**Cytotoxic Effect of Astringent Agents on Human Gingival Fibroblasts**

**Abstract**

**Aims**: During fixed prosthesis fabrication, gingival margin retraction is an important step before making an impression. Astringent agents should provide sufficient free gingival margin displacement, and must be free of systemic and local harmful adverse effects. This study aimed to determine the biocompatibility of three different astringent agents on human gingival fibroblast.

**Materials and Methods**: In order to evaluate cytotoxicity of 25% aluminum chloride, 25% aluminum sulphate and 20% ferric sulphate, in 24 well culture plates containing human gingival fibroblasts, RPMI media, antibiotic and 10% fetal bovine serum was added. Cell cultures were incubated in a CO2 incubator. After 1, 5 and 15 minutes, optical absorption of each plate was determined by MTT assay. Cytotoxicity of each astringent at 1, 5 and 15 minutes was compared with each other by student *t*-test. A p-value <0.05 was considered as significant level.

**Results**: The cytotoxicity of aluminum chloride at all periods of time was significantly greater than the other two astringents (p < 0.05). At 1 minute application, cytotoxicity of ferric sulphate was significantly lower than aluminum sulphate (p = 0.01). At 5 minutes, the effect of ferric sulphate and aluminum sulphate was similar and at 15 minutes, aluminum sulphate had significantly lower cytotoxicity compared to ferric sulphate (p = 0.043).

**Conclusions**: At all tested time periods, 25% aluminum chloride exhibited greater cytotoxicity than aluminum sulphate and ferric sulphate. At 1 minute, cytotoxicity of ferric sulphate compared to aluminum sulphate was lower, at 5 minutes similar, and at 15 minutes was greater.

**Key words**: cytotoxicity; astringent agents; MTT assay; fibroblast