THE EFFECTIVENESS OF THE ISQ METHOD IN ASSESSING IMPLANT STABILITY

Annotation. Achieving and maintaining implant stability are prerequisites for successful dental implant placement. Primary implant stability during placement is a mechanical phenomenon that is related to the quality and quantity of local bone, the type of implant and the implanting technique used. Secondary implant stability is increased instability due to bone formation and remodelling at the implant/tissue interface and in the surrounding bone.

Research objective: to study the effectiveness of ISQ method (Implant Stability Quotient) in assessing the stability of the implant. Resonance Frequency Analysis (RFA) offers a clinical, non-invasive measure of stability that has proven to be useful in determining the loading time of an implant. RFA values are represented by a quantitative unit called implant stability coefficient (ISQ), on a scale from 1 to 100, measured with Osstell (Integration Diagnostics, Gothenburg Sweden). An increased ISQ value indicates increased stability (5-7).

Material and methods of investigation. We examined 111 patients with a mean age of 47.56 years, ranging from 30 to 64 years, to solve the set objectives. Of them males accounted for 32 (28.83%) and females 79 (71.17%). All patients were divided into 3 groups: Group 1 consisted of 26 patients with an implant-abutment system without platform switching; Group 2 consisted of 42 patients with an element of platform switching on the abutment and Group 3 consisted of 43 patients with double platform switching (on the abutment and crown). All patients underwent periodontal assessment, functional methods (ISQ) to determine implant stability.

Results of the findings. The comparative analysis of ISQ (Implant Stability Quotient) in our patients in the group without platform switching, showed significant differences in the values before and after prosthesis (58.12±3.05 and 76.81±0.48, respectively, P<0. 6 months later there was a significant decrease of this index compared to the previous period (59.23±0.61 and 76.81±0.48, respectively, P<0.05), approaching to the values before prosthesis (58.12±3.05, P>0.05), indicating the decrease of the implant stability.

The analysis of ISQ values in the second group has shown that this coefficient before prosthetics was also on the average identical to the 1st group value (58.86±0.9), which later on in single platform switch is a significant difference with this value (78.02±0.52, P<0.05), 6 months after prosthetics a slight decrease of this value to 67.36±0.82 is observed. When comparing the results of the stability coefficient study in the 3rd group of patients with double switch, we have established that the implant stability is better with time after implant placing and prosthetics with double switch. This is proved by the higher values of the index after prosthesis in the 3rd group in comparison with the 2nd group - 79.44±0.52 and 78.02±0.59, respectively, P<0.05 and after 6 months of observation - 76.59±0.62 and 67.36±0.82, respectively, P<0.05. Group 1 without platform switching showed no changes of the implant stability index value after 6 months of follow-up, whereas Group 2 and 3 groups showed a significant increase of mean ISQ values at the last follow-up (from 65.9 to 67.36 in the Group 2 and from 58.29 to 76.59 in the group with double platform switching).

Conclusions: In the group with the double platform switching method, implant stability was significantly higher in the long-term after prosthetics than in the groups with other prosthetics methods.