Dental implant treatment in patients with systemic diseases: a pilot comparative cohort study

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Background and Aim

Implant treatment became the standard of care for the rehabilitation of partial and total edentulisms. Healthy patients showed a very high success rate over a long-term follow-up, nevertheless implant failures could happen due to lack (early failure) or loss of osseointegration (late failure)[1,2]. The impact of several systemic diseases on the outcome of implant therapy is still unclear, however it seems that their control may play a crucial role in the treatment outcomes[3,4,5].

The aim of this prospective study is to evaluate and to compare the outcomes of dental implant therapy in healthy patients compared to patients affected by systemic diseases.

Methods and Materials

Two groups of patients were selected in the study, those who had systemic disorders (MCP) and who were under treatment with multiple medications and those who were healthy (HP). **Post-surgical complications** were evaluated in the 2 groups. The implants were restored three months after placement. Implant failure was considered as removal or loss, the survival of an implant was considered as the functional status even when the success criteria weren't met. The primary outcome measure was: **Marginal Bone Level (MBL)** that was measured on periapical radiographs at implant placement, at the restoration phase and each year after implant placement. The secondary outcomes were: probing depth (PD) and bleeding on probing (BoP) that were recorded at 4 sites for each implant at the restoration phase and each year after implant placement.

T-Paired test was carried out and the level of statistical significance (P) was set at 0.05.

Results

Twnty- nine medically compromised patients (MCP) received 29 Tissue Level implants (Prama, Sweden & Martina, Due Carrare, Italy), 25 healthy patients (HP) received 25 Tissue Level implants (Prama, Sweden & Martina, Due Carrare, Italy). The early post-operative complications were higher in the medically compromised group than in the healthy group. One single early failure was registered in the MCP group. On the other hand, 2 implants in the healthy group registered an early failure. The percentage of implants showing less than 1.5mm of bone loss after 1 year was 100% in both groups. However in the MCP group the ΔMBL at 1 year compared to baseline was statistical significant (P <0,0001). The mean PD and BoP were not different in the 2 groups at 1 year.

	N patients	1 Pathology	>1 Pathology	Bleeding	Hematoma	Swelling
MCP	29	15	14	1	2	3
HP	25			0	0	0
	N implants	Success	Early Failures	Late Failures		
MCP	29	28	1	0		
HP	25	24	1	0		

Healthy Patients
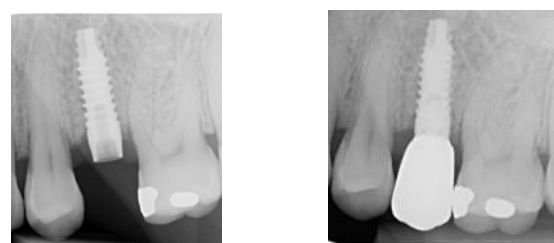
Medically Compromised Patients
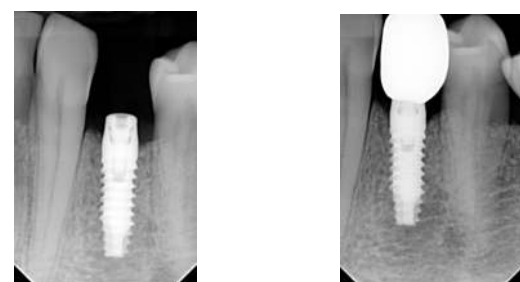
	ΔMBL	P value
MCP	0,6±0,59 mm	P < 0,0001
HP	0,13±0,43 mm	P = 0,162

Overall Success
Med Compromised 96,6%
Healthy 95,2%

Conclusion

The medically compromised patients didn't show any increased risk for implant failure and implant survival when compared to healthy patients. The percentage of early post-operative complications was higher in the MCP group, however further evaluations on a wider study population should be carried out in order to have more significant results. Systemic diseases did not represent, in this study, a contraindication to implant treatment, even though these patients require a careful follow up for the implant maintenance as well as for the medical condition.

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