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Original Research

A Retrospective Study to Assess Outcome of Dental Implants Therapy in Medically Compromised Patients

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***ABSTRACT*:**
Background: The present retrospective study was conducted to assess outcome of dental implants in medically compromised patients. **Material & methods:** This study was conducted on 52 medically compromised patients of both genders who underwent dental implants 5 years back. Equal number of healthy subjects was taken as control. Amount of bone loss around the implant, signs of infection and level of bone around the implant were recorded. Survival rate was assessed. **Results:** In group I, there were 20 males and 22 females and in group II, there were 32 males and 30 females. In group I, 16 patients were diabetic, 8 had hypothyroidism and 12 had cardiovascular disease, 6 were of osteoporosis and 10 were of hypertension. The survival rate in group I was 68% and I group II was 92%. **Conclusion:** Medical compromised patients such as diabetes, osteoporosis and hypothyroidism etc. had lower survival rate as compared to healthy subjects.
Key words: Dental implants, Hypothyroidism, Osteoporosis

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INTRODUCTION

A dental implant is a surgical component that interfaces with the bone of the jaw or skull to support a dental prosthesis such as a crown, bridge, denture, facial prosthesis or to act as an orthodontic anchor. A success rate of 90%-95% has been reported over the 10 years.[1] Systemically healthy patients, demonstrate 90 and 95 % success rates of dental implants as reported over 10 years of follow-up. Dental implants fail due to lack of osseointegration during early healing or when already in function due to breakage, or infection of the peri-implant tissues leading to loss of implant support.[2] Early complications after implant insertion can include pain, infection, and occasionally neuropathy. Severe early complications such as hemorrhage, infection, facial spaces cellulitis, or descending necrotizing mediastinitis have also been described.[3]

The longer term outcome of implant therapy can be affected by local or systemic diseases or other compromising factors, in fact, it has been suggested that

some local and systemic factors could represent contraindications to DI treatment. The contraindications of implant placement are children & adolescents, epileptic patients, endocarditis, osteoradionecrosis etc. Absolute contraindications consists of myocardial infarction and cerebrovascular accident, bleeding disorder, cardiac transplant, immunosuppression, active treatment of malignancy, drug abuse, and psychiatric illness.[4] Contraindications are mainly based on both the risk of medical complications related to implant surgery and the rate of implant success in medically compromised patients.[5] The present retrospective study was conducted to assess outcome of dental implants in medically compromised patients.

MATERIALS & METHODS

This study was conducted in department of Prosthodontics. It comprised of 52 medically compromised patients of both genders who underwent dental implants 5 years back. Equal number of healthy subjects was taken as control. The study protocol; was approved from ethical committee.

Data such as name, age, gender etc. were retrieved from the patients record file. Amount of bone loss around the implant, signs of infection and level of bone around the implant were recorded. Survival rate was assessed. Results obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Groups	Group I (Medically compromised)	Group II (Control) (Healthy)
Number	52	52
Implants	96	84

Table I, graph I shows that group I consisted of 52 patients with 96 dental implants. Group II consisted of 52 patients with 84 implants. Group I was medically compromised and group II was healthy subjects.

Graph I Distribution of patients

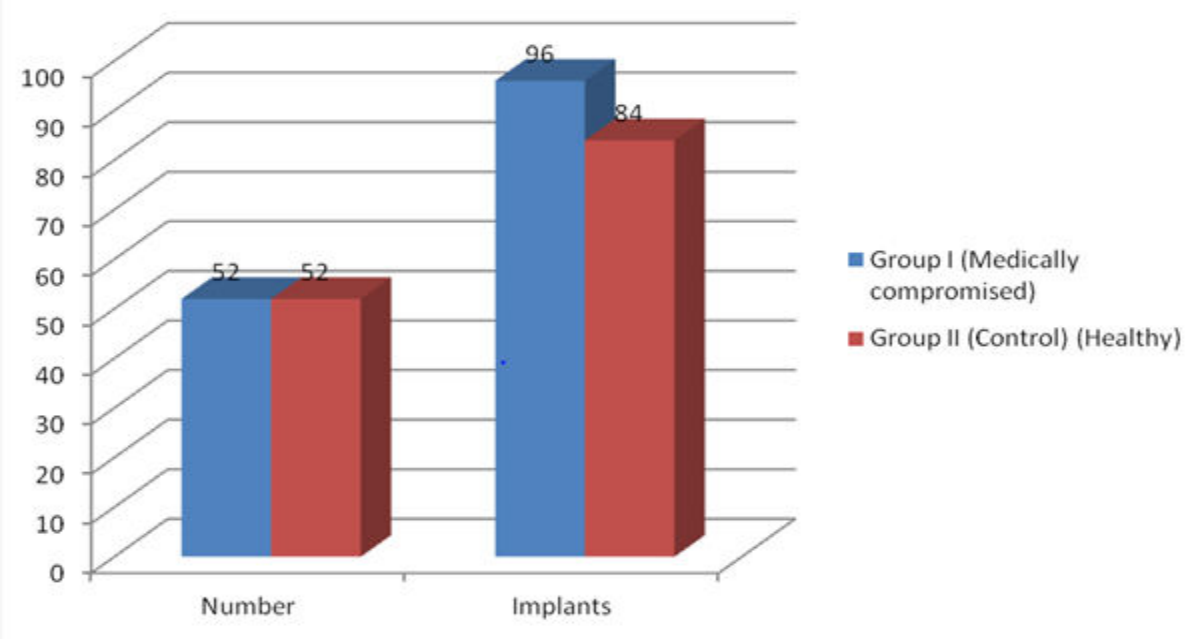


Table II Gender wise distribution of patients

Gender	Group I	Group II	P value
Males	20	22	0.4
Females	32	30	0.5

Table II, graph II shows that in group I, there were 20 males and 22 females and in group II, there were 32 males and 30 females. The difference was non significant (P> 0.05).

Graph II Gender wise distribution of patients

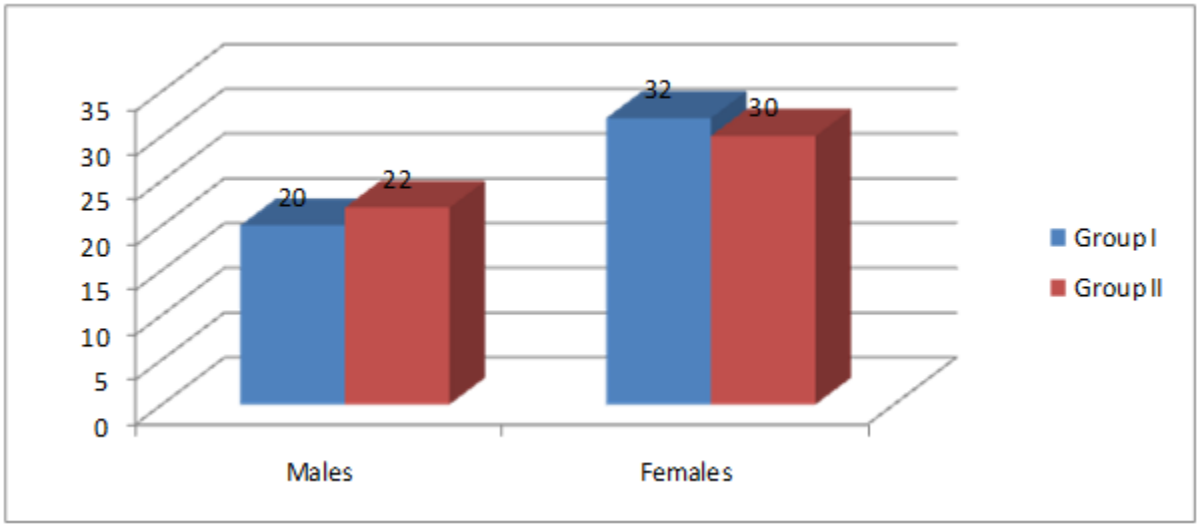


Table III Medically compromised patients

Medical Condition	Number	P value
Diabetes	16	0.01
Hypothyroidism	8	
CVD	12	
Osteoporosis	6	
Hypertension	10	

Table III, graph III shows that in group I, 16 patients were diabetic, 8 had hypothyroidism and 12 had cardiovascular disease, 6 were of osteoporosis and 10 were of hypertension. The difference was statistical significant (P<0.05).

Graph III Medically compromised patients

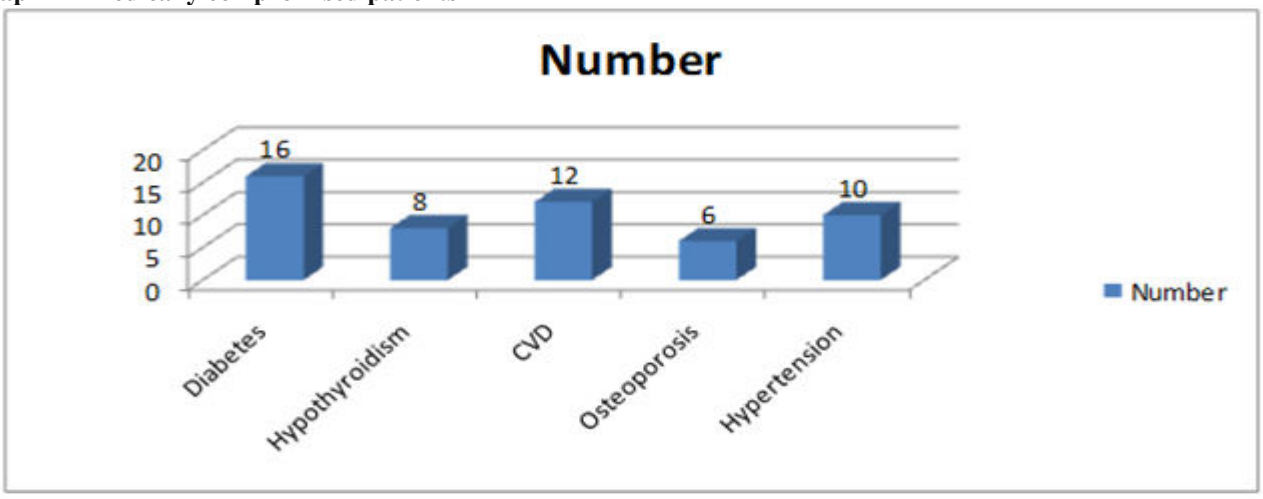
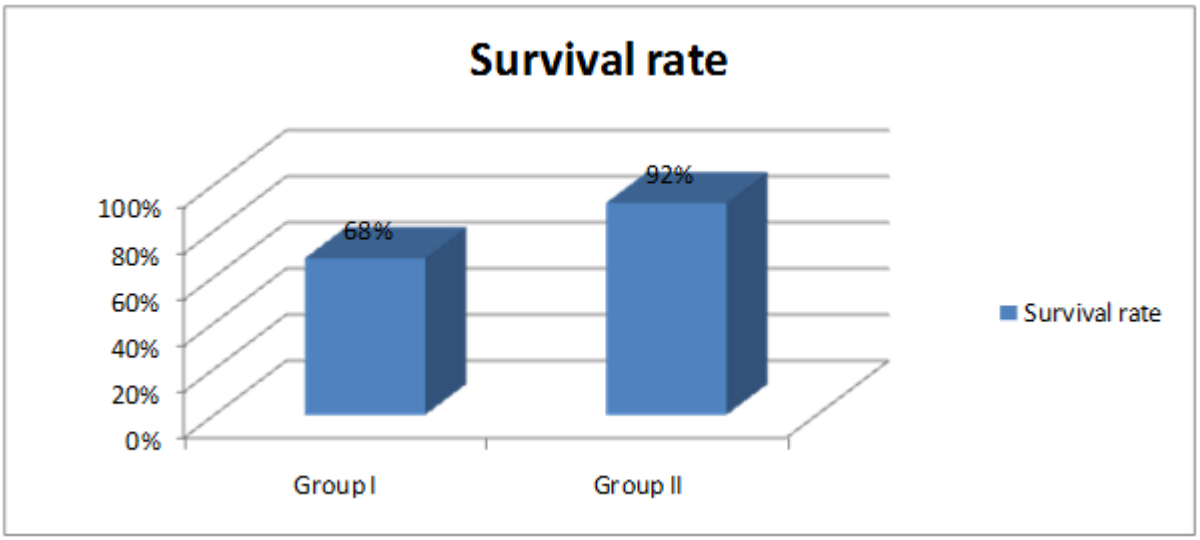


Table IV Outcome of dental implant treatment

Groups	Survival rate	P value
Group I	68%	0.04
Group II	92%	

Table IV graph IV shows that survival rate in group I was 68% and I group II was 92%. The difference was significant (P< 0.05).

Graph IV Outcome of dental implant treatment



DISCUSSION

Pain, infection and hemorrhage and occasionally neuropathy are early complications of implant. Implants have got failure rates also. Failure is typically because of loosening, breakage, or infection but complications can include pain or occasionally neuropathy. Severe complications during implant surgery such as hemorrhage in the floor of the mouth or descending necrotizing mediastinitis are rare, and have not usually been related to the medical background of the patient.[6]

The degree of systemic disease control may be far more important than the nature of the disorder itself, and individualized medical equilibrium should be established prior to implant therapy. For many of these patients, the life quality and functional benefits from dental implants may outweigh the risks.[7] Principally, only patients with an ASA (American Society of Anesthesiologists) grade I or II should qualify for an elective surgical procedure, such as dental implant placement, and the patient's surgical risks should be weighed against the potential benefits offered by the dental implant. Relative contraindications were recommended for dental implantation, such as children and adolescents, epileptic patients, severe bleeding tendency inherited or acquired, endocarditis risk, osteoradionecrosis risk, and myocardial infarction risk.[8] Other reported relative contraindications include the following: adolescence, aging, osteoporosis, smoking, diabetes, positive interleukin-1 genotype, human immunodeficiency virus positivity, cardiovascular disease, hypothyroidism, and Crohn's disease.[9] The present retrospective study was conducted to assess outcome of dental implants in medically compromised patients.

In this study, group I consisted of 52 patients with 96 dental implants. Group II consisted of 52 patients with 84 implants. Group I was medically compromised and group II was healthy subjects. A et al[10] found that a total of 204 patients (1003 dental implants) were included in the research, in the study group, 93 patients with 528 dental implants and in the control group, 111 patients with 475 dental implants. No significant differences were found between the groups regarding implant failures or complications. The failure rate of dental implants among the patients was 11.8%in the study group and 16.2%in the control group (P = 0.04). It was found that patients with a higher number of implants (mean 6.8) had failures compared with patients with a lower number of implants (mean 4.2) regardless of their health status.

We found that in group I, there were 20 males and 22 females and in group II, there were 32 males and 30 females. In group I, 16 patients were diabetic, 8 had hypothyroidism and 12 had cardiovascular disease, 6 were of osteoporosis and 10 were of hypertension. Survival rate in group I was 68% and I group II was 92%. Benner et al[11] in a retrospective analysis of 124 consecutively treated DI patients, including cardiovascular disease patients, patients with a history of other systemic disease, and healthy controls found almost equal number of dental implant failures as in the control group. Diabetes mellitus is associated with a wide range of systemic complications such as retinopathy, nephropathy, neuropathy, micro- and macrovascular disease, and altered wound healing. In the oral cavity, diabetes mellitus is associated with xerostomia, increased levels of salivary glucose, swelling of the parotid gland, and an increased incidence of dental implant failures.[12]Singh [13] suggested that there are very few absolute medical contraindications to dental implant treatment, although a number of conditions may increase the risk of treatment failure or complications.

CONCLUSION

Authors found that medical compromised patients such as diabetes, osteoporosis and hypothyroidism etc. had lower survival rate as compared to healthy subjects.

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