Long-term efficacy of subantimicrobial-dose doxycycline as an adjunctive treatment to scaling and root planing: a systematic review and meta-analysis. *J Periodontol* 82:1570–1581
50. Smiley CJ, Tracy SL, Abt E et al (2015) Systematic review and meta-analysis on the nonsurgical treatment of chronic periodontitis by means of scaling and root planing with or without adjuncts. *J Am Dent Assoc* 146:508–24.e5
51. Hung HC, Douglass CW (2002) Meta-analysis of the effect of scaling and root planing, surgical treatment and antibiotic therapies on periodontal probing depth and attachment loss. *J Clin Periodontol* 29:975–986
52. Subramanian S, Emami H, Vucic E et al (2013) High-dose atorvastatin reduces periodontal inflammation: a novel pleiotropic effect of statins. *J Am Coll Cardiol* 62:2382–2391
53. Thompson PD, Panza G, Zaleski A, Taylor B (2016) Statin-Associated Side Effects. *J Am Coll Cardiol* 67:2395–2410