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## Patients with systemic diseases treated with dental implants

### Abstract

**Introduction.** The success of implant prosthetic treatment of missing teeth consists in the full integration of the implant with the bone and proper functioning of denture based on it. This is significantly influenced by systemic factors.

**Aim.** The aim of this study was to evaluate the prevalence of systemic diseases among the patients treated with dental implants.

**Material and methods.** The survey was conducted among 464 patients of both sexes aged from 20 to 74 years, treated with dental implants at the Non-Public Healthcare Centre “Dental” in Tomaszów Mazowiecki. The patients answered an anonymous questionnaire. Questions concerned age, place of residence and systemic diseases.

**Results.** The results of the survey indicate that nearly 40% of all patients treated with dental implants were people suffering from systemic diseases, significantly more often they were persons aged 40-60 years.

**Conclusions.** Persons living in rural areas or small town suffering from systemic diseases often decided to have implants. In addition, the residents of the city made that decision often when they did not suffer from systemic diseases.

**Keywords:** dental implants, systemic diseases, demographic factors.

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### INTRODUCTION

The success of implant prosthetic treatment of missing teeth, which is full integration of the implant with the bone and proper functioning of denture based on it, is significantly influenced by systemic factors [1].

### AIM

The aim of this study was to evaluate the prevalence of systemic diseases among patients treated with dental implants due to missing teeth.

### MATERIAL AND METHODS

The survey was conducted among 464 patients of both sexes aged 20-74 years, treated with dental implants at the Non-Public Healthcare Centre “Dental” in Tomaszów Mazowiecki. The patients answered an anonymous questionnaire. Questions included age, place of residence and source of knowledge about implantation. The patients were divided into three age groups: below 40 years (n=157), between 40 and 60 (n=241), and over 60 (n=66), and the place of residence (village, small town – population 20-50 thousand, city – population of 100-500 thousand).

Using the  $\chi^2$  test of independence, the impact of the variables was analyzed. Statistical analysis was performed

by using the Statistica 6.0 software (StatSoft, Inc., Tulsa, Oklahoma, USA).

### RESULTS

Among all patients treated with dental implants, 39.87% were suffering from systemic diseases. Highly statistically significantly more frequently they were persons aged between 40 and 60 years of age and those who did not suffer from generalized diseases aged up to 40 years ( $p<0.001$ ) (Table 1).

**TABLE 1. The incidence of treatment with dental implants depending on the age and systemic diseases.**

Age (years)	Systemic diseases		Total
	Yes	No	
< 40	32	125	157
	17.30%	44.80%	
40-60	100	141	241
	54.05%	50.54%	
> 60	53	13	66
	28.65%	4.66%	
Total	185	279	464
	100%	100%	
The value of the test function $\chi^2=65.974$ $p<0.001$			

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Patients living in villages or small town often decided on dental implant rehabilitation despite their existing history of systemic diseases, and more frequently urban residents who have not suffered from systemic diseases decided on implants ( $p < 0.05$ ) (Table 2).

**TABLE 2. The incidence of treatment with dental implants depending on the place of residence and chronic diseases.**

Place of residence	Systemic diseases		Total
	Yes	No	
Village	49	61	110
	26.49%	21.86%	
Small town	99	132	231
	53.51%	47.31%	
City	37	86	123
	20.00%	30.82%	
Total	185	279	464
	100%	100%	

The value of the test function  $\chi^2 = 6.778$   $p = 0.033$

## DISCUSSION

Our studies show that almost 40% of all patients who underwent treatment for missing teeth with implants suffered from systemic diseases. Good clinical experiences with implant surgery even in people with certain systemic diseases indicate that the use of modern methods of dental implants is possible in each age group, including people advanced in age [2]. When taking a decision about treatment with dental implants, regardless of age, the general and local indications and contraindications should be taken into account [3]. The treatment should be preceded by diagnosing the general condition of the patient. It should be remembered that on the one hand, systemic diseases may affect the process of osseointegration of implants, but also the prosthetic treatment with dental implants may have an impact on the course of many systemic diseases – it may induce or exacerbate them. These include endocarditis and myocardial ischemia, organ transplants, artificial heart valves, glomerulonephritis, inflammation of the iris and retina, and rheumatoid arthritis [4,5]. Bacterial or fungal, pathogens or inflammatory and immune response of the host also seem to play an important role [5].

It is emphasized that older patients require especially careful assessment to ascertain if they qualify for implant treatment [6], and require special and multi-specialist medical care during this treatment [7]. In our study, a group of people in old age (i.e. after 60-65 years of age) accounted for more than 1/4 of the total patients undergoing implantation.

Our research also confirmed that patients with systemic diseases living in the countryside or in a small town and residents of the city who have not suffered from systemic diseases more frequently decided on treatment with implants. It seems that the decision is connected with location of the dental office. It is located in an average sized town that is Tomaszów Mazowiecki – 55 km away from the big city – Łódź.

At the same time, due to the lack of reports in Polish literature available on this subject, comparisons are not possible.

The treatment with prosthetic implants requires both a comprehensive and individual approach to each patient. Many times, there is a need for additional testing or specialized medical consultations. The team providing implantoprosthetic services should have a sufficiently large knowledge, competence and skills in dealing with patients with systemic diseases, which undoubtedly can contribute to the success of treatment for patients and dental practice marketing.

## CONCLUSION

1. Nearly 40% of patients treated with dental implants were people suffering from systemic diseases, and significantly more often they were persons aged 40-60 years.
2. Persons living in rural areas or small towns with systemic diseases often decided on treatment with implants, residents of the city - more frequently decided on implants when they did not suffer from systemic diseases.

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