Efek Temporary Anchorage Device Stainless Steel yang Terpapar Larutan Kumur pada reaktivitas dan Viabilitas Sel Fibroblast BHK-21 = Effect of Stainless Steel Temporary Anchorage Device Exposed to Mouthwashes on Reactivity and Viability of BHK-21 Fibroblast Cells

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Abstrak

Menganalisis sitotoksisitas TAD SS setelah paparan tiga jenis larutan kumur yang dilihat melalui parameter reaktivitas dan viabilitas sel fibroblast BHK-21. Metode: 28 unit TAD SS dibagi menjadi masing-masing 7 unit TAD dalam 4 kelompok larutan kumur (sodium fluoride 0.2%, povidone iodine 1%, kitosan 1.5%, akuades) dan direndam selama 90 hari. Elusi TAD SS dalam larutan kumur kemudian dimasukkan ke dalam kultur sel fibroblast BHK-21 dan diinkubasi selama 24 jam. Reaktivitas dianalisis dengan mikroskop inverted-light dan reliabilitasnya diuji dengan ICC serta diuji secara statistik dengan independent T-test. Viabilitas dilakukan dengan metode MTT Assay dan dianalisis secara statistik dengan independent T-test. Hasil: Sel fibroblast BHK-21 menunjukkan perbedaan reaktivitas yang bermakna ($p<0.05$) setelah paparan elusi TAD SS dalam larutan kumur povidone iodine dan kitosan dibanding larutan povidone iodine dan kitosan tanpa TAD SS. Uji viabilitas menunjukkan perbedaan bermakna ($p<0.05$) setelah paparan elusi TAD SS dalam larutan kumur povidone iodine dibanding larutan povidone iodine saja tanpa TAD SS. Reaktivitas sel fibroblast BHK-21 pada kelompok yang terpapar larutan fluoride dan akuades tidak berbeda bermakna ($p>0.05$) dibanding larutan fluoride dan akuades tanpa TAD SS. Viabilitas sel fibroblast BHK-21 pada kelompok yang terpapar larutan fluoride dan akuades tidak berbeda bermakna ($p>0.05$) dibanding kelompok larutan fluoride dan akuades tanpa TAD SS. Kesimpulan: Pasien ortodonti dengan TAD SS dapat dianjurkan menggunakan larutan kumur kitosan dengan kadar lebih rendah atau akuades. Larutan kumur fluoride tidak dianjurkan untuk diberikan pada pasien ortodonti dengan TAD SS. Larutan povidone iodine sebaiknya tidak digunakan secara terus menerus untuk memberi waktu bagi revitalisasi sel.

..... Analyzing the cytotoxicity of SS TAD after exposure to three types of mouthwash seen through the parameters of reactivity and viability of BHK-21 fibroblast cells. Methods: 28 units of SS TAD were divided into 7 units each of TAD in 4 groups of mouthwash (sodium fluoride 0.2%, povidone iodine 1%, chitosan 1.5%, aquadest) and immersed for 90 days. The elution of SS TAD in mouthwash was then fed into BHK-21 fibroblast cell culture and incubated for 24 hours. Reactivity was analyzed with an inverted-light microscope and reliability was tested with ICC also statistically tested with an independent T-test. Viability was performed using MTT Assay and statistically analyzed with an independent T-test. Results: BHK-21 fibroblast cells showed significant differences in reactivity ($p<0.05$) after exposure to TAD SS elution in povidone iodine and chitosan mouthwash compared to its solution groups without TAD SS. Viability test showed significant differences ($p<0.05$) after exposure to TAD SS elution in povidone iodine mouthwash compared to povidone iodine without TAD SS. The reactivity of BHK-21 fibroblast cells exposed to fluoride and aquadest was not significantly different ($p>0.05$) compared to its solution groups without TAD SS. The viability of BHK-21 fibroblast cells exposed to fluoride and aquadest did not significantly different compared to its solution groups without TAD SS. Conclusions : Orthodontic patients with TAD SS may be recommended to use lower levels of chitosan mouthwash or aquadest. Fluoride mouthwash is not

recommended to be given to orthodontic patients with TAD SS. Povidone iodine solution should not be used continuosly to give time for cell revitalization