Salivary markers quantification of oxidative stress in patients with periodontitis, before and after intensive periodontal treatment: a one-blinded, randomized, clinical trial

I. Converti[1,*,†], A. Palermo[2,†], A. Mancini[3], M.E. Maggiore[3], G.M. Tartaglia[4], E. Ferrara[5], F. Lorusso[6], A. Scarano[6], I.R. Bordea[7], C. Sforza[4], C. Maspero[4], M. Farronato[4], M.G. Cagetti[4], A. Patano[3], S. Ceci[3], A. Corriero[8], D. Hazballa[3], A. Gnoni[9], E. Gentile[9], A. Semjonova[3], K. Ferati[10], A. Bexheti-Ferati[10], M.F. Coscia[9], R. Del Prete[3], E. Xhajanka[11], AT. Pustina-Krasniqi[12] and G. Malcangi[3,*]

[1]Division of Plastic and Reconstructive Surgery, Mater Dei Hospital, Bari, Italy; [2]College of Medicine & Dentistry of Birmingham, Birmingham, UK; [3]Interdisciplinary Department of Medicine, University of Bari "Aldo Moro", Bari, Italy; [4]UOC Maxillo-Facial Surgery and Dentistry, Department of Biomedical, Surgical and Dental Sciences, School of Dentistry, Fondazione IRCCS Ca Granda, Ospedale Maggiore Policlinico, University of Milan, Milan, Italy; [5]Complex Operative Unit of Odontostomatology, Hospital S.S. Annunziata, Chieti, Italy; [6]Department of Oral Science, Nano and Biotechnology and CeSi-Met University of Chieti-Pescara, Chieti, Italy; [7]Department of Oral Rehabilitation, University of Medicine and Pharmacy "Iuliu Hatieganu", Cluj-Napoca, Romania; [8]Unit of Anesthesia and Resuscitation, Department of Emergencies and Organ Transplantations, Aldo Moro University, Bari, Italy; [9]Department of Basic Medical Sciences, Neurosciences and Sense Organs, University of Bari "Aldo Moro", Bari, Italy; [10]Faculty of Medicine, University of Tetovo, Tetovo, Macedonia; [11]President of Dental School, Medical University of Tirana, Rruga e Dibrës, Tirana, Albania; [12]Universiteti I Prishtines "Hasan Prishtina", Prishtine, Kosovo

† These authors contributed equally to this work as first authors.

AIM: Periodontitis is one of the most common inflammatory and infectious diseases, significantly associated with circulating levels of oxidative stress biomarkers. A network of interacting molecular pathways comprising proinflammatory mediators and reactive oxygen species (ROS) are involved in the progression of periodontitis. The aim of the trial was to determine the effects of intensive periodontal treatment on the salivary levels of oxidative stress in patients with moderate periodontitis.

MATERIALS AND METHODS: A randomized, one-blinded, controlled clinical trial was conducted with 3 months of follow-up. A total of 58 patients were included in the study and randomized to receive intensive periodontal treatment (Group Test) or conventional adult prophylaxis (Group Control). Salivary samples for determination of total antioxidant status (TAS), total oxidant status (TOS), nitric oxide (NO), myeloperoxidase (MPO), glutathione (GSH), malondialdehyde (MDA) levels, and 8-hydroxy-2'deoxyguanosine (X8-OHdG) concentrations were collected from each patient prior to the periodontal treatment and at 3 months after the therapy.

RESULTS: A significantly decreased NO, and MDA levels were registered in the Test Group compared to the Control Group ($p<.0001$), and the concentration of GSH was found to be significantly increased in the test group compared to the control group.

CONCLUSION: Intensive periodontal treatment mitigates salivary oxidative stress in patients with moderate periodontitis.

Key words: periodontitis; oxidative stress; salivary markers; prophylaxis; periodontal treatment

**Corresponding author:*
Dr Ilaria Converti
Division of Plastic and Reconstructive Surgery,
Mater Dei Hospital, 10 v. Samuel F Hahnemann, 70125, Bari, Italy
e-mail: ilaria.converti@gmail.com

0393-974X (2022)

Periodontitis is a common inflammatory chronic disease affecting the hard and soft tissues around the teeth and is the primary cause of tooth loss in adults (1-6). Periodontitis is due to a complex interaction between the host immune system and pathogenic bacteria that leads to the loss of attachment of the connective tissue from the root cementum and alveolar bone (7-12). Oxidative stress plays an essential role in the pathophysiology of the destruction of periodontium during inflammation (13-15). Oxidative stress is an imbalance of pro-oxidants and oxidants (16-18). An oxidative stress condition is established if homeostasis is disrupted in favor of ROS (19-23). The effect of oxidative stress in periodontitis can be explained by the increase in levels of systemic and local release of Tumor Necrosis Factor-α (TNF-α) and Interleukin 6 (IL-6) (24-29). ROS production is mandatory in all aerobic organisms with a complex antioxidant defence system (30-33). The critical biomarkers of oxidative stress are the total antioxidant status (TAS), total oxidant status (TOS), nitric oxide (NO), myeloperoxidase (MPO), glutathione (GSH), malondialdehyde (MDA) levels, and 8-hydroxy-2'deoxyguanosine (X8-OHdG) (34-40). MDA biomarker is the main product of lipid peroxidation. It has been demonstrated that ROS directly impacts fibroblast and osteoblast cells and might be responsible for decreased collagen production in extracellular matrix producing cells (41-45). Several clinical trials have demonstrated that total salivary antioxidant status is decreased in patients with chronic periodontitis and that periodontal treatment improves this condition (46-49). The aim of this trial was to evaluate the impact of intensive periodontal treatment on oxidative stress of patients diagnosed with moderate periodontitis.

MATERIALS AND METHODS

This prospective, one-blind controlled clinical trial randomized 58 patients with moderate periodontitis to receive standard periodontal treatment plus gaseous ozone therapy (Test Group) or periodontal treatment alone. The study protocol was approved by the Institutional Review Board at the University of Tetovo in Macedonia (PR. NR. 09-154/3) and conformed with the ethical standards established in the Declaration of Helsinki. Informed consent was obtained prior to randomization from study subjects. Patients who had at least 4 teeth with one or more sites exhibiting probing pocket depth (PPD) ≥4 mm, clinical attachment level (CAL) ≥4 mm, full-mouth plaque score and full mouth bleeding score >35% were enrolled in this study. In addition, patients were included in the trial if they met the following criteria: age >18 years; diagnosis of moderate periodontitis; ability to provide written informed consent. Patients who received periodontal treatment within 12 months prior to the start of the study were excluded, as were patients who received systemic antibiotics within the last 6 months, had uncontrolled hypertension, were pregnant, had a history of heart disease or stroke, or breast-feeding women, and patients unable to make informed consent.

Sample size calculation

A power analysis was conducted prior to the study based on preliminary data (1-4). Using an approximate two-sample proportion test, two-sided and $\alpha = 0.05$, we estimated >80% power with 25 patients per group to detect a significant difference (<0.001) in oxidative status.

Salivary markers assessment

Participants' clinical periodontal examination and oxidative stress assessment were performed at baseline and during a 3-month follow-up. Salivary samples were taken at baseline in non-fasting conditions and stored at −80°C for all patients. Then, they were transferred to the University of Tetovo for analysis. Salivary concentrations of glutathione (GSH), malondialdehyde (MDA), (X8-OHdG), total antioxidant status (TAS), and total oxidant status (TOS), nitric oxide and (NO) were measured by employing a Sciex API 3000 triple quadrupole mass spectrometer as described previously.

Statistical analysis

Data were expressed as means ± SEM or median or median and range. Shapiro-Wilk tests were conducted to determine whether a normal distribution could have produced dependent variables for each group (Razali & Wah, 2011). The result of the Shapiro-Wilk test was significantly based on an alpha value of .05, $W = 0.81$, $p < .001$. This result suggests that the variables are unlikely to have been produced by a normal distribution. Levene's test was conducted to assess the homogeneity of variance. The result of Levene's test

was significant based on an alpha value of .05, F(1, 85) = 13.73, p < .001. This result indicates that the assumption of homogeneity of variance was violated. The Mann–Whitney U test assessed differences in GSH levels. All entered data were analyzed using SPSS software (Statistical Package for the Social Sciences version 15 USA).

RESULTS

Fifty-eight patients were enrolled. All participants completed the study. Group Test had an average of age of 58.25 (*SD* = 8.46, SE_M = 1.28, Min = 39.00, Max = 70.00). The observations for age for Group Control had an average of 47.26 (*SD* = 8.50, SE_M = 0.91, Min = 32.00, Max = 54.00). At baseline, about the variable X8-OHdG, the two-tailed Mann-Whitney *U* test was not significant based on an alpha value of .05, *U* = 726, *z* = -1.87, *p* = .062. The mean rank for group A was 39.00, and the mean rank for group B was 49.12; this suggests that the distribution of X8-OHdG for group A (*Mdn* = 4,789.00) was not significantly different from the distribution of X8-OHdG for the group B (*Mdn* = 4,890.00) category. Fig. 1 presents a boxplot of the ranks of X8-OHdG by the group. About the variable TOS, the result of the two-tailed Mann-Whitney *U* test was not significant based on an alpha value of .05, *U* = 996.5, *z* = -0.43, *p* = .667. The mean rank for group A was 45.15, and the mean rank for group B was 42.83, suggesting that the distribution of TOS at baseline for group A (*Mdn* = 15.75) was not significantly different from the distribution of TOS at baseline for group B (*Mdn* = 15.50) category. Figure 1 presents a boxplot of the ranks of each variable at baseline by the group. Regarding the variable NO, the result of the two-tailed Mann-Whitney *U* test was not significant based on an alpha value of .05, *U* = 1109.5, *z* = -1.39, *p* = .165. The mean rank for group A was 47.72, and the mean rank for group B was 40.20, suggesting that the distribution of NO at baseline for group A (*Mdn* = 25.35) was not significantly different from the distribution of NO for group B (*Mdn* = 24.50) category. The result of the two-tailed Mann-Whitney *U* test was significant based on an alpha value of .05, *U* = 1331, *z* = -3.27, *p* = .001. About the variable MDA, the mean rank for group A was 52.75, and the mean rank for group B was 35.05, suggesting that the distribution of MDA for group A was significantly different from the distribution of MDA at baseline for the group B. The median for A (*Mdn* = 233.84) was significantly larger than the median for B (*Mdn* = 190.34). The two-tailed Mann-Whitney *U* test about the variable TAS was not significant based on an alpha value of .05, *U* = 954, *z* = -0.07, *p* = .946. The mean rank for group A was 44.18, and the mean rank for group B was 43.81; this suggests that the distribution of TAS at baseline for group A (*Mdn* = 4.32) was not significantly different from the distribution of TAS for the group B (*Mdn* = 4.32) category. Table I presents the result of the two-tailed Mann-Whitney *U* test. Fig.1 presents the boxplot of the ranks of each variable at 3 months by the group.

At 3 months, the two-tailed Mann-Whitney *U* test for X8-OHdG was not significant based on an alpha value of .05, *U* = 726, *z* = -1.87, *p* = .062. The mean rank for group A was 39.00, and the mean rank for group B was 49.12. suggesting the distribution of X8-OHdG for group A (*Mdn* = 4,789.00) was not significantly different from the distribution of X8-OHdG for the B (*Mdn* = 4,890.00) category. TOS of the two-tailed Mann-Whitney *U* test was not significant based on an alpha value of .05, *U* = 996.5, *z* = -0.43, *p* = .667. The mean rank for group A was 45.15, and the mean rank for group B was 42.83; this distribution of TOS for group A (*Mdn* = 15.50) was not significantly different from the distribution of TOS for the group B (*Mdn* = 15.50) category. The two-tailed Mann-Whitney *U* test regarding the variable NO was not significant based on an alpha value of .05, *U* = 1109.5, *z* = -1.39, *p* = .165. The mean rank for group A was 47.72, and the mean rank for group B was 40.20, suggesting that the distribution of NO for group A (*Mdn* = 25.35) was not significantly different from the distribution of NO for the group B (*Mdn* = 24.50) category. The two-tailed Mann-Whitney *U* test about the MDA variable was significantly based on an alpha value of .05, *U* = 1331, *z* = -3.27, *p* = .001. The mean rank for group A was 52.75, and the mean rank for group B was 35.05, suggesting that the distribution of MDA for group A was significantly different from the distribution of MDA for group B. The median for A (*Mdn* = 233.84) was significantly larger than the median for B (*Mdn* = 190.34). The two-tailed Mann-Whitney *U* test for TAS was not significant based on an alpha value of .05, *U*

= 954, z = -0.07, p = .946. The mean rank for group A was 44.18, and the mean rank for group B was 43.81, suggesting that the TAS distribution for group A (*Mdn* = 4.19) was significantly different from the distribution of TAS for the group B (*Mdn* = 4.32) category. Table II presents the two-tailed Mann-Whitney U test results at 3 months. Fig. 2 presents the boxplot of the ranks of each variable at 3 months by the group.

DISCUSSION

Periodontal tissue damage results from several pathologic mechanisms involving the immune response, direct stimulation of the pathogenic microorganism, and the host system in response to this trauma (50-56). The primary etiologic agent is specific, predominantly gram-negative or facultative anaerobic bacteria within the subgingival biofilm; most periodontal tissue destruction is caused by an inappropriate host response to microorganisms and their products (41-44, 57-59). More specifically, a lack of balance between the proteolytic enzyme, inhibitors, reactive oxygen species (ROS), and antioxidant defence systems causes oxidative stress (60-68). Oxidative stress is believed to cause cellular and molecular damage, which further leads to tissue destruction. (69-74) ROS cause tissue damage through several mechanisms, which include

Table I. *Two-Tailed Mann-Whitney Test for all variables at baseline*

	Mean Rank				
Variable	A	B	*U*	*z*	*p*
X8-OHdG	39.00	49.12	726.00	-1.87	.062
TOS	45.15	42.83	996.50	-0.43	.667
NO	47.72	40.20	1,109.50	-1.39	.165
MDA	52.75	35.05	1,331.00	-3.27	.001
TAS	44.18	43.81	954.00	-0.07	.946

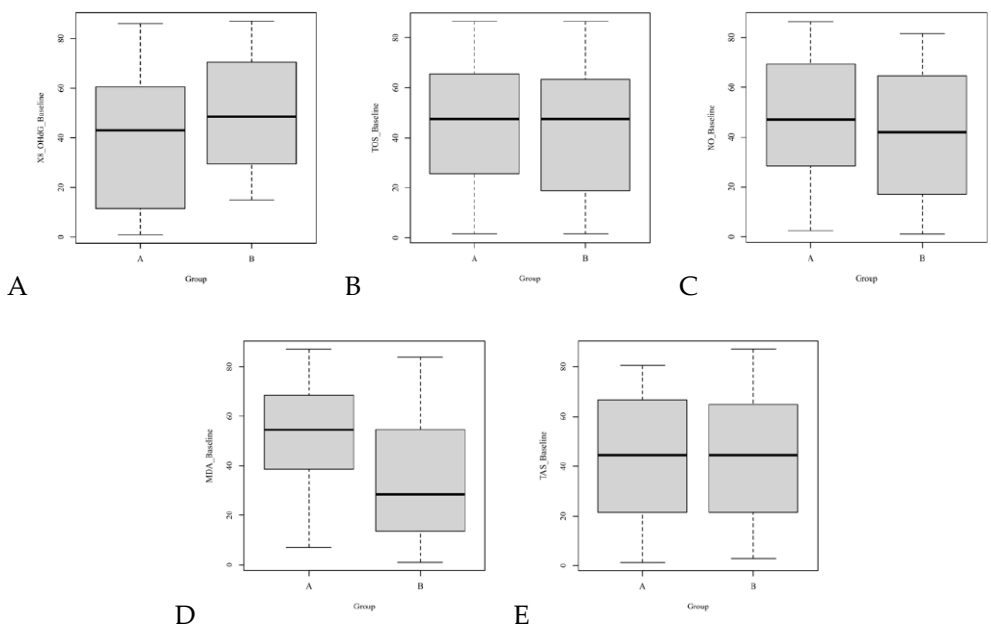

Fig. 1. *Ranks of X8-OHdG (A), TOS (B), NO (C), MDA (D), TAS (E) at baseline by Group*

DNA damage (75-80), lipid peroxidation (through activation of cyclooxygenases and lipoxygenases) (76), damage to proteins including gingival hyaluronic acid and proteoglycans, and oxidation of important enzymes (e.g., antiproteases, α-antitrypsin, stimulation of proinflammatory cytokine release by monocytes and macrophages by depleting intracellular thiol compounds and activating nuclear factor) (81-86). Oxidative stress generally appears after exposure to a relatively high concentration of ROS and/or a decrease in the antioxidant defence system against ROS (87). It has been implicated as a major contributor to more than 100 disorders and, more recently, to periodontitis. Our study observed that oxidative stress levels in patients with moderate periodontitis were significantly decreased after intensive periodontal treatment compared with the control group. These results are consistent with other studies that have shown significant improvement in periodontal condition in conjunction with the reduction in oxidative stress (88-129).

Within the limitations of this study, it can be concluded that patients with periodontitis demonstrate a high level of oxidative stress, and intensive periodontal treatment reduces the salivary concentration of the key biomarkers.

Table II. *Two-Tailed Mann-Whitney Test for all variables at 3 months*

	Mean Rank				
Variable	A	B	*U*	*z*	*p*
X8-OHdG	39.00	49.12	726.00	-1.87	.062
TOS	45.15	42.83	996.50	-0.43	.667
NO	47.72	40.20	1,109.50	-1.39	.165
MDA	52.75	35.05	1,331.00	-3.27	.001
TAS	44.18	43.81	954.00	-0.07	.946

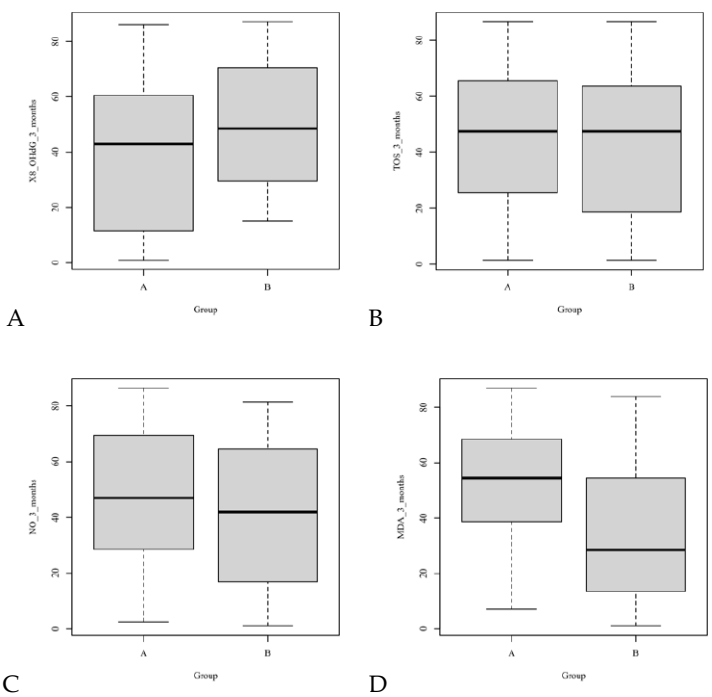

Fig. 2. *Ranks of X8-OHdG (A), TOS (B), NO (C), MDA (D), TAS at 3 months by Group*

REFERENCES

1. Santacroce L, Inchingolo F, Topi S, Del Prete R, Di Cosola M, Charitos IA, Montagnani M. Potential beneficial role of probiotics on the outcome of COVID-19 patients: An evolving perspective. Diabetes Metab Syndr. 2021; 15 (1):295-301.
2. Quaglia E, Moscufo L, Corsalini M, et al. Polyamide vs silk sutures in the healing of postextraction sockets: a split mouth study. Oral Implantology 2018; 11(2):115-120.
3. Rapone B, Ferrara E, Santacroce L, et al. Gingival Crevicular Blood as a Potential Screening Tool: A Cross Sectional Comparative Study. Int J Environ Res Public Health. 2020; 17 (20):7356.
4. Inchingolo F, Martelli FS, Gargiulo Isacco C, et al. Chronic Periodontitis and Immunity, Towards the Implementation of a Personalized Medicine: A Translational Research on Gene Single Nucleotide Polymorphisms (SNPs) Linked to Chronic Oral Dysbiosis in 96 Caucasian Patients. Biomedicines. 2020; 8(5):115.
5. Rapone B, Converti I, Santacroce L, et al. Impact of Periodontal Inflammation on Nutrition and Inflammation Markers in Hemodialysis Patients. Antibiotics (Basel). 2019; 8 (4):209.
6. Grassi FR, Rapone B, Scarano Catanzaro F, Corsalini M, Kalemaj Z. Effectiveness of computer-assisted anesthetic delivery system (STA™) in dental implant surgery: a prospective study. Oral Implantology 2017; 10:381-389.
7. Charitos IA, Ballini A, Bottalico L, Cantore S, Passarelli PC, Inchingolo F, D'Addona A, Santacroce L. Special features of SARS-CoV-2 in daily practice. World J Clin Cases. 2020; 8 (18):3920-3933.
8. Ballini A, Cantore S, Scacco S, et al. A comparative study on different stemness gene expression between dental pulp stem cells vs. dental bud stem cells. Eur Rev Med Pharmacol Sci. 2019; 23 (4):1626-1633.
9. Cantore S, Ballini A, De Vito D, et al. Characterization of human apical papilla-derived stem cells. J Biol Regul Homeost Agents. 2017; 31 (4):901-910.
10. Lorusso F, Postiglione F, Delvecchio M, Rapone B., Scarano A. The impact of diabetes on implant oral rehabilitations: a bibliometric study and literature review. Acta Medica Mediterranea 2020; 36: 3333.
11. Rapone B, Ferrara E, Corsalini M, Qorri E, Converti I, Lorusso F, Delvecchio M, Gnoni A, Scacco S, Scarano A. Inflammatory Status and Glycemic Control Level of Patients with Type 2 Diabetes and Periodontitis: A Randomized Clinical Trial. Int J Environ Res Public Health 2021 Mar 15;18(6):3018.
12. Rapone B, Corsalini M, Converti I, et al. Does Periodontal Inflammation Affect Type 1 Diabetes in Childhood and Adolescence? A Meta-Analysis. Front. Endocrinol. 2020; 11:278.
13. Rapone B, Ferrara E, Corsalini M, et al. The Effect of Gaseous Ozone Therapy in Conjunction with Periodontal Treatment on Glycated Hemoglobin Level in Subjects with Type 2 Diabetes Mellitus: An Unmasked Randomized Controlled Trial. Int. J. Environ. Res. Public Health 2020; 17 (15):54675.
14. Rapone B, Ferrara E, Santacroce L, Topi S, Gnoni A, Dipalma G, Mancini A, Di Domenico M, Tartaglia GM, Scarano A, Inchingolo F. The Gaseous Ozone Therapy as a Promising Antiseptic Adjuvant of Periodontal Treatment: A Randomized Controlled Clinical Trial. International Journal of Environmental Research and Public Health 2022; 19(2):985.
15. Corsalini M, Di Venere D, Carossa M, et al. Comparative clinical study between zirconium-ceramic and metal-ceramic fixed rehabilitations. Oral Implantology 2018; 11:150–160.
16. Inchingolo F, Tatullo M, Pacifici A, et al. Use of dermal-fat grafts in the post-oncological reconstructive surgery of atrophies in the zygomatic region: clinical evaluations in the patients undergone to previous radiation therapy. Head Face Med. 2012; 8:33.
17. Inchingolo F, Tatullo M, Abenavoli FM, et al. Severe anisocoria after oral surgery under general anesthesia. Int J Med Sci. 2010; 7 (5):314-8.
18. Inchingolo F, Tatullo M, Abenavoli FM, et al. Surgical treatment of depressed scar: a simple technique. Int J Med Sci. 2011;8(5):377-9.
19. Corsalini M, Di Venere D, Sportelli P, et al. Evaluation of prosthetic quality and masticatory efficiency in patients with total removable prosthesis: study of 12 cases. Oral Implantology 2018; 11:230–240.
20. Corsalini M, Di Venere D, Rapone B, Stefanachi G, Laforgia A, Pettini F. Evidence of signs and symptoms of Craniomandibular Disorders in Fibromyalgia patients. The Open Dent Journal 2017; 11(1):91–98.

21. Inchingolo F, Santacroce L, Ballini A, et al. Oral Cancer: A Historical Review. Int J Environ Res Public Health. 2020; 17(9):3168.
22. Di Venere D, Pettini F, Nardi GM, et al. Correlation between parodontal indexes and orthodontic retainers: prospective study in a group of 16 patients. Oral Implantology 2017; 10:78-86.
23. Inchingolo F, Ballini A, Cagiano R, et al. Immediately loaded dental implants bioactivated with platelet-rich plasma (PRP) placed in maxillary and mandibular region. Clin Ter. 2015; 166 (3):e146-52.
24. Di Venere D, Corsalini M, Nardi GM, Laforgia A, Grassi FR, Rapone B, Pettini F. Obstructive site localization in patients with Obstructive Sleep Apnea Syndrome: a comparison between otolaryngologic data and cephalometric values. Oral Implantology 2017; 10:295–310.
25. Scarano A, Inchingolo F, Murmura G, Traini T, Piattelli A, Lorusso F. Three-Dimensional Architecture and Mechanical Properties of Bovine Bone Mixed with Autologous Platelet Liquid, Blood, or Physiological Water: An In Vitro Study. Int J Mol Sci. 2018; 19 (4):1230.
26. Inchingolo AD, Inchingolo AM, Bordea IR, et al. SARS-CoV-2 Disease Adjuvant Therapies and Supplements Breakthrough for the Infection Prevention. Microorganisms. 202; 9 (3):525.
27. Scarano, A.; Inchingolo, F.; Rapone, B.; Festa, F.; Tari, S.R.; Lorusso, F. Protective Face Masks: Effect on the Oxygenation and Heart Rate Status of Oral Surgeons during Surgery. Int. J. Environ. Res. Public Health 2021, 18, 2363.
28. Rapone B, Ferrara E, Santacroce L, et al. Periodontal Microbiological Status Influences the Occurrence of Cyclosporine-A and Tacrolimus- Induced Gingival Overgrowth. Antibiotics 2019; 8:124.
29. Rapone B, Ferrara E, Montemurro N, et al. Oral Microbiome and Preterm Birth: Correlation or Coincidence? A Narrative Review. Open Access Maced. J. Med. Sci. 2020; 8:123–132.
30. Inchingolo F, Tatullo M, Abenavoli FM, Marrelli M, Inchingolo AD, Inchingolo AM, Dipalma G. Comparison between traditional surgery, CO2 and Nd:Yag laser treatment for generalized gingival hyperplasia in Sturge-Weber syndrome: a retrospective study. J Investig Clin Dent. 2010; 1 (2):85-89.
31. Dang QT, Huynh TD, Inchingolo F, Dipalma G, Inchingolo AD, et al. Human Chondrocytes from Human Adipose Tissue-Derived Mesenchymal Stem Cells Seeded on a Dermal-Derived Collagen Matrix Sheet: Our Preliminary Results for a Ready to Go Biotechnological Cartilage Graft in Clinical Practice. Stem Cells Int. 2021; 2021:6664697.
32. Ballini A, Cantore S, Signorini L, Saini R, Scacco S, Gnoni A, Inchingolo AD, et al. Efficacy of Sea Salt-Based Mouthwash and Xylitol in Improving Oral Hygiene among Adolescent Population: A Pilot Study. Int J Environ Res Public Health. 2020; 18 (1):44.
33. Adina S, Dipalma G, Bordea IR, Lucaciu O, Feurdean C, Inchingolo AD, et al. Orthopedic joint stability influences growth and maxillary development: clinical aspects. J Biol Regul Homeost Agents. 2020; 34 (3):747-756.
34. Lorusso F, Noumbissi S, Inchingolo F, Rapone B, Khater AGA, Scarano A. Scientific Trends in Clinical Research on Zirconia Dental Implants: A Bibliometric Review. Materials 2020, 13:5534.
35. Tóthová, L. U., & Celec, P. (2017). Oxidative stress and antioxidants in the diagnosis and therapy of periodontitis. Frontiers in physiology, 8, 1055.
36. Rapone B, Nardi GM, Di Venere D, Pettini F, Grassi FR, Corsalini M. Oral hygiene in patients with oral cancer undergoing chemotherapy and/or radiotherapy after prosthesis rehabilitation: protocol proposal. Oral Implantology 2016; 9 (01 suppl): 90-97.
37. Gharbi, A., Hamila, A., Bouguezzi, A. et al. Biochemical parameters and oxidative stress markers in Tunisian patients with periodontal disease. BMC Oral Health 19, 225 (2019). https://doi.org/10.1186/s12903-019-0912-4
38. Di Comite M, Crincoli V, Fatone L, Ballini A, et al. Quantitative analysis of defects at the dentin-post space in endodontically treated teeth. Materials 2015; 8,3268-3283.
39. Sczepanik, F. S. C., Grossi, M. L., Casati, M., Goldberg, M., Glogauer, M., Fine, N., & Tenenbaum, H. C. (2020). Periodontitis is an inflammatory disease of oxidative stress: We should treat it that way. Periodontology 2000, 84(1), 45-68.
40. Rapone B, Palmisano C, Ferrara E, Di Venere D, Albanese G, Corsalini M. The Accuracy of Three Intraoral Scanners in the Oral Environment with

and without Saliva: A Comparative Study. Appl. Sci. 2020; 10, 7762.

41. Pham VH, Gargiulo Isacco C, Nguyen KCD, et al. Rapid and sensitive diagnostic procedure for multiple detection of pandemic Coronaviridae family members SARS-CoV-2, SARS-CoV, MERS-CoV and HCoV: a translational research and cooperation between the Phan Chau Trinh University in Vietnam and University of Bari "Aldo Moro" in Italy. Eur Rev Med Pharmacol Sci. 2020; 24 (12):7173-7191.
42. Bordea IR, Xhajanka E, Candrea S, Bran S, Onişor F, Inchingolo AD, et al. Coronavirus (SARS-CoV-2) Pandemic: Future Challenges for Dental Practitioners. Microorganisms. 2020; 8 (11):1704.
43. Scarola R, Montemurro N, Ferrara E, Corsalini M, Converti I, Rapone B. Temporomandibular Disorders and Fibromyalgia: A Narrative Review. Open Access Maced J Med Sci [Internet]. 2021; 9 (F):106-12.
44. Montemurro N., Perrini P., Rapone B. Clinical Risk and Overall Survival in Patients with Diabetes Mellitus, Hyperglycemia and Glioblastoma Multiforme. A Review of the Current Literature. Int. J. Environ. Res. Public Health 2020, 17, 8501. doi: 10.3390/ijerph17228501.
45. Rapone B, Pedone S, Carnevale A, Plantamura P, Scarano A, Demelio A, Demelio GP, Corsalini M. Profilometer Comparison of the Surface Roughness of Four Denture Base Resins: An In Vitro Study. Applied Sciences. 2022; 12(4):1837. https://doi.org/10.3390/app12041837.
46. Malcangi G, Inchingolo AD, Inchingolo AM, Piras F, Settanni V, Garofoli G, Palmieri G, Ceci S, Patano A, Mancini A, Vimercati L, Nemore D, Scardapane A, Rapone B, Semjonova A, D'Oria MT, Macchia L, Bordea IR, Migliore G, Scarano A, Lorusso F, Tartaglia GM, Giovanniello D, Nucci L, Maggialetti N, Parisi A, Domenico MD, Brienza N, Tafuri S, Stefanizzi P, Curatoli L, Corriero A, Contaldo M, Inchingolo F, Dipalma G. COVID-19 Infection in Children and Infants: Current Status on Therapies and Vaccines. Children. 2022; 9(2):249. https://doi.org/10.3390/children9020249.
47. Malcangi G, Inchingolo AD, Patano A, Coloccia G, Ceci S, Garibaldi M, Inchingolo AM, Piras F, Cardarelli F, Settanni V, Rapone B, Corriero A, Mancini A, Corsalini M, Nucci L, Bordea IR, Lorusso F, Scarano A, Giovanniello D, Dipalma G, Posa VM, Di Venere D, Inchingolo F. Impacted Central Incisors in the Upper Jaw in an Adolescent Patient: Orthodontic-Surgical Treatment-A Case Report. Applied Sciences. 2022; 12(5):2657. https://doi.org/10.3390/app12052657.
48. Montemurro N., Perrini P., Marani W., Chaurasia B., Corsalini M., Scarano A., Rapone B. Multiple Brain Abscesses of Odontogenic Origin. May Oral Microbiota Affect Their Development? A Review of the Current Literature. Appl. Sci. 2021, 11, 3316. doi: 10.3390/app11083316.
49. Di Venere D, Rapone B, Corsalini M. Dental trauma in the anterior sector: an analysis of the predisposing factors in a group of orthodontic patients. Clinica Terapeutica 2020, 171 (6):e481-485. doi: 10.7417/CT.2020.2261.
50. Nardi G.M., Ferrara E., Converti I., Cesarano F., Scacco S., Grassi R., Gnoni A., Grassi F.R., Rapone B. Does Diabetes Induce the Vascular Endothelial Growth Factor (VEGF) Expression in Periodontal Tissues? A Systematic. Int. J. Environ. Res. Public Health 2020, 17(8), 2765. doi: 10.3390/ijerph17082765.
51. Di Venere D, Nardi GM, Lacarbonara V, Laforgia A, Stefanachi G, Corsalini M, Grassi FR, Rapone B, Pettini F. Early mandibular canine-lateral incisor transposition: Case Report. Oral Implantology 2017 April; 10(2):181-189. doi: 10.11138/orl/2017.10.2.181.
52. Inchingolo, A.D.; Ceci, S.; Patano, A.; Inchingolo, A.M.; Montenegro, V.; Di Pede, C.; Malcangi, G.; Marinelli, G.; Coloccia, G.; Garibaldi, M.; Kruti, Z.; Palmieri, G.; De Leonardis, N.; Rapone, B.; Mancini, A.; Semjonova, A.; Nucci, L.; Bordea, I.R.; Scarano, A.; Lorusso, F.; Ferrara, E.; Farronato, M.; Tartaglia, G.M.; Di Venere, D.; Cardarelli, F.; Inchingolo, F.; Dipalma, G. Elastodontic Therapy of Hyperdivergent Class II Patients Using AMCOP® Devices: A Retrospective Study. Appl. Sci.2022, 12, 3259. doi: 10.3390/app12073259
53. Bellocchio, L., Bordea, I.R., Ballini, A., ...Logroscino, G., Miani, A. Environmental issues and neurological manifestations associated with covid-19 pandemic: New aspects of the disease? International Journal of Environmental Research and Public Health, 2020,

17(21), pp. 1–11, 8049

54. Dohan Ehrenfest, D.M., Del Corso, M., Inchingolo, F., Charrier, J.-B. Selecting a relevant in vitro cell model for testing and comparing the effects of a Choukroun's platelet-rich fibrin (PRF) membrane and a platelet-rich plasma (PRP) gel: Tricks and traps. Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology and Endodontology, 2010, 110(4), pp. 409–411.
55. Farronato, M.; Farronato, D.; Inchingolo, F.; Grassi, L.; Lanteri, V.; Maspero, C. Evaluation of Dental Surface after De-Bonding Orthodontic Bracket Bonded with a Novel Fluorescent Composite: In Vitro Comparative Study. Appl. Sci. 2021, 11, 6354, doi:10.3390/app11146354.
56. Cardarelli, F.; Patano, A.; Montenegro, V.; Malcangi, G.; Coloccia, G.; Inchingolo, A.D.; Marinelli, G.; Laudadio, C.; Dipalma, G.; Di Venere, D.; Inchingolo, F. Elastodontic therapy un nuovo approccio alla terapia ortodontica funzionale. Il Dentista Moderno 2021, 48-63
57. Inchingolo, F.; Tatullo, M.; Marrelli, M.; Inchingolo, A.M.; Tarullo, A.; Inchingolo, A.D.; Dipalma, G.; Brunetti, S.P.; Tarullo, A.; Cagiano, R. Combined Occlusal and Pharmacological Therapy in the Treatment of Temporo-Mandibular Disorders. Eur. Rev. Med. Pharmacol. Sci. 2011, 15, 1296–1300.
58. Delvecchio M, Pastore C, Giordano P. Treatment Options for MODY Patients: A Systematic Review of Literature. Diabetes Ther. 2020 Aug;11(8):1667-1685. doi: 10.1007/s13300-020-00864-4.
59. Scaramuzza A, Cherubini V, Tumini S, Bonfanti R, Buono P, Cardella F, d'Annunzio G, Frongia AP, Lombardo F, Monciotti AC, Rabbone I, Schiaffini R, Toni S, Zucchini S, Frontino G, Iafusco D; Diabetes Study Group of the Italian Society for Pediatric Endocrinology and Diabetology. Recommendations for self-monitoring in pediatric diabetes: a consensus statement by the ISPED. Acta Diabetol. 2014 Apr;51(2):173-84. doi: 10.1007/s00592-013-0521-7.
60. Faienza MF, Brunetti G, Delvecchio M, Zito A, De Palma F, Cortese F, Nitti A, Massari E, Gesualdo M, Ricci G, Carbonara S, Giordano P, Cavallo L, Scicchitano P, Ciccone MM. Vascular Function and Myocardial Performance Indices in Children Born Small for Gestational Age. Circ J. 2016;80(4):958-63. doi: 10.1253/circj.CJ-15-1038.
61. Delvecchio M, Ludovico O, Menzaghi C, Di Paola R, Zelante L, Marucci A, Grasso V, Trischitta V, Carella M, Barbetti F, Gallo F, Coccioli MS, Zecchino C, Faienza MF, Cardinale G, Franzese A, Mozzillo E, Iafusco D, Zanfardino A. Low prevalence of HNF1A mutations after molecular screening of multiple MODY genes in 58 Italian families recruited in the pediatric or adult diabetes clinic from a single Italian hospital. Diabetes Care. 2014 Dec;37(12):e258-60. doi: 10.2337/dc14-1788.
62. Palumbo O, Palumbo P, Delvecchio M, Palladino T, Stallone R, Crisetti M, Zelante L, Carella M. Microdeletion of 12q24.31: report of a girl with intellectual disability, stereotypies, seizures and facial dysmorphisms. Am J Med Genet A. 2015 Feb;167A(2):438-44. doi: 10.1002/ajmg.a.36872.
63. Pinelli M, Acquaviva F, Barbetti F, Caredda E, Cocozza S, Delvecchio M, Mozzillo E, Pirozzi D, Prisco F, Rabbone I, Sacchetti L, Tinto N, Toni S, Zucchini S, Iafusco D; Italian Study Group on Diabetes of the Italian Society of Pediatric Endocrinology and Diabetology. Identification of candidate children for maturity-onset diabetes of the young type 2 (MODY2) gene testing: a seven-item clinical flowchart (7-iF). PLoS One. 2013 Nov 11;8(11):e79933. doi: 10.1371/journal.pone.0079933.
64. Pocsfalvi G, Cuccurullo M, Schlosser G, Cacace G, Siciliano RA, Mazzeo MF, Scacco S, Cocco T, Gnoni A, Malorni A, Papa S. Shotgun proteomics for the characterization of subunit composition of mitochondrial complex I. Biochim Biophys Acta. 2006 Sep-Oct;1757(9-10):1438-50. doi: 10.1016/j.bbabio.2006.05.037.
65. Gnoni A, Giudetti AM. Dietary long-chain unsaturated fatty acids acutely and differently reduce the activities of lipogenic enzymes and of citrate carrier in rat liver. J Physiol Biochem. 2016 Sep;72(3):485-94. doi: 10.1007/s13105-016-0495-3.
66. Taurino F, Gnoni A. Systematic review of plasma-membrane ecto-ATP synthase: A new player in health and disease. Exp Mol Pathol. 2018 Feb;104(1):59-70. doi: 10.1016/j.yexmp.2017.12.006.
67. Lippolis R, Siciliano RA, Mazzeo MF, Abbrescia A, Gnoni A, Sardanelli AM, Papa S. Comparative

secretome analysis of four isogenic Bacillus clausii probiotic strains. Proteome Sci. 2013 Jul 1;11(1):28. doi: 10.1186/1477-5956-11-28.

68. Chapple IL, Brock GR, Milward MR, Ling N, Matthews JB. (2007a). Compromised GCF total antioxidant capacity in periodontitis: cause or effect? J Clin Periodontol 34:103-110
69. Chapple IL, Milward MR, Dietrich T. (2007b). The prevalence of inflammatory periodontitis is negatively associated with serum antioxidant concentrations. J Nutr 137:657-664
70. Vassalle C. (2008). An easy and reliable automated method to estimate oxidative stress in the clinical setting. Methods Mol Biol 477:31-39
71. Vassalle C, Maffei S, Boni C, Zucchelli GC. (2008). Gender-related differences in oxidative stress levels among elderly patients with coronary artery disease. Fertil Steril 89:608-613
72. Priore P, Gnoni A, Natali F, Testini M, Gnoni GV, Siculella L, Damiano F. Oleic Acid and Hydroxytyrosol Inhibit Cholesterol and Fatty Acid Synthesis in C6 Glioma Cells. Oxid Med Cell Longev. 2017;2017:9076052. doi: 10.1155/2017/9076052.
73. Taurino F, Stanca E, Siculella L, Trentadue R, Papa S, Zanotti F, Gnoni A. Mitochondrial proteome analysis reveals depression of the Ndufs3 subunit and activity of complex I in diabetic rat brain. J Proteomics. 2012 Apr 18;75(8):2331-41. doi: 10.1016/j.jprot.2012.02.002.
74. Gnoni A, Longo S, Gnoni GV, Giudetti AM. Carnitine in Human Muscle Bioenergetics: Can Carnitine Supplementation Improve Physical Exercise? Molecules. 2020 Jan 1;25(1):182. doi: 10.3390/molecules25010182.
75. Cavallo A, Gnoni A, Conte E, Siculella L, Zanotti F, Papa S, Gnoni GV. 3,5-diiodo-L-thyronine increases FoF1-ATP synthase activity and cardiolipin level in liver mitochondria of hypothyroid rats. J Bioenerg Biomembr. 2011 Aug;43(4):349-57. doi: 10.1007/s10863-011-9366-3.
76. Zanotti F, Gnoni A, Mangiullo R, Papa S. Effect of the ATPase inhibitor protein IF1 on H+ translocation in the mitochondrial ATP synthase complex. Biochem Biophys Res Commun. 2009 Jun 19;384(1):43-8. doi: 10.1016/j.bbrc.2009.04.046.
77. Konopka T, Krol K, Kopec W, Gerber H. (2007). Total antioxidant status and 8-hydroxy-2′-deoxyguanosine levels in gingival and peripheral blood of periodontitis patients. Arch Immunol Ther Exp (Warsz) 55:417-422
78. Cavallo A, Priore P, Gnoni GV, Papa S, Zanotti F, Gnoni A. 3,5-Diiodo-L-thyronine administration to hypothyroid rats rapidly enhances fatty acid oxidation rate and bioenergetic parameters in liver cells. PLoS One. 2013;8(1):e52328. doi: 10.1371/journal.pone.0052328.
79. Caputi Jambrenghi A, Paglialonga G, Gnoni A, Zanotti F, Giannico F, Vonghia G, Gnoni GV. Changes in lipid composition and lipogenic enzyme activities in liver of lambs fed omega-6 polyunsaturated fatty acids. Comp Biochem Physiol B Biochem Mol Biol. 2007 Jul;147(3):498-503. doi: 10.1016/j.cbpb.2007.03.003.
80. Martino NA, Marzano G, Mangiacotti M, Miedico O, Sardanelli AM, Gnoni A, Lacalandra GM, Chiaravalle AE, Ciani E, Bogliolo L, Minervini F, Pizzi F, Dell'Aquila ME. Exposure to cadmium during in vitro maturation at environmental nanomolar levels impairs oocyte fertilization through oxidative damage: A large animal model study. Reprod Toxicol. 2017 Apr;69:132-145. doi: 10.1016/j.reprotox.2017.02.005.
81. Cavallo A, Taurino F, Damiano F, Siculella L, Sardanelli AM, Gnoni A. Acute administration of 3,5-diiodo-L-thyronine to hypothyroid rats stimulates bioenergetic parameters in liver mitochondria. J Bioenerg Biomembr. 2016 Oct;48(5):521-529. doi: 10.1007/s10863-016-9686-4.
82. Taurino F, Stanca E, Vonghia L, Siculella L, Sardanelli AM, Papa S, Zanotti F, Gnoni A. Short-term type-1 diabetes differentially modulates 14-3-3 proteins in rat brain and liver. Eur J Clin Invest. 2014 Apr;44(4):350-8. doi: 10.1111/eci.12241.
83. Damiano F, Giannotti L, Gnoni GV, Siculella L, Gnoni A. Quercetin inhibition of SREBPs and ChREBP expression results in reduced cholesterol and fatty acid synthesis in C6 glioma cells. Int J Biochem Cell Biol. 2019 Dec;117:105618. doi: 10.1016/j.biocel.2019.105618.
84. Gnoni A, Siculella L, Paglialonga G, Damiano F, Giudetti AM. 3,5-diiodo-L-thyronine increases de novo lipogenesis in liver from hypothyroid rats by

SREBP-1 and ChREBP-mediated transcriptional mechanisms. IUBMB Life. 2019 Jul;71(7):863-872. doi: 10.1002/iub.2014.

85. Taurino F, Giannoccaro C, Sardanelli AM, Cavallo A, De Luca E, Santacroce S, Papa S, Zanotti F, Gnoni A. Function and expression study uncovered hepatocyte plasma membrane ecto-ATP synthase as a novel player in liver regeneration. Biochem J. 2016 Aug 15;473(16):2519-30. doi: 10.1042/BCJ20160065.
86. Maspero C, Abate A, Inchingolo F, Dolci C, Cagetti MG, Tartaglia GM. Incidental Finding in Pre-Orthodontic Treatment Radiographs of an Aural Foreign Body: A Case Report. Children (Basel). 2022 Mar 15;9(3):421. doi: 10.3390/children9030421.
87. Delvecchio M, Rapone B, Simonetti S, Fecarotta S, De Carlo G, Favoino E, Loverro MT, Romano AMI, Taurino F, Di Naro E, Gnoni A. Dietary cholesterol supplementation and inhibitory factor 1 serum levels in two dizygotic Smith-Lemli-Opitz syndrome twins: a case report. Ital J Pediatr. 2020 Oct 28;46(1):161. doi: 10.1186/s13052-020-00924-2.
88. Maspero C, Cappella A, Dolci C, Cagetti MG, Inchingolo F, Sforza C. Is Orthodontic Treatment with Microperforations Worth It? A Scoping Review. Children (Basel). 2022 Feb 6;9(2):208. doi: 10.3390/children9020208.
89. Ceratti C, Maspero C, Consonni D, Caprioglio A, Connelly ST, Inchingolo F, Tartaglia GM. Cone-Beam Computed Tomographic Assessment of the Mandibular Condylar Volume in Different Skeletal Patterns: A Retrospective Study in Adult Patients. Bioengineering (Basel). 2022 Mar 2;9(3):102. doi: 10.3390/bioengineering9030102.
90. Goldoni R, Dolci C, Boccalari E, Inchingolo F, Paghi A, Strambini L, Galimberti D, Tartaglia GM. Salivary biomarkers of neurodegenerative and demyelinating diseases and biosensors for their detection. Ageing Res Rev. 2022 Apr;76:101587. doi: 10.1016/j.arr.2022.101587.
91. Fialkow L, Wang Y, Downey GP. (2007). Reactive oxygen and nitrogen species as signaling molecules regulating neutrophil function. Free Radic Biol Med 42:153-164
92. Hyslop PA, Hinshaw DB, Halsey WA, Jr, Schraufstatter IU, Sauerheber RD, Spragg RG, et al. (1988). Mechanisms of oxidant-mediated cell injury. The glycolytic and mitochondrial pathways of ADP phosphorylation are major intracellular targets inactivated by hydrogen peroxide. J Biol Chem 263:1665-1675
93. Cozzani M, Sadri D, Nucci L, Jamilian P, Pirhadirad AP, Jamilian A. The effect of Alexander, Gianelly, Roth, and MBT bracket systems on anterior retraction: a 3-dimensional finite element study. Clin Oral Investig. 2020 Mar;24(3):1351-1357. doi: 10.1007/s00784-019-03016-6.
94. Marra, P.; Nucci, L.; Jamilian, A.; Perillo, L.; Itro, A.; Grassia, V. Odontoma in a Young and Anxious Patient Associated with Unerupted Permanent Mandibular Cuspid: A Case Report. J. Int. Oral Health 2020, 12, 182, doi:10.4103/jioh.jioh_287_19.
95. De Felice ME, Nucci L, Fiori A, Flores-Mir C, Perillo L, Grassia V. Accuracy of interproximal enamel reduction during clear aligner treatment. Prog Orthod. 2020 Jul 28;21(1):28. doi: 10.1186/s40510-020-00329-1.
96. d'Apuzzo, F.; Minervini, G.; Grassia, V.; Rotolo, R.P.; Perillo, L.; Nucci, L. Mandibular Coronoid Process Hypertrophy: Diagnosis and 20-Year Follow-Up with CBCT, MRI and EMG Evaluations. Appl.vSci. 2021, 11, 4504, doi:10.3390/app11104504.
97. Cozzani M, Nucci L, Lupini D, Dolatshahizand H, Fazeli D, Barzkar E, Naeini E, Jamilian A. The ideal insertion angle after immediate loading in Jeil, Storm, and Thunder miniscrews: A 3D-FEM study. Int Orthod. 2020 Sep;18(3):503-508. doi: 10.1016/j.ortho.2020.03.003.
98. Di Naro E, Loverro M, Converti I, Loverro MT, Ferrara E, Rapone B. The Effect of Menopause Hypoestrogenism on Osteogenic Differentiation of Periodontal Ligament Cells (PDLC) and Stem Cells (PDLCs): A Systematic Review. Healthcare (Basel). 2021 May 12;9(5):572. doi: 10.3390/healthcare9050572.
99. Mavriqi L, Lorusso F, Conte R, Rapone B, Scarano A. Zygomatic implant penetration to the central portion of orbit: a case report. BMC Ophthalmol. 2021, 21(1):121. doi: 10.1186/s12886-021-01846-1.
100. Corsalini M, Rapone B, Cagnetta G, Carossa M, Sportelli P, De Giacomo A, Laforgia A, Di Venere D. Orofacial functions and chewing effiency in elderly patients with Parkinsons's disease rehabilitated with

removable prostheses. The Open Dentistry 2020, 14:13-18. doi: 10.2174/1874210602014010013.

101. Scarano A, Rapone B, Amuso D, Inchingolo F, Lorusso F. Hyaluronic Acid Fillers Enriched with Glycine and Proline in Eyebrow Augmentation Procedure. Aesthetic Plast Surg. 2022 Feb;46(1):419-428. doi: 10.1007/s00266-021-02412-2.
102. Cozzani M, Sadri D, Nucci L, Jamilian P, Pirhadirad AP, Jamilian A. The effect of Alexander, Gianelly, Roth, and MBT bracket systems on anterior retraction: a 3-dimensional finite element study. Clin Oral Investig. 2020 Mar;24(3):1351-1357. doi: 10.1007/s00784-019-03016-6.
103. Scarano A., Inchingolo F., Rapone B., Lucchina A.G., Qorri E., Lorusso F. Role of Autologous Platelet Gel (APG) in Bone Healing: A Rabbit Study. Appl. Sci. 2021, 11, 395. doi: 10.3390/app11010395.
104. Dekel E, Nucci L, Weill T, Flores-Mir C, Becker A, Perillo L, Chaushu S. Impaction of maxillary canines and its effect on the position of adjacent teeth and canine development: A cone-beam computed tomography study. Am J Orthod Dentofacial Orthop. 2021 Feb;159(2):e135-e147. doi: 10.1016/j.ajodo.2020.10.015.
105. Calabriso N, Stanca E, Rochira A, Damiano F, Giannotti L, Di Chiara Stanca B, Massaro M, Scoditti E, Demitri C, Nitti P, Palermo A, Siculella L, Carluccio MA. Angiogenic Properties of Concentrated Growth Factors (CGFs): The Role of Soluble Factors and Cellular Components. Pharmaceutics. 2021 Apr 29;13(5):635. doi: 10.3390/pharmaceutics13050635.
106. Palermo, A.; Ferrante, F.; Stanca, E.; Damiano, F.; Gnoni, A.; Batani, T.; Carluccio, M.A.; Demitri, C.; Siculella, L. Release of VEGF from Dental Implant Surface (IML® Implant) Coated with Concentrated Growth Factors (CGF) and the Liquid Phase of CGF (LPCGF): In Vitro Results and Future Expectations. Appl. Sci. 2019, 9, 2114. https://doi.org/10.3390/app9102114
107. Inchingolo F, Paracchini L, DE Angelis F, Cielo A, Orefici A, Spitaleri D, Santacroce L, Gheno E, Palermo A. Biomechanical behaviour of a jawbone loaded with a prosthetic system supported by monophasic and biphasic implants. Oral Implantol (Rome). 2017 Feb 14;9(Suppl 1/2016 to N 4/2016):65-70. doi: 10.11138/orl/2016.9.1S.065.
108. Stanca E, Calabriso N, Giannotti L, Nitti P, Damiano F, Stanca BDC, Carluccio MA, De Benedetto GE, Demitri C, Palermo A, Ferrante F, Siculella L, Rochira A. Analysis of CGF Biomolecules, Structure and Cell Population: Characterization of the Stemness Features of CGF Cells and Osteogenic Potential. Int J Mol Sci. 2021 Aug 18;22(16):8867. doi: 10.3390/ijms22168867.
109. Chapple IL, Matthews JB. (2007). The role of reactive oxygen and antioxidant species in periodontal tissue destruction. Periodontol 2000 43:160-232
110. Pham VH, Gargiulo Isacco C, Nguyen KCD, et al. Rapid and sensitive diagnostic procedure for multiple detection of pandemic Coronaviridae family members SARS-CoV-2, SARS-CoV, MERS-CoV and HCoV: a translational research and cooperation between the Phan Chau Trinh University in Vietnam and University of Bari "Aldo Moro" in Italy. Eur Rev Med Pharmacol Sci. 2020; 24 (12):7173-7191.
111. Topi S, Santacroce L, Bottalico L, Ballini A, Inchingolo AD, Dipalma G, Charitos IA, Inchingolo F. Gastric Cancer in History: A Perspective Interdisciplinary Study. Cancers (Basel). 2020 Jan 22;12(2):264. doi: 10.3390/cancers12020264.
112. Boccellino M, Di Stasio D, Dipalma G, Cantore S, Ambrosio P, Coppola M, Quagliuolo L, Scarano A, Malcangi G, Borsani E, Rinaldi B, Nuzzolese M, Xhajanka E, Ballini A, Inchingolo F, Di Domenico M. Steroids and growth factors in oral squamous cell carcinoma: useful source of dental-derived stem cells to develop a steroidogenic model in new clinical strategies. Eur Rev Med Pharmacol Sci. 2019 Oct;23(20):8730-8740. doi: 10.26355/eurrev_201910_19267.
113. Vermesan D, Inchingolo F, Patrascu JM, Trocan I, Prejbeanu R, Florescu S, Damian G, Benagiano V, Abbinante A, Caprio M, Cagiano R, Haragus H. Anterior cruciate ligament reconstruction and determination of tunnel size and graft obliquity. Eur Rev Med Pharmacol Sci. 2015;19(3):357-64.
114. Inchingolo F, Tatullo M, Abenavoli FM, Marrelli M, Inchingolo AD, Corelli R, Inchingolo AM, Dipalma G. Upper eyelid reconstruction: a short report of an eyelid defect following a thermal burn. Head Face Med. 2009 Nov 25;5:26. doi: 10.1186/1746-160X-5-26.
115. Inchingolo F, Pacifici A, Gargari M, Acitores Garcia

JI, Amantea M, Marrelli M, Dipalma G, Inchingolo AM, Rinaldi R, Inchingolo AD, Pacifici L, Tatullo M. CHARGE syndrome: an overview on dental and maxillofacial features. Eur Rev Med Pharmacol Sci. 2014;18(15):2089-93.

116. Inchingolo F, Tatullo M, Abenavoli FM, Inchingolo AD, Inchingolo AM, Dipalma G. Fish-hook injuries: a risk for fishermen. Head Face Med. 2010 Dec 14;6:28. doi: 10.1186/1746-160X-6-28.
117. Borsani E, Bonazza V, Buffoli B, Nocini PF, Albanese M, Zotti F, Inchingolo F, Rezzani R, Rodella LF. Beneficial Effects of Concentrated Growth Factors and Resveratrol on Human Osteoblasts In Vitro Treated with Bisphosphonates. Biomed Res Int. 2018 May 16;2018:4597321. doi: 10.1155/2018/4597321.
118. Fanali S, Tumedei M, Pignatelli P, Inchingolo F, Pennacchietti P, Pace G, Piattelli A. Implant primary stability with an osteocondensation drilling protocol in different density polyurethane blocks. Comput Methods Biomech Biomed Engin. 2021 Jan;24(1):14-20. doi: 10.1080/10255842.2020.1806251.
119. Inchingolo F, Tatullo M, Marrelli M, Inchingolo AD, Corelli R, Inchingolo AM, Dipalma G, Abenavoli FM. Clinical case-study describing the use of skin-perichondrium-cartilage graft from the auricular concha to cover large defects of the nose. Head Face Med. 2012 Mar 19;8:10. doi: 10.1186/1746-160X-8-10.
120. Inchingolo F, Tatullo M, Abenavoli FM, Marrelli M, Inchingolo AD, Servili A, Inchingolo AM, Dipalma G. A hypothetical correlation between hyaluronic acid gel and development of cutaneous metaplastic synovial cyst. Head Face Med. 2010 Jul 15;6:13. doi: 10.1186/1746-160X-6-13.
121. Cantore, S., Ballini, A., De Vito, D., et al. Clinical results of improvement in periodontal condition by administration of oral Probiotics. Journal of Biological Regulators and Homeostatic Agents, 2018, 32(5), pp. 1329–1334.
122. Grassi FR, Grassi R, Rapone B, Gianfranco A, Balena A, Kalemaj Z. Dimensional changes of buccal bone plate in immediate implants inserted through open flap, open flap and bone grafting, and flapless technique. A CBCT randomized controlled clinical trial. Clin Oral Implants Res. 2019; 30:1155-1164.
123. Corsalini M, Rapone B, Grassi FR, Di Venere D. A study on oral rehabilitation in stroke patients: analysis of a group of 33 patients. Gerodontology. 2010 Sep;27(3):178-82. doi: 10.1111/j.1741-2358.2009.00322.x.
124. Kalemaj Z, Scarano A, Valbonetti L, Rapone B, Grassi FR. Bone Response to Four Dental Implants with Different Surface Topographies: A Histologic and Histometric Study in Minipigs. Int J Periodontics Restorative Dent. 2016 Sep-Oct;36(5):745-54. doi: 10.11607/prd.2719.
125. Rapone B, Inchingolo AD, Trasarti S, Ferrara E, Qorri E, Mancini A, Montemurro N, Scarano A, Inchingolo AM, Dipalma G, Inchingolo F. Long-Term Outcomes of Implants Placed in Maxillary Sinus Floor Augmentation with Porous Fluorohydroxyapatite (Algipore® FRIOS®) in Comparison with Anorganic Bovine Bone (Bio-Oss®) and Platelet Rich Plasma (PRP): A Retrospective Study. Journal of Clinical Medicine. 2022; 11(9):2491.
126. Inchingolo AD, Patano A, Coloccia G, Ceci S, Inchingolo AM, Marinelli G, Malcangi G, Di Pede C, Garibaldi M, Ciocia AM, Mancini A, Palmieri G, Rapone B, Piras F, Cardarelli F, Nucci L, Bordea IR, Scarano A, Lorusso F, Giovanniello D, Costa S, Tartaglia GM, Di Venere D, Dipalma G, Inchingolo F. Treatment of Class III Malocclusion and Anterior Crossbite with Aligners: A Case Report. Medicina. 2022; 58(5):603.
127. Inchingolo AD, Malcangi G, Inchingolo AM, Piras F, Settanni V, Garofoli G, Palmieri G, Ceci S, Patano A, De Leonardis N, Di Pede C, Montenegro V, Azzollini D, Garibaldi MG, Kruti Z, Tarullo A, Coloccia G, Mancini A, Rapone B et al. Benefits and Implications of Resveratrol Supplementation on Microbiota Modulations: A Systematic Review of the Literature. International Journal of Molecular Sciences. 2022; 23(7):4027.
128. Kalemaj Z, Scarano A, Valbonetti L, Rapone B, Grassi FR. Bone response to four dental implants with different surface topography: a histologic and histometric study in minipigs. Int J Periodontics Restorative Dent. 2016; 36(5):745-54.
129. Lorusso, F.; Postiglione, F.; Delvecchio, M.; Rapone, B.; Scarano, A. The impact of diabetes in implant oral rehabilitations: A bibliometric study and literature review. Acta Med. Mediterr. 2020, 36, 3333.