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Original Research

Assessment of role of selective serotonin reuptake inhibitors in prognosis of dental implant treatment

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***ABSTRACT*:**
Background: The success of dental implants is dependent upon its ability to integrate with the surrounding bone. The present study was conducted to assess role of selective serotonin reuptake inhibitors in prognosis of dental implant treatment.
Materials & Methods: 490 patients of dental implants of both genders were classified into 2 groups. Group I patients were on SSRI and group II were patients with no reported history of depression or with the mild systemic disease. The failure rate in both groups was recorded.
Results: Group I had 210 patients (males- 110, females-100) and group II had 280 (males- 150, females-130). In group I, 14% males and 6% females and in group II, 10% males and 2% females had dental implant failure. In group I, 18% dental implant failure was seen in >50 years old and 2% in <50 years and in group II in 8% with >50 years and 4% in <50 years old. 16% in group I and 7% in group II implant failure rate was observed among smokers. 12% in group I and 9% in group II had diabetes having dental implant failure. The difference was significant (P< 0.05).
Conclusion: Maximum dental implant failure were seen in patients on Selective serotonin reuptake inhibitors. Smoking and diabetes was risk factors.
Key words: Dental implant, diabetes, Smoking

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INTRODUCTION

The success of dental implants is dependent upon its ability to integrate with the surrounding bone. 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.[1] 90%–95% has been reported as the success rate of implants over the 10 years. Although it has become the treatment of choice for most of the dentists, still, the complications arising from dental implant placement are the biggest challenge. Among various complications, bleeding from implant site, infection, and pain are early complications of implant. Dental implant failure is quite common. Lack of osseointegration during early healing, infection of the peri-implant tissues, and breakage are the reasons for implants failure.[2]

Several factors, such as systemic diseases, periodontal disease, smoking, bruxism, bone density, bone

augmentation, and implant design affect the success rate of implants.[3] Various studies have shown that certain systemic disorders and various chronic diseases induce systemic inflammation which influences the final outcome of the dental implant. The chronic use of medicines used for the treatment of these diseases may have a harmful effect on bone metabolism.[4]

Selective serotonin reuptake inhibitors (SSRI) are associated with increase dental implant failure. SSRI is the widely prescribed antidepressant drug for curing depression.[5] Today, depression is a globally prevalent disorder that affects 12% of males and 20% of females at some point in their lives. Serotonin or 5-hydroxytryptamine (5-HT) is one of the chief neurotransmitters of the brain that is responsible for the feelings of well-being and happiness.[6] The present study was conducted to assess role of selective serotonin reuptake inhibitors in prognosis of dental implant treatment.

MATERIALS & METHODS

The present study comprised of 490 patients of dental implants of both genders. All were informed regarding the study and their written consent was obtained.

Data such as name, age, gender etc. was recorded. They were classified into 2 groups. Group I patients were on SSRI, who were otherwise healthy or had a mild systemic disease. Group II were patients with no reported history of depression or with the mild systemic disease. Dental implant insertion was performed. Following implant surgery, the patient was put on antibiotic therapy and analgesic twice daily for 5 days. Osseointegration was examined clinically by examining any vertical or lateral signs of mobility. Factors such as prosthesis screw fracture, fracture of implant, and screw loosening, signs of peri-implantitis such as radiolucency around implant apex and bone loss around implant were recorded on follow-up. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Groups	Group I	Group II
Status	SSRI	Healthy control
M:F	110:100	150:130

Table I shows that group I had 210 patients (males- 110, females-100) and group II had 280 (males- 150, females-130).

Table II Comparison of parameters

Parameters	Variables	Group I		Group II		P value
		No. of patients	Implants	No. of patients	Implants	
Gender	Male	110	200	150	370	0.02
	Female	100	160	130	200	
Age group(years)	>50 years	80	140	110	230	0.05
	<50 years	130	220	270	340	
Smoking	Yes	90	150	95	190	0.03
	No	120	210	185	380	
Diabetes	Yes	85	140	105	180	0.02
	No	125	220	175	390	

Table II, graph I shows group I had 110 males with 200 dental implants and group II had 150 males with 370 dental implants. Group I had female 100 with 160 dental implants and males 130 with 200 dental implants. Age group(years) >50 years had 80 with 140 dental implants and group II had 110 with 230 dental implants and <50 years had 130 with 220 dental implants and group II had 270 with 340 dental implants. Smoking history was seen in 90 with 150 dental implants in group I and 95 with 190 dental implants in group II and diabetes history was seen in 85 with 140 dental implants in group I and 105 with 180 dental implants in group II. The difference was significant (P< 0.05).

Graph I Comparison of parameters

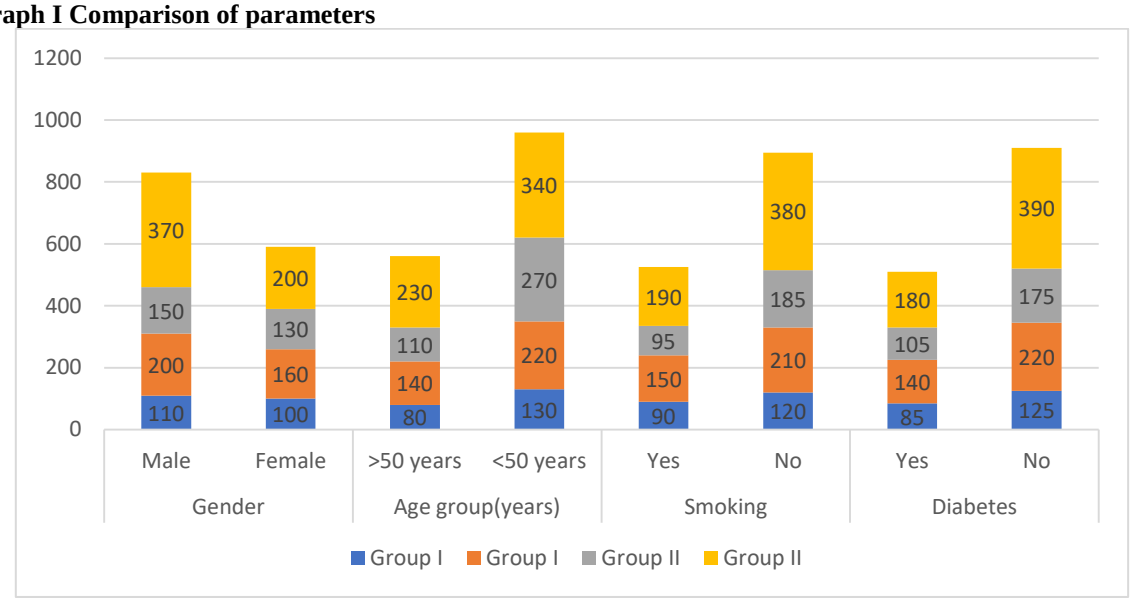
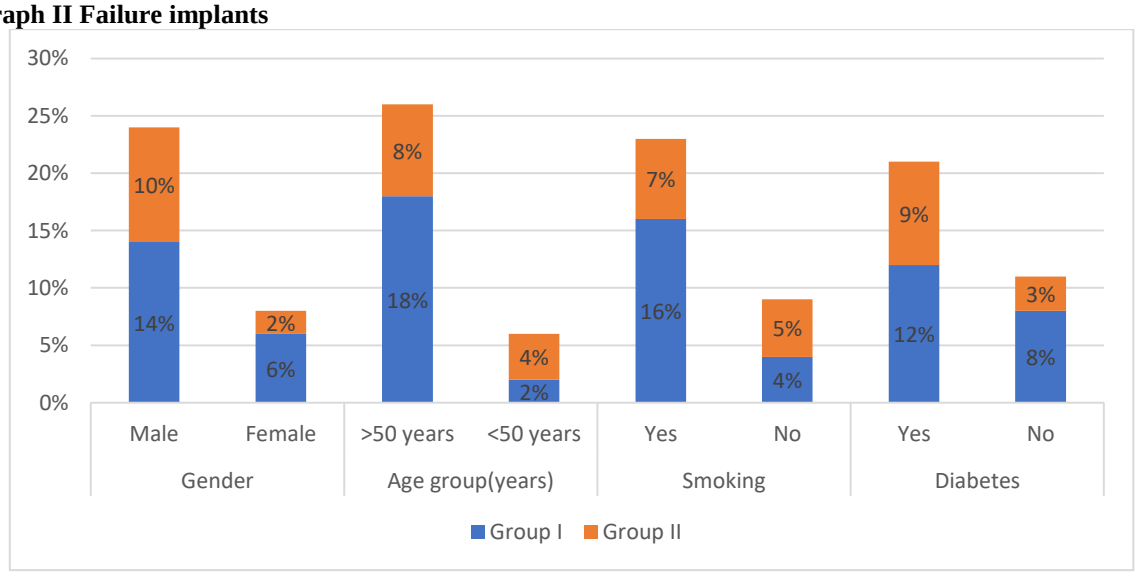


Table III Failure implants

Parameters	Variables	Group I	Group II	P value
		Failed implants	Failed implants	
Gender	Male	14%	10%	0.04
	Female	6%	2%	
Age group(years)	>50 years	18%	8%	0.02
	<50 years	2%	4%	
Smoking	Yes	16%	7%	0.05
	No	4%	5%	
Diabetes	Yes	12%	9%	0.03
	No	8%	3%	

Table III, graph II shows that in group I, 14% males and 6% females and in group II, 10% males and 2% females had dental implant failure. In group I, 18% dental implant failure was seen in >50 years old and 2% in <50 years and in group II in 8% with >50 years and 4% in <50 years old. 16% in group I and 7% in group II implant failure rate was observed among smokers. 12% in group I and 9% in group II had diabetes having dental implant failure. The difference was significant (P< 0.05).

Graph II Failure implants



DISCUSSION

There are many related factors affecting implant failure. First, group of factors are host related, second, related to implant placement site-related factors, third, related to surgery-related factors and fourth are implant fixture-related factors and fifth are implant prosthesis-related factor.[7] Age and gender of the patient, smoking habits, systemic disease, and oral hygiene are host-related factors. Position in arch, quality, and quantity of bone are implant placement site-related factors. Initial stability, angulations and direction of implant and the skillfulness of an operator come under surgery-related factors.[8] Surface roughness, length and diameter of dental implant, macrostructure and microstructure of an implant fixture are implant fixture-related factors. Type of prosthesis, retention method, and occlusal scheme are implant prosthesis-related factors.[9] The present study was conducted to assess role of selective serotonin reuptake inhibitors in prognosis of dental implant treatment.

In present study, group I had 210 patients (males- 110, females-100) and group II had 280 (males- 150, females-130). Chandra et al[10] study consisted of 410 patients (720 dental implants). Patients' records were used to retrieve the history of SSRI use and medication. The study consists of two groups. Group I (SSRI users) consisted of 128 patients (245 dental implants) patients, whereas Group II (non-SSRI users) was formed by 282 patients (475 dental implants). The implant failure rate was evaluated. Group I had 30 implant failures with 13 (12%) males and 14 (11.8%) females, whereas group II had 28 implant failures with 12 (6.3%) males and 16 (5.6%) females. In group I, 26% of the implants failed in the age group >50 years, whereas it was 10.4% in group II. However, in the age group <50 years, it was 6% and 4.2% in groups I and II, respectively. Group I shows that out of 40 implants in diabetic patients, 12 had failure, whereas in group II, out of 32 implants placed in diabetics, 7 had failure. In smokers, 48% of the implants failed in group I, and 29% in group II. In non-smokers the failure was seen in 7.7% cases in group I and 2.1% cases in group II. The difference was statistically significant ($P < 0.05$).

We found that group I had 110 males with 200 dental implants and group II had 150 males with 370 dental implants. Group I had female100 with 160 dental implants and males 130 with 200 dental implants. Age group(years) >50 years had 80 with 140 dental implants and group II had 110 with 230 dental implants and <50 years had 130 with 220 dental implants and group II had 270 with 340 dental implants. Smoking history was seen in 90 with 150 dental implants in group I and 95 with 190 dental implants in group II and diabetes history was seen in 85 with 140 dental implants in group I and 105 with 180 dental implants in group II. Tolomeo et al[11] studied that patients taking an SSRI at the time of dental implant therapy, 10 implants failed and 157 were successful (5.99% failure rate), while in those who were not taking an SSRI, 20 implants failed and 323 were successful (5.83% failure rate). We found no association between SSRI and dental implant failure risk. A secondary outcome that was associated with increased failure rate was smoking habits which is in agreement with previous studies. Additionally, we did not find a dose-dependent risk of dental implant failure in patients who were taking a low-moderate vs. moderate-high dose of SSRIs. The study assessed the use of proton-pump inhibitors and anti-epileptic drugs in the above patients, demonstrating that there was no associated risk of implant failure.

We found that in group I, 14% males and 6% females and in group II, 10% males and 2% females had dental implant failure. In group I, 18% dental implant failure was seen in >50 years old and 2% in <50 years and in group II in 8% with >50 years and 4% in <50 years old. 16% in group I and 7% in group II implant failure rate was observed among smokers. 12% in group I and 9% in group II had diabetes having dental implant failure. Moy et al[12] in their study showed that patients with controlled diabetes were also at three times more risk of developing implant failure than to nondiabetic patients.

CONCLUSION

Authors found that maximum dental implant failure were seen in patients on Selective serotonin reuptake inhibitors. Smoking and diabetes was risk factors.

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