

INTISARI

Kawat nikel-titanium (NiTi) sering digunakan di bidang orthodonti karena sifatnya yang lentur. Saliva merupakan salah satu faktor penting dalam regulasi kesehatan gigi dan mulut. Pasien dengan perawatan orthodonti biasanya disarankan untuk menggunakan obat kumur untuk mencegah karies, di samping rutin menyikat gigi. Chlorhexidine digunakan sebagai obat kumur atau antiseptik. Obat kumur sodium fluoride juga disarankan untuk pasien risiko tinggi karies. Tujuan dari penelitian ini adalah mengetahui pengaruh lama perendaman kawat gigi nikel-titanium di dalam saliva artifisial, chlorhexidine, dan sodium fluoride terhadap korosivitas dan daya lenting.

Sebanyak 75 kawat NiTi diameter 0.012mm ditimbang dan diukur daya lentingnya. Kawat kemudian direndam dalam saliva artifisial, chlorhexidine, sodium fluoride, saliva+chlorhexidine, dan saliva+sodium fluoride selama 5, 10, dan 15 hari. Selanjutnya kawat kembali ditimbang dan diukur daya lentingnya. Data yang diperoleh dianalisis dengan Anava dua jalur dan regresi linier sederhana.

Hasil analisis uji Anava dua jalur menunjukkan kawat yang direndam pada saliva+chlorhexidine dan saliva+sodium fluoride mengalami korosi terbesar. Kawat dengan daya lenting terendah terjadi pada kawat setelah direndam saliva+sodium fluoride selama 15 hari. Hasil analisis regresi linier sederhana menunjukkan korosi pada kawat berpengaruh sebesar 47,2% terhadap penurunan daya lenting dan setiap 1 kali kejadian korosi akan menurunkan daya lenting sebesar 30,257. Kesimpulan penelitian ini adalah lama perendaman kawat dalam saliva artifisial, chlorhexidine, dan sodium fluoride berpengaruh terhadap korosivitas ($p<0,05$) dan daya lenting ($p<0,05$), serta korosi pada kawat gigi NiTi memiliki pengaruh bermakna terhadap penurunan daya lenting secara statistik ($p<0,05$).

Kata kunci: kawat NiTi, saliva, obat kumur, korosi, daya lenting

ABSTRACT

Nikel-Titanium (NiTi) arch wires have been used widely in orthodontic due to their flexibility and high resilience. Saliva is an important factor for oral health regulation. Orthodontic patients usually suggested using mouthwash to prevent caries. Chlorhexidine is a kind of mouthwash or antiseptic. Sodium fluoride also recommended for high risk caries patients. The aim of this study was to evaluate corrosives and resilience of NiTi arch wire after immersed in artificial saliva, chlorhexidine, and sodium fluoride.

Seventy-five NiTi arch wires were scaled and resilience measured. Then they were immersed in artificial saliva, chlorhexidine, sodium fluoride, saliva+chlorhexidine, and saliva+sodium fluoride for 5, 10, and 15 days. After that they were scaled and resilience measured more. The results were analyzed by two-way Anova and simple linier regression test.

The two-way Anova test resulted that most corrosion arch wires were those immersed in saliva+chlorhexidine and saliva+sodium fluoride for 10 and 15 days. The weakest arch wires resilience was those immersed in saliva+sodium fluoride for 15 days. The result of simple linier regression showed that corrosion affected the 47.2% of resilience decreases, and every one time of corrosion would decrease the resilience for 30,257. The conclusion was artificial saliva, chlorhexidine, and sodium fluoride affected the corrosives ($p<0.05$) and resilience ($p<0.05$) of NiTi arch wire several days immersion period, and corrosion of NiTi significantly affected the decrease of resilience ($p<0.05$).

Keywords: NiTi arch wire, saliva, mouthwash, corrosion, resilience