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ORIGINAL RESEARCH

Assessment of effect of age on prognosis of dental implants: An observational study

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ABSTRACT:

Background: Dental status, among other factors, has an impact on the nutritional status of the elderly. It has been shown that subjects wearing conventional complete dentures have a lower nutritional intake than do subjects having more than 20 teeth. Hence; the present study was undertaken for assessing of effect of age on prognosis dental implants. **Materials & methods:** 40 patients were enrolled in the present study. All the patients were divided into four study groups with 10 patients in each group as follows: Group 1: Patients within the age range of less than 20 years, Group 2: Patients within the age range of 20 to 40 years, Group 3: Patients within the age range of 41 to 60 years, and Group 4: Patients within the age range of more than 60 years. Dental implant therapy was carried out in all the patients. Follow-up was done after one year and thorough clinical and radiographic examination was carried out for assessing the prognosis. **Results:** Failure of dental implant occurred in 10 percent, 20 percent, 10 percent and 20 percent of the subjects of group 1, group 2, group 3 and group 4. Non-significant results were obtained while comparing the effect of aging on prognosis of dental implants. **Conclusion:** In comparison to young subjects, dental implants in geriatric patients had comparable prognosis.

Key words: Dental Implant, Ageing, Prognosis.

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INTRODUCTION

Nowadays, the loss of the last remaining teeth is delayed, due to oral prevention; consequently, the prevalence of edentulousness increases with age. The buccal mucosa becomes thinner and weakens, creating an additional difficulty for prosthetic tolerance. Under these conditions, the design of a conventional functional, removable complete denture becomes difficult or impossible. As a result, the edentulous elderly avoid many types of foods, particularly raw vegetables, because chewing is difficult with conventional complete dentures.¹⁻³

An implant-supported restoration offers a predictable treatment for tooth replacement. Reported success rates for dental implants are high, however, there is still a paucity of data in the literature regarding follow-up of implants in function for at least 5 years

or more. Nevertheless, failures that mandate immediate implant removal do occur. The consequences of implant removal jeopardize the clinician's efforts to accomplish satisfactory function and esthetics. For the patient, this usually involves further cost and additional procedures.⁴

Dental status, among other factors, has an impact on the nutritional status of the elderly. It has been shown that subjects wearing conventional complete dentures have a lower nutritional intake than do subjects having more than 20 teeth. Worldwide, the prevalence of malnutrition is reported to be high in the elderly, varying between 2% and 10% for autonomous senior subjects.⁵⁻⁷ Hence; the present study was undertaken for assessing of effect of age on prognosis dental implants.

MATERIALS & METHODS

The present study was conducted with the aim assessing of effect of age on prognosis dental implants. A total of 40 patients were enrolled in the present study. Inclusion criteria for present study included:

- Patients who had partial edentulous mandibular posterior region,
- Patients scheduled to undergo dental implant therapy for the same,
- Patients with negative history of diabetes and hypertension

All the patients were divided into four study groups with 10 patients in each group as follows:

Group 1: Patients within the age range of less than 20 years

Group 2: Patients within the age range of 20 to 40 years

Group 3: Patients within the age range of 41 to 60 years

Group 4: Patients within the age range of more than 60 years

Dental implant therapy was carried out in all the patients. Follow-up was done after one year and thorough clinical and radiographic examination was carried out for assessing the prognosis. All the results were recorded and analyzed by SPSS software.

RESULTS

In the present study, a total of 40 subjects were enrolled. Mean age of the subjects of group 1, group 2, group 3 and group 4 was found to be 18.6 years, 33.1 years, 49.5 years and 66.8 years respectively. All the study groups were comparable in terms of gender distribution. Failure of dental implant occurred in 10 percent, 20 percent, 10 percent and 20 percent of the subjects of group 1, group 2, group 3 and group 4. Non-significant results were obtained while comparing the effect of aging on prognosis of dental implants.

Table 1: Demographic data

Group	Mean age	Males (n)	Females (n)
Group 1	18.6	6	4
Group 2	33.1	5	5
Group 3	49.5	5	5
Group 4	66.8	4	6

Table 2: Comparison of prognosis

Group	Prognosis		p-value
	Success (n)	Failure (n)	
Group 1	9	1	0.45
Group 2	8	2	
Group 3	9	1	
Group 4	8	2	

DISCUSSION

Ageing per se influences negatively several stages of the implant integration process, in terms of both soft and hard tissue healing. Briefly, the early inflammatory stage of healing is delayed/prolonged due to the generally increased inflammatory response in the elderly compared to younger adults; similarly, the proliferative phase of healing is delayed/prolonged, among other factors, due to the reduced numbers of stem cells and amount of growth factors in the elderly. Lack of significant differences between elderly and younger patients, in terms of survival rates of already osseointegrated implants and lack of comparative data, obviously does not exclude the possibility that significant differences in terms of EIL do exist between elderly and younger patients, but simply are erroneously not captured.⁷⁻⁹ Hence; the present study was undertaken for assessing of effect of age on prognosis dental implants.

In the present study, a total of 40 subjects were enrolled. Mean age of the subjects of group 1, group 2, group 3 and group 4 was found to be 18.6 years, 33.1 years, 49.5 years and 66.8 years respectively. Failure of dental implant occurred in 10 percent, 20 percent, 10 percent and 20 percent of the subjects of group 1, group 2, group 3 and group 4. Srinivasan M evaluated the outcome of dental implant therapy in elderly patients (≥ 65 years). Online database and hand searches were systematically performed to identify studies reporting on dental implants placed in the partially/completely edentulous jaws of elderly patients. Only prospective studies reporting on regular-diameter (≥ 3 mm), micro-rough surface implants were included in this review. Two investigators performed the search and data extraction. An inter-investigator reliability was verified using kappa statistics (κ). A meta-analysis was performed on implant survival rates, while the mean peri-implant marginal bone level changes (PI-MBL), technical/mechanical complications, and biological complications were reported descriptively. Information obtained pertaining to the technical and biological complications in the included studies were inadequate for statistical analysis. The frequent technical/mechanical complications reported were abutment screw loosening, fracture of the overdenture prostheses, activation of retentive clips, ceramic chipping, and fractures. The common biological complication reported included peri-implant mucositis, mucosal enlargement, bone loss, pain, and implant loss.¹¹ There have been many studies reporting a link between deteriorated oral function and systemic health conditions, levels of care needed, and lifespan. Regarding occlusion and masticatory function, in particular, many studies have been published. Additionally, numerous studies have shown that dental implants bring a greater improvement in masticatory function than dentures. Nevertheless, while a number of studies have reported improvement in quality of life (QOL) and satisfaction achieved by

implants, these studies are ranked as a low level of evidence. Moreover, most of the studies presented the effects of implant treatment on edentulous jaws; very few reports ranked as a high level of evidence have been published on partially edentulous jaws.⁸⁻¹¹

In the present study, Non-significant results were obtained while comparing the effect of aging on prognosis of dental implants. It is common knowledge that, for edentulous mandible patients, overdentures retained by two implants are the first choice of care. The treatment reduces bone atrophy, increases masticatory efficiency, reduces masseter atrophy, and significantly improves the oral hygiene status of the patient. However, implants used for overdenture of maxilla may be inferior in prognosis compared to that of mandible, and the research on the number of implants required for maxillary implant overdentures is not sufficient. Moreover, in terms of what kind of attachments should be used, the most suitable ones, especially for patients requiring long-term care, are not yet known despite various proposals that have been made.^{5-9, 12}

CONCLUSION

From the above results, the authors concluded that in comparison to young subjects, dental implants in geriatric patients had comparable prognosis.

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