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**ORIGINAL RESEARCH**

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# Assessment of success rate of dental implants in medically compromised patients

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**ABSTRACT**
**Background:** Dental implants are a widely used and effective solution for replacing missing teeth. The present study was conducted to assess success rate of dental implants in medically compromised patients.
**Material & Methods:** 56 medically compromised patients of both genders who had received dental implants 10 years back were selected. Equal number of healthy subjects was taken as control. The amount of bone loss around the implant, signs of infection and level of bone around the implant were recorded. Success rate was assessed.
**Results:** Group I had 80 dental implants and group II had 110 implants. In group I, 24 patients were diabetic, 14 had hypertension, 6 had CVD, 4 had osteoporosis and 6 had hypothyroidism. The difference was significant (P<0.05). Success rate in group I was 64% and I group II was 95%. The difference was significant (P< 0.05).
**Conclusion:** Dental implant treatment results are impacted by a poor medical status. Patients with conditions including diabetes, osteoporosis, hypothyroidism, etc. had a decreased chance of surviving than patients in good health.
**Key words:** Dental implants, success, osteoporosis

## INTRODUCTION

Dental implants are a widely used and effective solution for replacing missing teeth. The success rate of dental implants is generally high, but it can vary depending on several factors, including the patient's overall health, the specific dental and bone condition, and the experience of the dental professional performing the procedure.[1] Patients in general good health exhibit 90–95% success rates with dental implants, according to data collected over a ten-year period of follow-up.[2] Dental implants rupture or become infected in the tissues

around the implant, which results in the loss of implant support. They also fail owing to a lack of osseointegration during the early healing phase of the implant's life. Following implant implantation, discomfort, infection, and rarely neuropathy can all arise as early consequences. There have also been reports of severe early consequences such bleeding, infection, cellulitis in the facial spaces, or descending necrotizing mediastinitis.[3]

Severe post-implant problems, like bleeding in the oral cavity floor or descending necrotizing mediastinitis, are extremely uncommon and typically unrelated to the patient's medical history.[4] Diseases that are local or systemic, or other compromising variables, can impair the long-term result of implant therapy. In fact, some local and systemic problems may even be contraindications to DI treatment. Children and teenagers, epileptic patients, endocarditis, osteoradionecrosis, and other conditions are contraindications for implant insertion.[5] Myocardial infarction and cerebrovascular accident, bleeding disorders, heart transplants, immunosuppression, active cancer therapy, drug addiction, and mental health conditions are all considered absolute contraindications. The key criteria used to determine contraindications are the rate of implant success in individuals with poor health as well as the possibility of medical complications following implant surgery.[6] The present study was conducted to assess success rate of dental implants in medically compromised patients.

## MATERIALS & METHODS

This study was conducted on 56 medically compromised patients of both genders who had received dental implants 10 years back.

Data such as name, age, gender etc. were recorded. Equal number of healthy subjects was taken as control. The amount of bone loss around the implant, signs of infection and level of bone around the implant were recorded. Success rate was assessed. Results obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

## RESULT

**Table I Distribution of patients**

| Groups | Group I (Medically compromised) | Group II (Healthy) |
|---|---|---|
| Number | 56 | 56 |
| Implants | 80 | 110 |

Table I, graph I shows that group I had 80 dental implants and group II had 110 implants.

**Table II Medically compromised patients**

| Medical condition | Number | P value |
|---|---|---|
| Diabetes | 24 | 0.01 |
| Hypertension | 14 | |
| CVD | 6 | |
| Osteoporosis | 4 | |
| Hypothyroidism | 6 | |

Table II, graph I shows that in group I, 24 patients were diabetic, 14 had hypertension, 6 had CVD, 4 had osteoporosis and 6 had hypothyroidism. The difference was significant ($P<0.05$).

**Graph II Medically compromised patients**

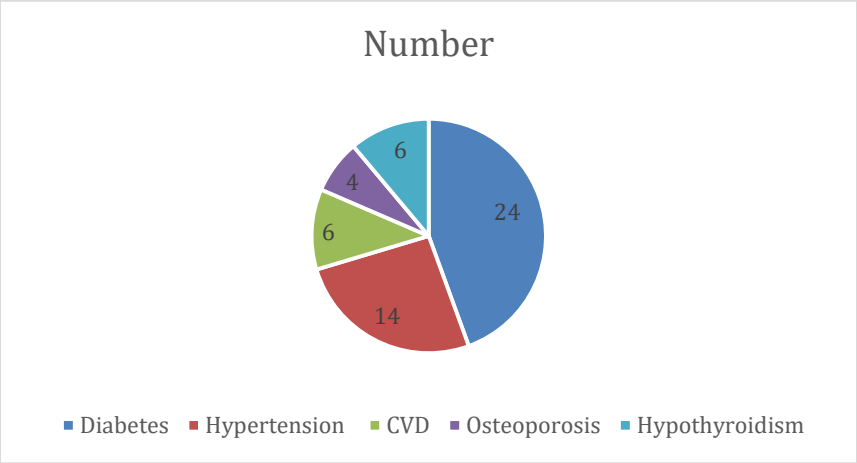


**Table III Assessment of success rate in both groups**

| Groups | Success rate | P value |
|---|---|---|
| Group I | 64% | 0.001 |
| Group II | 95% | |

Table III shows that success rate in group I was 64% and I group II was 95%. The difference was significant (P< 0.05).

## DISCUSSION

Dental implants can still be a viable option for medically compromised patients, but the success rates may be influenced by the patient's underlying health conditions. Uncontrolled diabetes can impair wound healing and increase the risk of infection, potentially affecting implant success.[7] Patients with heart conditions may have an increased risk during surgery and can have complications related to blood clotting and healing. Dental implant therapy has very few recognized absolute medical contraindications, albeit a variety of disorders may raise the chance of treatment failure or complications.[8] The degree of control over the systemic disease may be significantly more significant than the actual nature of the disorder, thus before beginning implant therapy, a personalized medical equilibrium should be created.[9] The advantages of dental implants in terms of quality of life and functionality may exceed the dangers for a large number of these patients.[10] The present study was conducted to assess success rate of dental implants in medically compromised patients.

We found that group I had 80 dental implants and group II had 110 implants. Parihar et al[11] assessed failure rate of dental implant in medically compromised patients. This study comprised of 68 medically compromised patients of both genders who underwent dental implants 5 years ago (Group I). Equal number of healthy subjects was taken as control (Group II). Amount of bone loss around the implant over 1 mm of bone loss in the first year and over 0.3 mm bone loss every subsequent year were considered as failures. The age group of 30-40 comprised of 25 patients in group I and 35 in group II, 40-50 years had 27 in group I and 23 in group II and 50-60 years had 16 in group I and 10 in group II. Medically compromised patients were diabetes (25) with 30 dental implants followed by osteoporosis

(16) with 17 dental implants, hypothyroidism (12) with 14 dental implants, organ transplant (10) with 12 dental implants and CVD (5) with 7 dental implants. Chi- square test was applied which revealed significant difference in patients ($P < 0.05$). In group I, there were 18 (22.5%) and in group II, there were 4 (5.56%) dental implant failures.

We observed that in group I, 24 patients were diabetic, 14 had hypertension, 6 had CVD, 4 had osteoporosis and 6 had hypothyroidism. Success rate in group I was 64% and I group II was 95%. A total of 204 patients were involved in the study, according to Bhatia et al.[12] 93 patients with 528 dental implants were in the experimental group, and 111 patients with 475 dental implants were in the control group. Concerning implant malfunctions or problems, there were no discernible differences between the groups. Patients in the study group experienced an implant failure rate of 11.8%, whereas those in the control group saw a 16.2% rate (P = 0.04). Regardless of their state of health, it was discovered that patients with more implants (mean 6.8) experienced more implant failures than patients with fewer implants (mean 4.2).

Bal et al[13] compared the failure rate of dental implants in medically compromised patients to healthy individuals. In this seven years retrospective study, 50 patients from Group A who were medically compromised had 63 implants, while 50 patients from Group B who were healthy had 67 implants. Over 1 mm of bone loss around the implant in the first year and over 0.2 mm of bone loss per year after that were considered failure rates. Two (2.9%) of the dental implants in Group B and 18 (28.6%) in Group A, both failed. The average bone loss around the implant in Group A during the first year was 1.21 mm, compared to 0.3 mm in Group B.

## CONCLUSION

Authors found that dental implant treatment results are impacted by a poor medical status. Patients with conditions including diabetes, osteoporosis, hypothyroidism, etc. had a decreased chance of surviving than patients in good health.

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