Giovedì, 23 settembre 2021

Spazio Ricerca - Premio G. Cardaropoli

SESSIONE POSTER

Coordinatori: **Giancarlo Agudio – Daniele Cardaropoli**

I POSTER saranno affissi giovedì 23 settembre entro le ore 15.30
La discussione con la Commissione avverrà come segue:

- P1-P6: **giovedì 23 settembre** dalle 17.00 alle 17.30
- P7-P12: **venerdì 24 settembre** dalle 11.10 alle 11.40.
- P13-P18: **venerdì 24 settembre** dalle 16.00 alle 16.30

Sabato 25 settembre, alle ore 11.50, la Commissione Valutatrice assegnerà il Premio G. Cardaropoli 2021 al miglior lavoro presentato.

Il programma

Epidemiologia/Diagnosi – *Epidemiology/Diagnosis*

P1 EFFECT OF SMOKING CESSATION ADVICE IN PERIODONTAL CLINICAL PRACTICE: A PROSPECTIVE TRIAL

Gennai S.*[1], Pagni G.[2], Izzetti R.[1], Rasperini G.[2], Graziani F.[1]
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P2 THE IMPACT OF DENTIN HYPERSENSITIVITY ON ORAL HEALTH RELATED QUALITY OF LIFE

Gennai S.[1], Marhl U.*[1], Peric M.[1], Nisi M.[1], Graziani F.[1]
[1]Department of Surgical, Medical and Molecular Pathology, Critical Care Medicine, University of Pisa, Pisa, Sub-Unit of Periodontology, Halitosis and Periodontal Medicine, University Hospital of Pisa, Pisa.

P3 PERIODONTAL STATUS IN PATIENTS WITH HEAD-NECK CANCER: MONOCENTRIC PERSPECTIVE OBSERVATIONAL STUDY

Rupe C.[1], Schiavelli A.*[1], Basco A.[1], Miccichè F.[2], Paludetti G.[1], Cordaro M.[1], Lajolo C.[1]
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P4 SUPPURATION UPON PALPATION IN THE DETECTION OF PERI-IMPLANTITIS: A DIAGNOSTIC-ACCURACY STUDY

Romandini P.*, Paternò Holtzman L., Donno S., D'Emidio F., Laforì A., Cordaro L.
Department of Periodontics and Prosthodontics, Eastman Dental Hospital, Rome.

Terapia Parodontale – *Periodontal Therapy*

P5 THE USE OF CHLORHEXIDINE PLUS HYALURONIC ACID MOUTHWASH IMPROVES THE HEALING OF INTERDENTAL PAPILLA AFTER PERIODONTAL SURGERY

Gennai S.[1], Peric M.*[1], Marhl U.[1], Nisi M.[1], Graziani F.[1]
*[1]*Department of Surgical, Medical and Molecular Pathology, Critical Care Medicine, University of Pisa, Pisa*

P6 MULTIPLE RT1/RT2 GINGIVAL RECESSIONS AND NON-CARIOUS CERVICAL LESIONS: COMBINED RESTORATIVE-PERIODONTAL TREATMENT. A RANDOMIZED CLINICAL TRIAL

Mone L.*, Razzolini C., Discepoli N.
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P7 BILAMINAR TECHNIQUE WITH CORONALLY ADVANCED FLAP AND CRYOPRESERVED HUMAN AMNIOTIC MEMBRANE IN THE TREATMENT OF GINGIVAL RECESSIONS

Martelloni M.[1], Diletta Trojan D.[2], Abate R.[3]
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P8 LONG-TERM CLINICAL OUTCOMES OF PERIODONTAL REGENERATION WITH ENAMEL MATRIX DERIVATIVE (EMD)

Roccuzzo A.*, De Ry S.P., Imber J., Lang N.P., Salvi G.E., Sculean A.
Department of Periodontology, School of Dental Medicine, University of Bern, Switzerland

P9 POCKET CLOSURE: A MULTILEVEL ANALYSIS OF PATIENTS WITH STAGE III-IV PERIODONTITIS

Citterio F., Costanzo L., Vittone A., Bosio L., Delle Cave M., Steccanella M., Di Venanzio A., De Caroli M., Mariani G.M., Baima G., Romano F., Aimetti M.
University of Turin, Turin

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Terapia implantare – *Implant Therapy*

P11 LONG-TERM CLINICAL AND RADIOGRAPHIC OUTCOMES OF IMPLANT-SUPPORTED SINGLE UNIT CROWNS (SUCS) WITH CANTILEVER EXTENSIONS: A RETROSPECTIVE STUDY WITH A FOLLOW-UP OF AT LEAST 10 YEARS

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P12 INFLUENCE OF DIABETES ON IMPLANT FAILURE AND PERI-IMPLANT DISEASES

Morandi P.*[1], Alberti A., Tironi F., Zotti B., Corbella S., Francetti L.
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Barbato L.[1], Nieri M.[1], Cavalcanti R.[2], Landi L.[3], Rupe A.[4], Sforza N. M.[5], Pace R.[1], Cairo F.[1]
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P14 EFFICACY OF IMPLANT SURFACE DECONTAMINATION IN NON-SURGICAL THERAPY OF MUCOSITIS: A RANDOMIZED CONTROLLED CLINICAL TRIAL

Minoli M., Mohammadi G., Fabrizi S., D'Ambrosio R., Clementini M., de Sanctis M.
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P15 MARGINAL BONE MAINTENANCE AND DIFFERENT PROSTHETIC EMERGENCE PROFILES

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P16 LEVEL OF EVIDENCE FOR INTRA-SURGICAL IMPLANT SURFACE DECONTAMINATION METHODS: A SYSTEMATIC REVIEW WITH META-ANALYSIS

Baima G.*[1], Citterio F.[1], Romano F.[1], Ciccarelli M.[1], Mariani G.M.[1], Buduneli N.[2], Aimetti M.[1]
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P17 THE EFFECT OF HYPERLIPIDEMIA ON PERI-IMPLANT HEALTH: A CLINICAL AND RADIOGRAPHICAL PROSPECTIVE STUDY

De Angelis P.*, Liguori M.G., Giovannini V., De Rosa G., Manicone P.F., D'Addona A.
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P18 SIGNIFICANCE OF MUCOSAL TUNNEL AND LOCAL SITE ON THE EF FICACY OF TWO PERI-IMPLANT DECONTAMINATION PROTOCOLS. AN IN-VITRO STUDY

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Gli abstract

P1 EFFECT OF SMOKING CESSATION ADVICE IN PERIODONTAL CLINICAL PRACTICE: A PROSPECTIVE TRIAL

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Introduction:
Smoking habit is a widely recognized risk factor in the development of periodontal disease. Smokers are reported to have 3-times higher occurrence of periodontitis, more severe clinical form of presentation, and higher recurrence rates after periodontal treatment compared to non-smokers. Smoking Cessation Advice (SCA) can be employed to retard progression and improve clinical management of periodontitis in smokers.

Aims
The aim of this study is to evaluate the effectiveness of SCA in smokers affected by periodontitis, and to analyze patient characteristics associated with higher smoking cessation rates.

Methods
Patients with smoking habit affected by periodontitis were enrolled in this bicentric study. During periodontal treatment, repeated sessions of SCA were performed. Psychological evaluation of depression, stress/anxiety levels, and attitude towards smoking cessation was performed. Full-mouth bleeding score (FMBS) and Probing Pocket Depth (PPD) were recorded at baseline, and measurements repeated 3 months after treatment. After 12 months, patients were re-evaluated to enquire about current smoking status.

Results
At 12-month follow-up, 20 patients out of 299 smokers enrolled (6.68%) quit smoking following SCA. Data deriving from psychological evaluation showed lower depression and stress/anxiety levels in former smokers ($p<0.05$). Higher motivation to quit smoking at baseline was related to actual smoking cessation 12 months after SCA ($p<0.05$). FMBS was significantly improved in former smokers at 3 months ($p<0.05$).

Conclusions
SCA was effective in patients with better scores of depression and stress/anxiety levels at baseline. Evidence of higher motivation towards smoking cessation at baseline appeared to be related to actual smoking cessation after SCA. Improvement in FMBS in former smokers at 3-month follow-up highlights the positive role of smoking cessation in supporting periodontal therapy. Further evaluation is needed to better delineate the profile of smoking patients to improve SCA performance.

P2 THE IMPACT OF DENTIN HYPERSENSITIVITY ON ORAL HEALTH RELATED QUALITY OF LIFE

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Introduction:
There is a scientific rationale to suspect that dentin hypersensitivity (DH) negatively impacts the Oral Health Related Quality of Life (OHRQoL). Yet, the number of published articles in favour of this hypothesis is scarce and accordingly the knowledge of the scientific community is still incomplete.
Aims:
To observe the prevalence of dental hypersensitivity and to evaluate its impact on the quality of life in terms of physical, psychological and social well-being.
Methods:
This was an observational study. Patients referred to the Subunit of Periodontology and Halitosis at the University Hospital of Pisa underwent clinical examination and quality of life assessment. Schiff test (ST) was used to measure clinician's perspective of DH (measured on a scale from 0 to 3: 0=no respond to air stimulus and 3=air stimulus painful and needs to be discontinued). All measures were made by a calibrated examiner. Patient's perspective of DH was expressed as a dichotomous value: 0=no, 1=yes. Patients were asked to complete the Oral Health Impacts Profile (OHIP-14) questionnaire.
Results:
There were no differences in age, gender and body mass index at baseline. Out of 75 patients included in the study, 33 of them reported dental hypersensitivity and 42 reported no DH. Among the patients without DH, 15 of them had ST code 0 and 27 ST code 1. In the group of patients reporting DH, 14 had ST code 1, 17 ST code 2 and two patients scored 3 for ST. Statistically higher scores for OHIP-14 were observed in group reporting DH 17.0 (8.5-22.5) vs. 11.3 (5.0-16.7) for the group without DH ($p<0.05$). Patients with DH reported to have more troubles with pronunciation, eating, worsened sense of taste, painful aching in mouth, feel more tense, have difficulties to relax, and to perceive the life as less satisfying.
Conclusions:
According to our results, positive scores of dental hypersensitivity were associated with higher scores of OHIP-14. Therefore, DH could exert a negative impact on patients' quality of life and well-being.

P3 PERIODONTAL STATUS IN PATIENTS WITH HEAD-NECK CANCER: MONOCENTRIC PERSPECTIVE OBSERVATIONAL STUDY

Rupe C.[1], Schiavelli A.*[1], Basco A.[1], Miccichè F.[2], Paludetti G.[1], Cordaro M.[1], Lajolo C.[1]

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Introduction:
Although it is accepted that Head and Neck Cancer (HNC) patients often have a poor oral status, the available data do not provide sound evidence.
Aims:
The aim of this prospective observational study was to evaluate the periodontal status of HNC patients.
Methods:
The study was approved by the Ethical Committee of Catholic University of Sacred Heart of Rome, (Ref. 22858/18), Clinicaltrials.gov (ID: NCT04009161). All the included HNC patients were visited during the pre-Radiotherapy (RT) dental evaluation with the support of an orthopanoramic. All periodontal cases were diagnosed and classified according to the 2017 staging and grading system.
Results:
One hundred twenty-one patients out of 157 (77.1%) were affected by periodontitis, among whom 91 (75.2%) were affected by Stage 3 or 4 periodontitis. Periodontitis was more frequently associated with specific HNC site: 72.9% of patients with a larynx cancer was affected by Stage 3 or 4 periodontitis ($\chi 2$ test, $p<0.05$), 72.4% of oral cancer ($\chi 2$ test, $p<0.05$). Similarly, severe periodontitis was associated with the habit of smoking: 71,4% of periodontal patients were smokers or former smokers ($\chi 2$ test, $p<0.05$).
Conclusions:
The present study is the first one to evaluate the periodontal conditions of HNC patients according to the 2017 Classification. Although a comparison of these findings with the available literature is difficult, the study shows a high prevalence of periodontitis among HNC patients (77.1%), probably due to the increased number of smokers and former smokers and to the lack of dental care meant for this population. RT side effects can determine a worsening of the oral conditions, making dental treatments in HNC patients complex and limited. This study shows how the periodontal status of these patients can be impaired also before RT, providing an indication to plan a dental visit for all HNC patients, with the aim to increase their compliance to the oral care preventive measures even after the oncologic treatments.

P4 SUPPURATION UPON PALPATION IN THE DETECTION OF PERI-IMPLANTITIS: A DIAGNOSTIC-ACCURACY STUDY

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Introduction:
To the authors' knowledge, suppuration on palpation in combination with radiographic data has however not yet been assessed as a diagnostic tool

Aims:
The aim of the present study was to evaluate the clinical sign "suppuration upon palpation" in combination with radiographic data in the detection of peri-implantitis

Methods:
A sub-analysis of a dataset used for a previous study was conducted. A total of 62 patients with 259 implants were examined. Clinical inspection was performed by two blinded independent examiners: the first one evaluated suppuration on palpation, while the second one conducted a complete clinical examination. Bone levels were measured by a third examiner using the most coronal portion of the intraosseous part of the implant as reference. This examiner also combined the resulting clinical and radiographic findings in order to establish a peri-implant health status according to the secondary case definition adopted by the 2017 classification system (BoP/SoP+ & PPD≥6 mm & bone levels ≥3 mm). Results were expressed as sensitivity, specificity, positive and negative predictive values, accuracy and area under the curve (AUC)

Results:
The diagnostic accuracy of the combination of suppuration upon palpation and bone levels ≥ 3mm in identifying peri-implantitis cases resulted in a specificity =99% and in a positive predictive value =97%, while the negative predictive value resulted =89%. Conversely, the sensitivity was low (53%). AUC resulted of 0.76 and accuracy was found to be 90%

Conclusions:
In the absence of baseline examination data, an implant with bone levels ≥3 mm that suppurates upon palpation has a very high chance to be affected by peri-implantitis. The absence of suppuration upon palpation and/or the presence of bone levels <3 mm indicates for a dental implant a high probability to be peri-implantitis free Suppuration on palpation, together with radiographic data, may be a valuable clinical sign to evaluate implants when the restoration design impedes a proper peri-implant probing

P5 THE USE OF CHLORHEXIDINE PLUS HYALURONIC ACID MOUTHWASH IMPROVES THE HEALING OF INTERDENTAL PAPILLA AFTER PERIODONTAL SURGERY

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Introduction:
This study was single-centre randomized, parallel design, clinical trial with a 2-week follow-up, involving patients affected by periodontal disease and eligible for periodontal surgery.
Aims:
To evaluate the response of gingival tissues to the use of mouthwash with chlorhexidine and chlorhexidine + hyaluronic acid in terms of healing of interdental papilla.
Methods:
The surgery was performed following a standardized protocol by a single operator, after which the patients were randomly assigned to four study groups: no administration of mouth rinses after surgery (control group); administration of hyaluronic acid and 0.2% chlorhexidine (CHX+HA); administration of 0.2% chlorhexidine (CHX). The non-labelled mouth rinse included 10 ml-rinse twice-a-day for 14 days. Photographs of surgical incision were taken immediately after periodontal surgery and at 3 (T3), 7 (T7), and 14 (T14) days post-op, to allow the evaluation of the degree of wound healing, which was evaluated using the Periodontal Wound Healing Index (Wachtel score-WC) on interdental papilla, assigning a score from 1 to 5.
Results:
A total of 60 patients was included in the study, 20 per each group. Patients were comparable at baseline for all measured clinical parameters. The patients in CHX+HA group showed better healing at day 7 vs. day 3 in terms of reduced mean WS ($p<0.05$), whereas the significant reduction of WS for CHX and control group was observed only at day 14 vs. day 3 ($p<0.05$ and $p<0.01$, respectively). When observing the intergroup differences at various time points, CHX+HA group showed significantly lower mean WS score at day 3 and day 7 comparing to control group ($p<0.05$ and $p<0.01$, respectively). Moreover, when comparing CHX+HA vs. CHX group at day 7, greater reduction in mean WS score was observed for CHX+HA group ($p<0.01$).
Conclusions:
The use of CHX+HA mouthwash after periodontal surgery showed better wound healing capacities, as observed by the reduction of WS already at day 7 post-op.

P6 MULTIPLE RT1/RT2 GINGIVAL RECESSIONS AND NON-CARIOUS CERVICAL LESIONS: COMBINED RESTORATIVE-PERIODONTAL TREATMENT. A RANDOMIZED CLINICAL TRIAL

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Introduction:
The main goal of this research is to evaluate the clinical performance of Coronally Advanced Flap used with or without a Connective Tissue Graft for the treatment of combined defects.

Aims:
The aim is to evaluate the clinical performance of CAF used with or without a CTG for the treatment of multiple adjacent RT1/RT2 gingival recessions associated with non-carious cervical lesions. The primary outcome is the complete root coverage gained.

Methods:
The allocation of the included individuals in the experimental groups (test group=CAF+CTG; control group=CAF) was performed according to the software. Firstly, a composite resin restoration of the whole portion of the NCCL coronal to the line of maximum root coverage, previously outlined, was performed. After a week, aesthetics and hypersensitivity were assessed through a VAS scale. One week thereafter, the surgical experimental treatment was deployed. The following pre-operative and intraoperative clinical variables were recorded: a) width and thickness of the keratinized tissue (wKT, GT), b) thickness of the flap (FT), c) thickness of the connective tissue graft (GrT).

Results:
A total of 32 patients were included. With regard to the main outcome variable (CRC), the CAF+CTG technique yielded better results than the CAF procedure alone 1 year after the surgical procedure. Among the secondary outcomes, both surgical techniques were well accepted by the patients in terms of pain and discomfort during the early healing phase (2 weeks). The aesthetic score, indeed, was worse at the test group only after 3 months. At one- year follow-up no aesthetic differences were present between groups. In both groups dentin hypersensitivity drastically reduced after the combined restorative-periodontal treatment.

Conclusions:
It is possible to speculate that the combined surgical-restorative approach is a valid procedure to obtain complete root coverage in the treatment of multiple gingival recessions associated with non-carious cervical lesions.

P7 BILAMINAR TECHNIQUE WITH CORONALLY ADVANCED FLAP AND CRYOPRESERVED HUMAN AMNIOTIC MEMBRANE IN THE TREATMENT OF GINGIVAL RECESSIONS

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Introduction:
Human amniotic membrane (HAM) is a thin layer on the inner side of the placenta. Given its features which comprise antimicrobial (1), anti-inflammatory (2) immunomodulatory, and antiangiogenic properties (3) it is widely used in clinic for the treatment of skin burns, the prevention of tissue adhesion in different fields of surgery (head, neck, abdomen, etc), and wound healing. Moreover, it promotes epithelialization (4) making it ideal also in the oral and periodontal application (5). Gingival recession (GR) is defined as the apical displacement of the gingival margin from its physiological position to the cementoenamel junction (CEJ), with pathological exposure of the root surface (6) . In accordance with the recent classification system of GR, the level of interproximal clinical attachment is used as an identification criterion to evaluate the final root coverage. Three recession type (RT) can be identified: class RT1 included GR with no loss of interproximal attachment; class RT2 included recession associated with interproximal attachment loss less than or equal to buccal site, and class RT3 showed higher interproximal attachment loss than the buccal site (7.)To obtain successful root covering, coronally advanced flap (CAF), connective epithelium free graft, and connective sub-epithelium and tunneling are broadly used. GR are usually treated with surgical therapies which involve the use of connective tissue autograft in order to thicken the gingival tissue (8). This has a strong biological toll on the patient that undergoes surgery localized in two different areas of the oral cavity.

Aim:
In this study we assessed the performance of HAM in association with the bilaminar technique with CAF to treat Miller class I GR or RT1 on the element 1.3 and 1.4 in one patient, which complained of aesthetic problems and brushing discomfort.

Methods:
In this case report, we offer an alternative technique where the HAM is employed to thicken the keratinized tissue in order to treat a class RT1 GR in a 40-years old female patient with a combination of bilaminar technique and coronally advanced flap surgery.
HAM was isolated from placenta under sterile conditions and rinsed twice in saline to remove residual blood. The stromal/mesenchymal layer was labeled with a nitrocellulose filter to easily distinguish the epithelial side. HAM was then decontaminated with an antibiotic solution for 24h at 4 °C and cut into several patches (3x3 cm) that were rapidly cryopreserved in BASE medium supplemented with 10% human serum albumin and 10% DMSO. Microbiological analyses were performed at each step of the the process and only HAMs without microbial contamination were considered suitable for the implant.
Physical examination using a periodontal probe revealed the entity of GR and no reabsorption of interproximal attachment, confirmed by intraoral radiography. Once defined the diagnosis of the class RT1 on both teeth, the dental element 1.3 showed a GR of 3mm with a probing depth of 1mm, while the element 1.4 had a 2 mm GR with a probing depth of 1mm. The patient underwent to a mucogingival surgery with bilaminar technique and CAF . The surgical procedure started with the drawing and lifting of a partial thickness strip with two vertical drops, a distal one on 1.2 and a distal one on 1.5. The roots were scaled and conditioned with EDTA. After thawing, the HAM graft was placed above the recession sites and stromal side was placed on the periosteum, folded many times to gain an appropriate thickness, stitched with a resorbable compressive suture in order to allow adequate vascular flow for the integration and survival of the grafted tissue, and then covered with a primary gingival strip, adequately coronized, in way to cover both the graft and the roots.

Results:
Fifteen days post-intervention, sutures were removed and patient underwent to a monthly follow up. The bacterial plaque and the toothbrushing maneuvers were monitored. At month 7, the gingival tissues were completely restored and no signs of recession were recorded. At the end of the examination, the tissue maintained the natural color of the gingiva and did not show any sign of inflammation.

Conclusions:
Our successful experience, which agrees with recently data published by other groups, suggest that HAM application is a promising tool for the treatment of the class RT1, also improving patient's comfort, avoiding or reducing the utilization of connective tissue portion from the palate.

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P8 LONG-TERM CLINICAL OUTCOMES OF PERIODONTAL REGENERATION WITH ENAMEL MATRIX DERIVATIVE (EMD)

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Introduction:
The use of enamel matrix derivate proteins (EMD) has radically changed the treatment of periodontal infra bony defects showing better outcomes (i.e. CAL gain and PD reduction) when compared to conventional access flap (OFD), even-though few studies focused on the long-term.

Aims:
To report the long-term outcomes in periodontal intrabony defects following regenerative surgery with and Enamel Matrix Derivative (EMD).

Methods:
Periodontal patients treated with reconstructive surgery with EMD between 1999 and 2012 (follow-up of at least 8 years) were screened (n=548) and invited to participate in a clinical examination. The following clinical parameters were recorded and compared at baseline (at 6-months after non-surgical therapy) (T0), 6 months after surgery (T1) and after at least 8 years follow-up (T2): probing pocket depth (PPD), gingival recession (GR), clinical attachment level (CAL), plaque and bleeding scores. Tooth survival (0/1), smoking status and frequency of adherence to supportive periodontal therapy (SPT) were also recorded. The primary outcome variable was the CAL change.

Results:
41 patients with a total of 75 treated teeth were available for analysis. Out of these, 68 (tooth survival rate: 90.7%) reached the latest follow-up with a mean observation period of 10.3 years (range: 8.0–21.3). The most frequent reason for tooth loss was recurrence of periodontal disease. Tooth survival curves showed a statistically significant difference between smokers and non-smokers ($p=0.028$). Mean CAL changed from 8.43 ± 1.86 to 6.47 ± 1.70 ($p<0.001$) at T1 and 5.91 ± 1.83 ($p<0.001$) at T2. At T1, a CAL gain of >3 mm was measured in 35% of the defects (i.e. 24 of 68), while at T2 it was detected in 51% of cases (i.e. 35 of 68).

Conclusions:
The present results have provided evidence that in the great majority of cases, the clinical improvements obtained with EMD, can be maintained on the long-term. However, smoking and tooth type (i.e. maxillary molars) were correlated with an increased risk for tooth loss.

P9 POCKET CLOSURE: A MULTILEVEL ANALYSIS OF PATIENTS WITH STAGE III-IV PERIODONTITIS.

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Aims:
To investigate the efficacy of periodontal therapy on pocket closure (PC), defined as PPD≤4 mm without BOP, 3 months after non-surgical periodontal treatment (T1) and 1 year after the end of active periodontal treatment (APT) (T2) and to identify the factors affecting the probability of PC at different treatment stages.
Methods:
Data from 100 patients with stage III-IV periodontitis with complete periodontal charts at baseline (T0), at T1, and at T2 were collected. Sites with PPD ≥ 5 mm at T0 or T1 have been included as diseased sites and residual pockets. Multilevel analysis was used to investigate factors at patient, tooth and site level affecting the likelihood of PC at T1 and T2.
Results:
PC at T1 occurred at 53.83% of the diseased sites. Type of treatment, tooth type, furcation involvement, site position, presence of a vertical defect, initial PPD and plaque at T1 were associated to PC. At T2 PC occurred at 80.75% of the residual pockets and was associated to regenerative and resective surgeries, mobility, BOP at T1 and plaque at T2.
Conclusions:
At T2 PC may be observed at the majority of pockets. PC it is influenced by factors at patient-, tooth- and site-level that are different at various stages of treatment.

P10 NO BENEFIT OF AN ADJUNCTIVE PHOTOTHERAPY PROTOCOL IN TREATMENT OF PERIODONTITIS: A SPLIT-MOUTH RANDOMISED CONTROLLED TRIAL

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Aim:
To assess the efficacy of a commercially-available adjunctive phototherapy protocol ('Perio-1') in treatment of periodontitis.
Materials & Methods:
In an examiner-blind, randomised, controlled, split-mouth, multi-centre study, 60 periodontitis patients received root surface debridement (RSD) in sextants either alone (control sextants) or with the adjunctive phototherapy protocol (test sextants). Re-evaluation was performed at 6, 12 and 24 weeks.
Results:
No statistically significant differences in mean (± standard deviation) clinical attachment level (CAL) change from baseline to week 24 were observed between test (-1.00±1.16 mm) and control sextants (-0.87±0.79 mm) at sites with probing pocket depths (PPDs) ≥ 5 mm ("deep sites") at baseline (p=0.212). Comparisons between test and control sextants for all other parameters (CAL change at all sites, PPD change at deep sites/all sites, bleeding on probing, plaque scores), and for all change intervals, failed to identify any statistically significant differences.
Conclusions:
The phototherapy protocol did not provide any additional clinical benefits over those achieved by RSD alone. (German Clinical Trials Register DRKS00011229).

P11 LONG-TERM CLINICAL AND RADIOGRAPHIC OUTCOMES OF IMPLANT-SUPPORTED SINGLE UNIT CROWNS (SUCS) WITH CANTILEVER EXTENSIONS: A RETROSPECTIVE STUDY WITH A FOLLOW-UP OF AT LEAST 10 YEARS

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Introduction:
Despite the large amount of long-term evidence on osseointegrated dental implants to support single unit crowns (SUCs), the scientific interest for alternative implant-supported prosthetic solutions (i.e. single crown with cantilevers) has increased, especially to overcome more extensive surgical procedures (i.e. sinus floor elevation). However, some questions remain on the use of cantilever extensions in the partial posterior edentulous areas where loading forces may jeopardize marginal bone levels or even implant survival.

Aims:
To report the clinical and radiographic outcomes, the biological and technical complications of implant-supported SUCs with a cantilever extension after at least 10 years of function.

Methods:
Twenty-one patients with 25 implant-supported SUCs in the posterior jaws with a cantilever extension underwent a clinical and radiographic examination. The mesial and distal radiographic marginal bone levels (MBLs) were calculated at baseline (i.e. delivery of the reconstruction) and follow-up and compared. Implant survival rate, mean pocket probing depth (PPD), presence of bleeding on probing (BoP) as well as the number of technical and biological complications were recorded.

Results:
The mean observation period was 160 ± 35.5 months (13.3 ± 2.9 years). No implant loss was recorded yielding an implant survival rate of 100%. The overall marginal bone level changed not statistically significant from 0.99 mm ± 0.95 to 0.95 mm ± 0.99 (p= 0.85). The overall PPD changed from 3.39 mm ± 0.62 to 3.34 mm ± 0.54 (p=0.63). The most frequent technical complication was loss of retention of the reconstruction which occurred 3 times in 3 patients (14.3%). Two implants (8%) in 2 patients (9.5%) were diagnosed with peri-implantitis.

Conclusions:
The use of implant supported SUCs with cantilever extensions in the posterior areas seems to be a long-term reliable treatment option with high implant survival rates and minimal peri-implant marginal bone changes. However, some technical complications may occur.

P12 INFLUENCE OF DIABETES ON IMPLANT FAILURE AND PERI-IMPLANT DISEASES

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Introduction:
While diabetes is an important modifying factor of periodontitis, its association with peri-implant diseases has not been fully explored and the existing literature reports controversial results.
Aims:
The aim of the study was to evaluate the relationship between the presence of diabetes and implant biological complications and implant survival rate.
Methods:
A total of 204 patients and 929 were included. Patient-related parameters (systemic diseases, smoking status, history of periodontal disease, eventually diabetes type, therapy and glycemia levels), implant and prosthesis characteristics, implant loading protocol, radiographic parameters at baseline and at follow-up visits (6 months, 1 year, once per year), recall frequency, and hygiene level were recorded. Odds ratio (OR) for diabetes as a direct cause of peri-implantitis and implant failure were calculated, adjusted for smoking status and history of periodontitis.
Results:
Among all included patients 14 were diabetic, 127 had history of periodontitis, 50 were smokers and 18 former smokers. Most of the patients had a good control of the disease, presenting mean values of 127,6 ± 25,7 mg/dL for glycemia at surgery, 6,4 ± 0,4% for glycated emoglobine, no glycosuria, 2,5 ± 0,7 10^9/L lymphocytes, 4,2 ± 1,3 10^9/L neutrophiles. The overall prevalence of peri-implantitis was 11,3%. Only one diabetic patient (type II) developed peri-implantitis whereas one with type I diabetes experienced multiple implant failures. Calculated OR adjusted for smoking status and periodontitis was 0,47 (95% C.I. 0,06-3,76) for peri-implantitis and 1,23 (95% C.I. 0,11-13,30).
Conclusions:
The results revealed no association between diabetes and peri-implantitis or implant failure coherently with the existing scientific literature. The actual influence of hyperglycemia on implant failure is still uncertain and new studies with larger cohorts of patients are needed.

P13 STABILITÀ TISSUTALE IN SITI TRATTATI CON GBR CONTESTUALE AGLI IMPIANTI. STUDIO MULTICENTRICO (SOFT TISSUE STABILITY AFTER LATERAL GUIDED BONE REGENERATION AT IMPLANT SITE. A LONG-TERM, MULTI-CENTER STUDY.)

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Aims:

The aim of this multicenter study was to evaluate long-term stability of soft peri-implant tissues at simultaneously laterally GBR sites after at least five years of prosthetic loading.

Methods:

Treated patients with at least 5 years of follow-up from final prosthesis and adherent to supportive periodontal therapy (SPT) were recruited in 5 clinical centers. Clinical and radiographic data on dental implants were collected. Multilevel analysis considering centre, patient and implant were performed.

Results:

A total of 96 patients and 195 augmented implants were included. The mean duration of SPT was 8.3 ± 3.1 years, while the mean recall frequency was 4.5 ± 1.3 months. Sixtyfive (33%) implants received a soft tissue graft before prosthetic delivery. Twenty-one (11%) implants developed biological complications during the follow-up, no implant failures were reported. Eighty-five (44%) implants showed recession (REC) of the mucosal level (mean 0.6 ± 0.8 mm). Presence of REC was associated with use of non-resorbable membrane ($p<0.0001$) and wider implant diameter ($p=0.0305$) while the use of soft tissue graft significantly predicted higher stability of gingival margin ($p=0.0003$).

Conclusions:

Gingival recession at implant site is a common feature 5 years after lateral GBR. Soft tissue graft could improve the stability of gingival margin.

P14 EFFICACY OF IMPLANT SURFACE DECONTAMINATION IN NON-SURGICAL THERAPY OF MUCOSITIS: A RANDOMIZED CONTROLLED CLINICAL TRIAL

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Aims:
The aim of the present study was to evaluate the effect of an abrasive erythritol air-powder system and an Er:YAG laser device in addition to mechanical debridement with titanium curettes and submucosal irrigation with chlorhexidine 0.2% in non-surgical therapy of mucositis.
Methods:
A total of 30 patients with at least one implant diagnosed with peri-implant mucositis were included in this 3-month randomized clinical trial (RCT). Implants were randomly assigned to one of the three treatment groups: non-surgical mechanical debridement of implant surfaces with titanium curettes plus a submucosal irrigation with chlorhexidine 0,2% (standard therapy- control group); standard therapy plus an air-abrasive system with erythritol powder (test 1) or standard therapy plus a Er:YAG laser device (test 2). Clinical measurements were performed by a periodontist, blinded to treatment group, at baseline and three months after treatment including probing pocket depths (PPD), bleeding on probing (BoP), recession (REC), plaque index (PI), suppuration (PUS) and keratinized tissue (KT). The primary outcome was the complete disease resolution (total absence of BoP). The changes in clinical parameters were compared intragroup and intergroup between baseline and at three months. A Kruskal Wallis test and Wilcoxon signed-rank test (p value <0,05) were used for the statistical analyses.
Results:
No statistically significant differences among the groups were observed at baseline in terms of age, smoke, number of implants, BoP, PPD, PI, PUS, REC, KT and bone level. The three treatments groups showed reductions in all clinical parameters at three months. In the control group, the mean BoP decreased from 81+ 24 at baseline to 35+35 at three months with a total disease resolution in 30% of cases while the mean PPD decreased from 3,16+1,14 at baseline to 2,60+0,62. In the test 1 group, BoP decreased from 86+13 to 38+34 with total disease resolution in 10% of cases while the PPD decreased from 4,61+1,82 to 3,23+1,08. In the test 2 group BoP decreased from 76+36 to 61+35 with total disease resolution in 20% of cases and PPD reduction from 4,33+1,60 to 3,61+1,07. Reductions in terms of BoP and PPD were statistically significant in the control group and test 1 between baseline and three months. No statistically significant differences were observed among the three treatment groups at three months.
Conclusions:
The outcomes of the present randomized clinical trial indicate that the non-surgical therapy of peri-implant mucositis, through the use of three different treatments of implant surface decontamination, is effective in reducing BoP and PPD. Nonetheless, the use of an air-abrasive device with erythritol powder as well as an Er:YAG laser device, in addition to mechanical debridement with titanium curettes and submucosal irrigation with chlorhexidine 0.2%, does not seem to add significant benefits in terms of BoP reduction and complete resolution of disease.

P15 MARGINAL BONE MAINTENANCE AND DIFFERENT PROSTHETIC EMERGENCE PROFILES

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Introduction:
Many studies have shown throughout the years that over-contoured restorations tend to have an influence on gingival inflammation and plaque retention. Excessive crown contour act as endemic plaque niches in which bacterial plaque accumulate, especially in the gingival third, hindering the possibility for hygiene. In 2018, Katafuchi et al. showed that an Emergence Angle (EA) of more than 30º is a significant risk factor for peri-implantitis and convex profiles create an additional risk for bone level implants, but not for tissue level implants.

Aims:
The aim of the present prospective controlled study was to assess the mid-term marginal bone changes around implants restored with different prosthetic emergence profile angles.

Methods:
Each implant was placed 1 to 2 mm below the bone crest as recommended by the manufacturer.Follow-up was 3 years from baseline. Marginal bone level (MBL) was measured at prosthesis installation (t0) and at the last follow-up visit (t1). MBL change was calculated from t0 to t1. Two different groups were considered: Group 1 for restorations with angle between implant axis and prosthetic emergence profile from > 30°, and Group 2 for restorations with angle ≤ 30°, respectively. MBL of Group 1 and 2 was compared. Seventy-four patients (35 males and 39 females) were included in the analysis and a total of 312 implants were examined.

Results:
In group 1, EP was scored as convex 46% of the times, and concave the remaining 54%, respectively. In the group 2 convex and concave EP were scored in 49% and 51% of measurements, respectively. Mean marginal bone level change (MBLchange) of 0.06 ± 0.09 mm and 0.06 ± 0.10 mm were, respectively in group 1 and 2. The difference of MBL change between the two groups was not statistically different (p=0.969).

Conclusions:
Within the limits of the present investigation, MBL change does not seem to be influenced by the emergence angle, for implants with a stable internal conical connection and platform switching of the abutment diameter.

P16 LEVEL OF EVIDENCE FOR INTRA-SURGICAL IMPLANT SURFACE DECONTAMINATION METHODS: A SYSTEMATIC REVIEW WITH META-ANALYSIS

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Introduction:
Various decontamination protocols are applied during surgical treatment of peri-implantitis, despite their efficacy is still lacking from a solid evidence.

Aims:
To assess the effect of different decontamination protocols in terms of disease resolution (DR) after surgical treatment of peri-implantitis and to weight the level of evidence.

Methods:
Clinical studies comparing two or more decontamination protocols were selected through an electronic search on Medline, Embase, Scopus, and Central databases. Data and risk of bias (RoB) were explored qualitatively. Overall impact of different decontamination methods was assessed by comparing baseline values with outcomes at 6-12 months through meta-analyses. The quality of evidence was assessed using a recommended rating scheme.

Results:
Twenty-four studies were retrieved, of which 15 were randomized clinical trials (RCTs). Use of either plastic or titanium curettes resulted in improved probing depth (weighted mean effect = 2.13 mm), while the weighed mean percentage of DR amounted to 25% with no heterogeneity. The level of evidence was high [4 RCTs (n=209 with low RoB)]. Evidence regarding the role of implantoplasty was inconclusive. Use of titanium brushes improved the results of reconstructive surgery compared to ultrasonic scalers, while it did not add significant benefits compared to air power devices or curettes in open flap debridement. Among chemical methods, different chlorhexidine concentrations demonstrated lack of efficacy with high level of evidence [3 RCTs (n=168) with low RoB], while local delivery of minocycline gel obtained 67% of DR in one RCT. Laser and photodynamic therapy provided minimal benefit in all treatment outcomes.

Conclusions:
Higher consistency is required to prove the superiority of a surface decontamination protocol over another, although titanium brushes and local delivery of minocycline showed promising results. A combination of chemical and mechanical methods is suggested for achieving better clinical outcomes.

P17 THE EFFECT OF HYPERLIPIDEMIA ON PERI-IMPLANT HEALTH: A CLINICAL AND RADIOGRAPHICAL PROSPECTIVE STUDY

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Introduction:
An atherogenic diet (HF diet) induces hyperlipidemia, a state characterized by high blood concentrations of triglycerides, high total and LDL cholesterol levels, and low HDL cholesterol levels. A HF diet has significant adverse effects on bone health, leading to lower bone mineral density and an increased risk of osteoporosis and bone fractures. Peri-implant tissues response in presence of hyperlipidemia has not yet been extensively investigated.

Aims:
The purpose of the following study is to evaluate whether the altered lipid profile in patients who undergo implant insertion surgery represents a prognostic factor capable of influencing clinical outcomes.

Methods:
This prospective study was conducted on 93 patients selected at the Catholic University of Rome. Patients were classified according to current American Heart Association guidelines. Based on patients' triglycerides levels were divided into 4 groups (1: <150 mg / dL, 2: 150-199 mg / dL, 3: 200-499 mg / dL, 4> 500 mg / dL); based on total cholesterol levels in 2 groups (1: <200 mg / dL, 2:> 200 mg / dL); based on LDL levels in 2 groups (1: <100mg / dL, 2:> 100mg / dL); based on HDL levels in 3 groups (> 50 mg / dL women,> 40 mg / dL men, <50 or 40 mg / dL). The outcomes considered at the 3 years follow up were: MBL, PPD, FMPS and FMBS.

Results:
A multiple regression analysis was performed to evaluate the effect of the variables detected on the primary outcome (MBL) and secondary outcomes. This study shows a statistically significant correlation between hypertriglyceridemia and MBL (group 3 p=0,012) as well as obesity and MBL (group 4 p=0,003). There is no statistically significant correlation (p<0,05) between the variables analyzed and the secondary outcomes (FMPS, FMBS).

Conclusions:
Despite the limitations of the present study, the results support the hypothesis that peri-implant marginal bone loss may be influenced by a condition of hyperlipidemia. However, further studies are needed, to confirm these results.

P18 SIGNIFICANCE OF MUCOSAL TUNNEL AND LOCAL SITE ON THE EF FICACY OF TWO PERI-IMPLANT DECONTAMINATION PROTOCOLS. AN IN-VITRO STUDY

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Aim:
The current in-vitro study aims to evaluate the efficacy of two peri-implant decontamination protocols: a) ultrasonic debridement (USD); b) USD + glycine-powder air-abrasive procedure (GPAP). The procedures were carried out on three different simulation of mucosal tunnel heights.
Materials and methods:
Single tooth implant replacement was simulated. Three different abutment heights were investigated (2mm, 4mm, 6mm) and custom-made gingival masks were created. Biofilm was simulated with an indelible ink. The decontamination protocol consisted in two intervention stages for each abutment: a) USD with PEEK tip and b) GPAP. At the end of each intervention, abutments were unscrewed and standardized photographs were taken. Statistical analysis was carried out to compare residual stain percentage between the two intervention stages and among different mucosal tunnel.
Result:
30 abutments were instrumented (10 for each abutment height). Data from residual stain percentages were normally distributed and statistically significant difference resulted from paired t-test between the two intervention stages($p<0.05$). ANOVA test resulted in a statistically significant difference($p<0,05$) for both mucosal tunnel heights and sites, with lower ink percentage at 2mm abutments and vestibular surfaces.
Conclusions:
GPAP provided adjunctive surface decontamination to the USD. Furthermore, proximal surfaces and deep sites showed a reduced instrumentation efficacy.