



Long-term Complications Associated with Implant-supported Complete Fixed Dental Prosthesis



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Rehabilitation of edentulous patients with Implant-supported Complete Fixed Dental Prosthesis (ICFDP) is a well-documented treatment option.

Objectives: To assess the relation between the rate of biological/mechanical complications and the type of metal framework alloy, length of cantilever extension. In this retrospective study,

Patient Cohort: 30 patients with edentulous mandible treated with ICFDP between 1980 and 2000 in Faculty of Dentistry, University of Toronto (Canada) were included in the study.

Results: The results showed that long-term clinical outcomes of ICFDP were favorable. While 30% of patients experienced biological complications, 66.6% of the prostheses needed to be repaired during follow-up period. The risk of prosthesis failure and mechanical complications was significantly higher in Ag-Pd frameworks as compared with palladium-silver or type IV gold alloys. The length of cantilever was not correlated with the amount of marginal bone loss. The rate of marginal bone loss around anterior implants was higher than that of posterior implants associated with cantilever segments. The treatment improved the patients' quality of life and 96% of patients would undergo the same treatment again if required.

Conclusions:

1) Mechanical complications such as prosthetic/abutment screw loosening/fracture and incidences of cracks, chippings and fractures in resin teeth, acrylic body and metal framework of prostheses are frequently observed in edentulous patients who are rehabilitated with ICFDP. Nonetheless, these complications should be considered as manageable problems.

2) Mechanical properties of the metal alloys affect the rate of mechanical complications in ICFDPs. Metal alloys with high values of fracture toughness and yield strength are more suitable for ICFDPs. Unlike gold type IV and Pd-Ag alloys, silver-palladium alloy is not considered a good choice for ICFDPs since it results in a higher rate of mechanical complications in ICFDPs.

3) The amount of marginal bone loss was higher around the most anterior implants than that of the bone loss observed around the most posterior implants adjacent to the cantilever segments.

4) The length of cantilever segments (up to 22.9 mm) in ICFDPs does not increase the amount of the marginal bone loss around the adjacent implants.