

# Oralna upala i infekcija u bolesnika s kroničnom limfoproliferativnom bolešću

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## ORAL INFLAMMATION AND INFECTION IN PATIENTS WITH CHRONIC LYMPHOPROLIFERATIVE DISEASE

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**Introduction:** Patients with chronic lymphoproliferative disease are predisposed to infection due to inherent immune defects related to the primary disease, and as a result of therapy. It is of great importance to minimize infection and inflammation burden from oral cavity in these patients. The aim of this study was to evaluate dentobacterial plaque accumulation and oral inflammation using Approximal Plaque Index and Papilla Bleeding Index in patients with chronic lymphoproliferative disease and to compare it with matched healthy controls.

**Materials and methods:** 24 patients with chronic lymphoproliferative disease (test group) and 28 age matching healthy individuals (control group) were examined. Approximal Plaque Index (API) and Papilla Bleeding Index (PBI) were recorded for each subject.

**Results:** In the test group the mean value of API was  $0.81 \pm 0.18$ , and the mean value of PBI was  $2.72 \pm 0.68$ . In the control group the mean value of API was  $0.69 \pm 0.15$  and the mean value of PBI was  $1.91 \pm 0.45$ . The test group was statistically significant different from the control group according to API (t-test = -2,569; p = 0.013) and PBI (t-test = -5,180; p < 0.001).

**Conclusion:** The results of this study showed that patients with chronic lymphoproliferative disease had statistically significant higher values of API and PBI than healthy subjects in the control group, indicating a high infectious and inflammatory burden from the oral cavity in these patients.

**Key words:** dentobacterial plaque, inflammation, lymphoproliferative disease

## ORALNA UPALA I INFEKCIJA U BOLESNIKA S KRONIČNOM LIMFOPROLIFERATIVNOM BOLEŠĆU

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**Uvod:** Bolesnici s kroničnom limfoproliferativnom bolešću podložni su razvoju infekcija zbog imunoloških poremećaja povezanih s bolešću, ali i zbog utjecaja terapije. Stoga je kod ovih bolesnika izuzetno važno minimalizirati bakterijsko i upalno opterećenje iz usne šupljine. Cilj ovog istraživanja bio je procijeniti akumulaciju dentobakterijskog plaka i oralnu upalu kod bolesnika s kroničnom limfoproliferativnom bolešću pomoću aproksimalnog plak indeksa i indeksa krvareće papile te ih usporediti s oralnim statusom ispitanika kontrolne skupine.

**Materijali i metode:** Pregledana su 24 bolesnika s kroničnom limfoproliferativnom bolešću (ispitna skupina) i 28 zdravih ispitanika odgovarajuće dobi (kontrolna skupina). Za svakog ispitanika zabilježeni su aproksimalni plak indeks (API) i indeks krvareće papile (PBI).

**Rezultati:** U ispitnoj skupini srednja vrijednost za API iznosila je  $0,81 \pm 0,18$ , a srednja vrijednost za PBI  $2,72 \pm 0,68$ . U kontrolnoj skupini srednja vrijednost za API iznosila je  $0,69 \pm 0,15$ , a srednja vrijednost za PBI  $1,91 \pm 0,45$ . Ispitna skupina se statistički značajno razlikovala od kontrolne skupine prema API (t-test = -2,569; p = 0.013) i PBI (t-test = -5,180; p < 0.001).

**Zaključak:** Rezultati ovog istraživanja pokazali su da su bolesnici s kroničnom limfoproliferativnom bolešću imali statistički značajno veće vrijednosti API i PBI od zdravih ispitanika kontrolne skupine, što ukazuje na visoko bakterijsko i upalno opterećenje iz usne šupljine kod ovih bolesnika.

**Cljučne riječi:** dentobakterijski plak, upala, limfoproliferativna bolest

## BOND STRENGTH OF THREE DIFFERENT CALCIUM SILICATE-BASED ROOT-END FILLING MATERIALS

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**Introduction:** The aim of the study was to determine the bond strength between three calcium silicate-based retrograde filling materials and dentine.

**Materials and methods:** Root canals of 52 extracted permanent human single-rooted teeth were endodontically treated. After one week of storage at 37°C and 100% humidity apical 3 mm were resected, and 5 mm deep retrograde cavities were made with 2 mm round carbide bur. Teeth were randomly divided into four groups depending on the retrograde filling material: 1) Micro-Mega Mineral Trioxide Aggregate (MM-MTA), 2) Biodentin, 3) TotalFill Root Repair Material (TotalFill RRM) and 4) Amalcap plus amalgam as a control group. After 3 months of storing the samples in physiological saline, a micro push-out test was performed with a universal testing device and the fracture method was determined with a stereomicroscope. The results were statistically processed using one-way ANOVA and Tukey-Kramer HSD post-hoc test (p < 0.05).

**Results:** MM-MTA showed the highest binding strength of  $11,52 \pm 6,39$  MPa, which was statistically significantly different compared to the binding strength of Biodentin and amalgam but not TotalFill RRM (p < 0.05). The binding strength of Biodentin was  $5,34 \pm 3,62$  MPa, TotalFill RRM  $6,01 \pm 2,70$  MPa, and  $5,27 \pm 2,82$  MPa for amalgam. MM-MTA showed only adhesive and mixed fracture mode. Biodentin and TotalFill RRM showed predominantly mixed fracture modes, although they also had adhesive and cohesive fractures.

**Conclusion:** MM-MTA showed higher binding strength compared to Biodentin and TotalFill RRM.

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**Key words:** bond strength, root-end filling, calcium silicate

## ČVRSTOĆA SVEZIVANJA KALCIJ SILIKATNIH MATERIJALA ZA RETROGRADNO PUNJENJE KORIJENSKIH KANALA

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**Uvod:** Cilj istraživanja bio je utvrditi čvrstoću vezivanja za dentin tri materijala za retrogradno punjenje temeljena na kalcij-silikatu u retrogradnim kavitetima izrađenim svrdlom.

**Materijali i metode:** Endodontski su obrađeni korijenski kanali 52 izvađena humana trajna jednokorijenska zuba. Nakon tjedan dana čuvanja na 37°C i 100% vlažnosti, zubima su uklonjeni apikalni dijelovi korijena duljine 3mm, te su potom okruglim čeličnim svrdlom promjera 2 mm napravljeni retrogradni kaviteti dubine 5 mm. Zubi su nasumičnim odabirom podijeljeni u četiri skupine ovisno o materijalu za retrogradno punjenje: 1) Micro-Mega mineralni trioksid agregat (MM-MTA), 2) Biodentin, 3) TotalFill materijal za reparaciju korijena (TotalFill RRM) i 4) Amalcap plus amalgam kao kontrolna skupina. Nakon 3 mjeseca čuvanja uzoraka u fiziološkoj otopini, univerzalnim uređajem za testiranje izveden je mikro test istiskivanja a stereomikroskopom je utvrđen način loma. Rezultati su statistički obrađeni upotrebom jednosmjerne analiza varijance ANOVA i Tukey-Kramer HSD post-hoc testa (p < 0,05).

**Rezultati:** MM-MTA je pokazao najveću čvrstoću svezivanja od  $11,52 \pm 6,39$  MPa koja je bila statistički značajno različita u usporedbi s čvrstoćom svezivanja Biodentina i amalgama ali ne i TotalFill RRM (p < 0,05). Čvrstoća svezivanja Biodentina iznosila je  $5,34 \pm 3,62$  MPa, TotalFill RRM  $6,01 \pm 2,70$  MPa, a za amalgam  $5,27 \pm 2,82$  MPa. MM-MTA pokazao je samo adhezivni i miješani način loma. Biodentin i TotalFill RRM pokazali su pretežno miješane načine loma, iako su također imali i adhezivnih i kohezivnih lomova.

**Zaključak:** MM-MTA pokazao je veću čvrstoću svezivanja u usporedbi s Biodentinom i TotalFill RRM.

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**Cljučne riječi:** čvrstoća svezivanja, retrogradno punjenje, kalcij-silikat