# EFFECTIVENESS OF TACTICS FOR SELECTING ARTIFICIAL CROWNS IN PATIENTS WITH ALLERGIC BACKGROUND

***Khojimurodov Jamshidbek Eraliyevich***
*Assistant Lecturer, Department of Dentistry*
*Alfraganus University*

**Abstract.** According to official statistics in Uzbekistan, 10–15% of the population (depending on the region) suffers from allergic diseases. Studies on the incidence and prevalence of allergic diseases in different countries indicate that these conditions currently affect 20–40% of the population.

**Keywords:** Allergic diseases, allergic rhinitis, plastic prosthetics.

Dental care for this patient group is complicated by the fact that not all types of dental prostheses can be used due to immediate or delayed allergic reactions. Despite this, dentists must not only provide high-quality and painless treatment and dental prosthetics but also pay special attention to the patients' allergic background. It is important to note that modern dentistry can fully meet patients' demands for achieving the most natural-looking teeth.

Recent research indicates that in age groups over 35, issues related to pathologies of hard dental tissues rank first, requiring restoration with artificial crowns.

Modern requirements for artificial crowns are extensive: functionality, aesthetics, and material inertness (absence of allergic reactions).

## Research Material

The clinical study included 50 patients with an allergic background (20 males and 30 females) aged 35–60 years, who received 25 plastic and 25 metal-ceramic orthopedic prostheses for anterior and posterior teeth restoration. The mean patient age was 39.7 ± 3.2 years. The distribution of patients by age and gender is presented in table 1.

| **Gender** | **Age (years)** | | **Total** |
|---|---|---|---|
| | *35-45* | *45-60* | |
| *Male* | 13 (26%) | 7 (14%) | 20 (40%) |
| *Female* | 16 (32%) | 14 (28%) | 30 (60%) |
| *Total* | 29 (58%) | 21 (42%) | 50 (100%) |

*Table 1. Distribution of Patients by Age and Gender*

**Patient Examination Methods**

Oral hygiene status was assessed using the Silness-Löe Index (Silness J., Löe H., 1962), which evaluates plaque accumulation in the gingival area. Plaque quantity was measured around each tooth neck using a probe inserted slightly into the gingival sulcus. Hygiene levels were scored as:

- 0: No plaque on the probe tip.
- 1: Minimal plaque on the probe.
- 2: Visible thin plaque layer near the tooth neck; significant plaque on the probe.
- 3: Abundant plaque and food debris in the gingival area.

Scores were summed and divided by the number of teeth examined.Gingival bleeding was evaluated using the Mühlemann Index (Mühlemann H.R., Son S., 1971), modified by Cowell (Cowell I. et al., 1975). A periodontal probe was gently moved along the gingival sulcus wall. Bleeding intensity was scored as:

- 0: No bleeding.
- 1: Bleeding after 30 seconds.
- 2: Immediate bleeding (within 30 seconds).
- 3: Bleeding during eating or brushing (patient-reported).

The index value was calculated by dividing the total score by the number of teeth examined.

Periodontal tissue inflammation was assessed using the PMA Index (Parma C., 1960).

Radiographic evaluation of teeth and periapical tissues, root dimensions, and topography was performed using targeted X-rays obtained with the *Image X* dental unit (Satelec, Finland).

Diagnostic plaster models of the jaws were analyzed to study occlusion, dental arch relationships during articulation phases, and to plan preparatory measures for prosthetic treatment.

Follow-up period: Patients were monitored for 1 year, with check-ups at 3, 6, and 12 months to detect complications.

Prosthetic treatment outcomes were assessed through:

- Patient-reported subjective sensations.
- Visual inspection of crown integrity and surface condition (color, gloss).
- Probing of marginal fit.

Saliva Analysis

Saliva serves as a valuable non-invasive method for assessing systemic and oral health. Collection is simple, painless, and safe for both patients and medical staff, with minimal infection risk compared to blood sampling.

Study material: Saliva from 60 individuals (aged 35–60 years) with an allergic background and no salivary gland pathologies was analyzed. Participants were divided into three groups:

1. Control group: 10 individuals.
2. Plastic crown group: 25 individuals.
3. Metal-ceramic crown group: 25 individuals.

Saliva was collected 1, 3, and 6 months post-prosthetics.

Collection protocol:

- Fasting morning collection (8:00–9:00 AM).
- Pre-rinse with 100 mL of warm, pale-yellow furacillin solution.
- Passive drooling into a sterile tube (≈10 mL) over 10–15 minutes.
- Patients were advised to discontinue immunomodulatory drugs several days prior to sampling.

Modern protein analysis technologies enabled the measurement of immune biomarkers and their biological activity in saliva, even at minimal concentrations.

## CONCLUSIONS

1. The laboratory findings revealed a sharp increase in macrophages and lymphocytes in saliva after prosthetic treatment with plastic crowns (approximately threefold compared to pre-prosthetic levels), indicating an enhanced immune response in the oral cavity to plastic as an antigen in patients with an allergic background.

2. The clinical study results demonstrated that metal-ceramic prostheses offer several advantages over plastic crowns for patients with allergies, including:

- Biocompatibility,
- Superior marginal fit,
- Natural color and gloss,
- Enhanced mechanical strength.

## REFERENCES

1. Alyakhnovich, N. S., & Novikov, D. K. (2015). Food colorants and titanium dioxide as pathogens. *Immunopathology, Allergology, Infectology*, 1, 71–77.
2. Abakarov, S. I. (2001). Optimal conditions and features of color determination and reproduction in ceramic and metal-ceramic prostheses. *Novoe v Stomatologii* [New in Dentistry], 4, 23–29.
3. Akbar, J. H., Petrie, C. S., Walker, M. P., Williams, K., & Eick, J. D. (2006). Marginal adaptation of Cerec 3 CAD/CAM composite crowns using two different finish line preparation designs. *Journal of Prosthodontics*, 15(3), 155–163.
4. Attia, A., & Kern, M. (2004). Influence of cyclic loading and luting agents on the fracture load of two all-ceramic crown systems. *The Journal of Prosthetic Dentistry*, 92(6), 551–556.
5. Jones, A. J., et al. (2003). Absorption of fluoride ions in glass ionomer cements: Analysis of surface. *Biomaterials*, 1, 107–119.