Assessment of the influence of platelet-rich fibrin on the clinical parameters and concentration of selected inflammatory mediators in the gingival cervicular fluid of patients with periodontitis.

Objectives: To evaluate the effectiveness of i-PRF in the treatment of patients with periodontitis and to compare the clinical status of the periodontium after SRP and SRP procedures combined with the application of i-PRF to periodontal pockets. Assessment of the effect of i-PRF on MMP-8 concentration in the GCF of patients with periodontitis.

Material and methods: Forty subjects with diagnosed periodontitis were randomly divided into two groups of 20 people each. In both groups, the SRP procedure (scaling and root planing) was performed. In the study group, after the SRP procedure, i-PRF obtained from the patient's peripheral blood was additionally administered to the periodontal pockets. On the day of the procedure and at follow-up visits after 1, 3 and 6 months, an examination was performed to assess the periodontal parameters. On the day of the procedure and at visits after 2, 4 and 12 weeks, gingival cervicular fluid (GCF) was collected from the pockets selected at the first visit to assess the level of MMP-8. Additionally, SFFR was measured at all visits. The results were statistical analysed with the use of Statistica 13.3 Tibco software.

Results: In both groups, a statistically significant reduction in clinical parameters FM PD, FM CAL, FM BOP, FM PS, FM MBI compared to the condition before the procedure was observed. In the SRP + i-PRF group, the reduction in FM PD and FM BOP was statistically significantly higher than in the SRP group. In both groups, the number of 5 mm and larger pockets decreased, there was a significant decrease in PD and CAL of pockets ≥ 5 mm and an increase in GR in the SRP group. A significantly greater reduction between the groups was noted in the case of PD 0-6, CAL 0-3 and CAL 0-6 in favour of the SRP + i-PRF group. The levels of MMP-8 and SSFR in both groups were statistically significantly reduced with no difference between the groups.

Conclusions: SRP as the gold standard treatment for periodontitis leads to improvement of clinical parameters. The use of i-PRF as an addition to SRP significantly affects the change of PD, CAL and BOP parameters. SRP therapy reduces MMP-8 levels in GCF. The use of i-PRF does not result in additional reduction of MMP-8.