Occlusal stent construction research

Initial examination was carried out consisting of evaluation the periodontal condition of the teeth. After selecting the suitable patients for the study, all of them received supra gingival scaling and polishing with a good motivation and instruction in oral hygiene measures including brushing, using dental floss and interproximal brushes as indicated and demonstration was given to them about the work of perio Q gel and it's application .

An alginate impression was taken and an occlusal stent was constructed for each patient. After completion of the occlusal stent construction, the patient was recalled again and this was considered the first visit. In this visit the clinical periodontal examination was carried out for the selected sites and it included the following parameters:

- Plaque Index (PLI) :- (Silness and Loe 1964)

A periodontal probe was used after air drying of the teeth and the selected sites were examined for plaque. The periodontal probe was gently passed along the gingival crevice. The criteria was the following:

Score 0: No plaque in the gingival area.

Score 1: A film of plaque adhering to the free gingival margin and adjacent area of the tooth surface, which cannot be seen with the naked eye but only by using disclosing solution or by using probe.

Score 2: Moderate accumulation of soft deposits within the gingival pocket, on the gingival margin and or adjacent tooth surface which can be seen by naked eye.

Score 3: Abundance of soft matter within the gingival pocket and or on the gingival margin and adjacent tooth.

- Gingival Index(GI): *(Loe, 1967).*

The occurrence of gingival inflammation was assessed using the criteria of gingival index system

Score 0: Normal gingiva.

Score 1: Mild inflammation, slight change in color, slight edema, and no bleeding on probing

Score 2: Moderate inflammation, redness and glazing, bleeding on probing.

Score 3: Severe inflammation, marked redness and ulceration, tendency to spontaneous bleeding.

- Bleeding on Probing (BOP) :- (Carranza, 2012).

A blunt periodontal probe inserted to the bottom of the periodontal pocket/sulcus and is moved gently along the root surface. If bleeding occurred within 30 seconds after probing, the site was given positivescore (1), and a negativescore (0)for the non-bleeding site

- Probing Pocket Depth (PPD):(Lindhe et al., 1998)

The probing pocket depth was measured with a William's periodontal probe at four sites of all teeth on (mesial, buccal, distal and lingual), the distance from gingival margin to the most apical extent of the probe inserted parallel to the long axis of the tooth to the nearest millimeter (mm) was recorded only for the sites exhibiting probing depth of (5-8)mm.

- Relative Attachment Level (RAL):

The occlusal stent was adjusted to fit the teeth, then vertical grooves or holes corresponding to the probed site were made using rotary fissure bur, these grooves provided a fixed reference mark for probe insertion and angulation. The stent was putted on the occlusal surfaces to cover half or 2/3 of the crown. The distance

from the base of the pocket to the lower border of the stent at the base of the groove was considered as the RAL. The measurement was made to the nearest mm .

The clinical periodontal recordings were repeated after 3 and 6 weeks.

Treatments

After recording of all periodontal parameters for the selected sites, the patient mouth was splitted into three quadrants, each quadrant received different treatment modality and as follows:

Initial visit (1 st day): patient selection, supra gingival scaling, alginate impression, motivation, instruction.

. Gel group: 111 sites in this group received intra pocket application of perio Q gel. The selected sites were isolated by cotton rolls and dried the teeth by air, and then dried the pockets by paper point size (30, 35, 40, and 45). the application of the gel was made using disposable syringe of 5ml. the sharp tip of needle was removed by rotary bur to avoid hurting the gingival tissue and smoothened it, then 1 ml of the gel was pulled by the syringe and the needle gently placed down through the pocket until it reach to the bottom of

the pockets then placed the gel while worked the way up until the gingival margin. Each pocket was received a range of (0. 1-0. 3) ml., the excess gel oozing from the pockets was removed by Cotton rolls The patients were instructed to avoid spitting, washing, eating and drinking for 2 hours of the gel application. Toothbrush and interdental aids should paused of the day after the gel application.

First visit (1day)	Clinical periodontal parameters recorded, gel application.
Second visit (after 3 weeks)	Clinical periodontal parameters recorded
Third visit (after	Clinical periodontal al

	parameters recorded
6weeks)	

Combination group: 106 sites in this group received scaling and root planing, then after one hour, the patient examined if there was no blood oozing, then the gel applied as was described previously. If not, the patient was referred to the next day.

First visit (1day)	Clinical periodontal parameters recorded, root planning to the selected sites, after 1 hour putted the gel.
Second visit	Clinical periodont

(after 3 weeks)	al paramete rs recorded
Third visit (after 6week s)	Clinical periodont al paramete rs recorded

Scaling and root planning group: 106 sites in this group received scaling and root planning only.

First visit (1day)	Clinical periodont al paramete rs recorded, root planning to the selected sites.

Second visit (after 3 weeks)	Clinical periodontal parameters recorded
Third visit (after 6weeks)	Clinical periodontal parameters recorded

Pilot study

To perform intra examiner calibration and inter examiner calibration with clinical periodontal parameters used in this study (PLI, GI, BOP, PPD, RALI), a pilot study was carried out in Department of periodontics, College of Dentistry, Baghdad University. It was carried at about four weeks before the conduction of the actual project on two subject with twelve-sites. The intra examiner calibration was repeated after an appropriate period (usually 2-4 weeks) to resolve any memory bias. While the inter examiner calibration was repeated by another trained professional at the same time. The consistency (calibration) should be at least 90% and if it is low, the measurement should be repeated.

Statistical Analysis

Data were processed and analyzed using SPSS 16 for windows8 (statistical package for social science) and excel 2013. both descriptive and inferential analyses

Descriptive Statistics

- Tables (Range, Frequencies and Percentage)

- Arithmetic Mean

- Standard Deviation

- Mean Difference.

- Median

- Minimum and Maximum

- Graphical Presentation by Bar Charts and Scattered Plots.

Inferential Statistics

There was used to accept or reject the statistical hypotheses, which included:

- Analysis of Variance Test(ANOVA) One Way

- Student t-Test for equality of means of two independent groups.

- Wilcoxon Signs rank test

- Mann Whitney U Test

References

- Lindhe J Karring T Lang N. Clinical periodontology and implant dentistry. 3rd edition. Copenhagen, Munksgaard, 1998

- Löe, H. The Gingival Index, the Plaque Index and the Retention Index Systems. Journal of Periodontology, Vol. 38, No. 6 (November-December 1967), pp. 610-616.

- Silness J, Loe H. Periodontal disease in pregnancy. II. Correlation between oral hygiene and periodontal condition. Acta Odontol Scand 1964; 22: 112-135