

## Evaluation of the dental status in patients referred for heart surgery – a preliminary report

Michał Jegier<sup>1</sup>, Aneta Smalc<sup>1</sup>, Piotr Ciesielski<sup>1</sup>, Sławomir Jander<sup>2</sup>, Bogdan Jegier<sup>2</sup>

<sup>1</sup>Department of Conservative Dentistry, Medical University of Lodz, Poland

<sup>2</sup>Department of Cardiac Surgery, Medical University of Lodz, Poland

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**Corresponding author:**

Michał Jegier, MD  
Department of Conservative  
Dentistry  
Medical University of Lodz  
Pomorska 251  
92-216 Łódź, Poland  
Phone/fax: +48 42 675 74 18  
E-mail: jaeger@mnc.pl

### Abstract

The authors examined the oral health status in 100 consecutive patients of the Department of Cardiac Surgery, Medical University of Lodz, referred to scheduled heart operations. 26% of them were edentulous and they did not undergo closer clinical examination. Patients with natural dentition made 74% of the examined group. Oral hygiene in majority of the cases was not satisfactory – in 64% of the patients calculus and accompanying gingivitis were found. 17% of patients had neither treated nor removed roots. A DMF (Decay Missing Filled) index and treatment index were calculated in these patients as well. Mean values of the DMF index are: D – 3, M – 17, F – 4. The mean value of the treatment index equals 0.57. Lymphadenopathy was observed in 42% of cases. Our findings indicate that during qualification to a heart surgery dental examination and treatment should be considered.

**Key words:** oral health, cardiovascular disease.

### Introduction

An issue of inflammatory foci and their influence on human organism is recently growing [1]. Over 80% of all potential inflammatory foci are located within the head and they are most frequently observed in the oral cavity [2]. They play an important role in pathogenesis of various diseases, especially in cardiac ones. Poor oral health condition has an influence on the origin of infectious endocarditis [3, 4] and rheumatic valvular heart disease [3, 4]. The role of the infectious factor in etiology of atherosclerosis, which leads for instance to coronary heart disease, is recently also emphasized [5].

The aim of the study was to evaluate oral health condition and oral hygiene in patients referred to heart operations.

### Material and methods

The authors examined 100 patients of the Department of Cardiac Surgery, Medical University of Lodz, referred to scheduled heart operations. Myocardial revascularization (CABG – Coronary Artery Bypass Grafting) was planned in 76 cases. 20 patients needed valvular procedures including one with infectious endocarditis. Complex operations (valvular and coronary) were planned in four patients (Figure 1).

Mean age was 60±8.0 years. 78% of patients were males, 22% – females. The profile of the education level: 18% – university, 21% – technical, 30% – secondary, 31% – elementary (Figure 2).

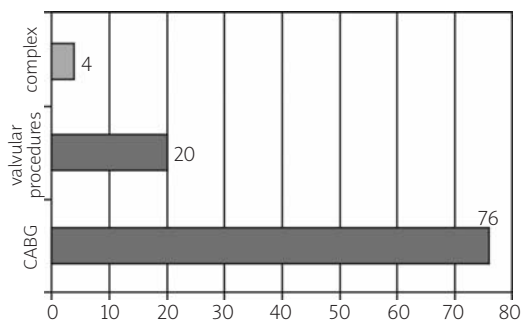


Figure 1. Planned operations

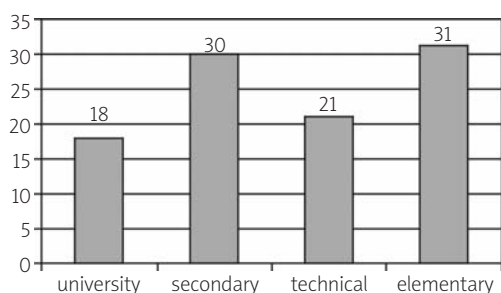


Figure 2. Profile of education

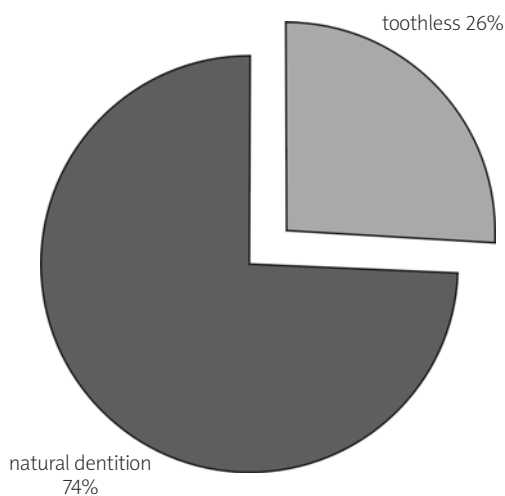


Figure 3. Dentition

The examination was carried out using of a specially evaluated questionnaire and consisted of two parts: objective (diagram, presence of calculus, evaluation of submandibulars and submentales lymph nodes) and subjective (questions concerning preoperative dental preparation).

**Results**

Qualification of patients with regard to the condition of their dentition was based on a clinical examination, not on an interview. Many of the

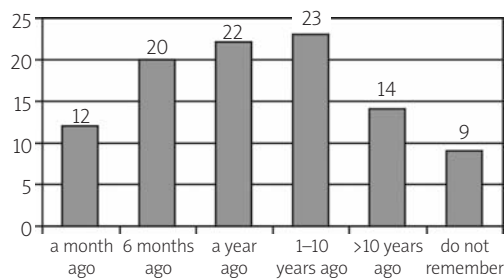


Figure 4. Frequency of visits to a dentist

patients with residual dentition, including not removed roots, claimed to be toothless. 26% of patients were indeed edentulous and they did not undergo a closer clinical examination. Classification of the patients based on their dentition is presented in Figure 3.

Patients with natural dentition made 74% of the examined group. Lymphadenopathy was found in 42% of cases and due to concurrent bad oral health condition, dental cause could not be excluded. Oral hygiene in majority of the cases was not satisfactory – in 64% of the patients calculus and accompanying gingivitis were found. 17% of patients had neither treated nor removed roots, which are said to be potential infection foci. In the group of patients with natural dentition a DMF (Decay Missing Filled) index and treatment index was calculated. Mean values of the DMF index are: D – 3, M – 17, F – 4. The mean value of the treatment index was 0.57, which means that only half of teeth with decay were successfully treated.

The second part of the examination concerned preoperative dental preparation. Only 18 patients out of 100 were referred to a dentist in order to conduct an assanation of oral cavity. Two of them ignored doctor’s prescription. It is worth mentioning that six patients went to a dentist on their own initiative before coming to a hospital.

Dental preparation usually included extractions (11 cases), which shows a serious neglect of oral health. One patient had even seven teeth removed! Unfortunately even in patients who underwent dentist’s preparation calculus was found. Only one patient had a panoramic X-ray taken.

The last question referred to frequency of visits to a dentist and showed how little attention patients pay to oral health care. The frequency of visits to a dentist is presented in Figure 4. 12 of patients went to a dentist a month before, 20 – 6 months before, 22 – a year before, 23 – over a year before, 14 – more than 10 years before, and 9 went to a dentist for the last time so long ago that they even did not remember it.

**Discussion**

A matter of evaluation of patients referred to heart operations has not been raised widely in Polish

literature so far. It may be an evidence of underestimating the influence of oral health on the general state of patients.

Since the end of the eighties of the last century a relation between poor oral health condition and heart diseases has been observed [6-9]. Meurman et al. observed worse oral health condition and hygiene habits in patients with coronary artery disease than in people cardiologically healthy [10]. It may confirm a theory concerning the relation between oral and heart diseases. Joshipura et al. pointed to the relation between poor oral health condition and coronary heart disease [11]. Janket et al. also claim that inflammatory processes within the oral cavity can be connected with coronary heart disease [12].

It seems that oral health condition may also have an influence on postoperative prognosis in patients undergoing heart operations. However, a study carried out by Hakeberg et al. does not support this theory [13]. Moreover, patients after heart surgery have occasionally difficulties with receiving dental help. It is connected with the intake of anticoagulants and antiplatelet agents which endanger postextraction complications such as prolonged bleeding. Due to this matter the so called "bloody" dental procedures (for example tooth extractions) in these patients should be very carefully planned and an attending physician ought to take part in preparation.

We did not examine parodontium very carefully in our study, however, according to numerous authors, it is a factor which has a very strong influence on heart condition [12, 14, 15]. Because of complexity of this issue, we have decided to study it in future researches.

## Conclusions

Results of this study show that oral health condition and oral hygiene of patients referred for planned heart operations are poor. Our findings indicate that during qualification to a heart surgery dental examination and treatment should be considered in all patients regardless of the declared state of dentition.

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