

2013 SOLA, Taipei

New Era of Oral Laser Applications

2013 Taipei World Congress

7th Congress of the International Society for Oral Laser Applications (SOLA)

May ·17 •19 Taipei Medical University

Organizers: • Society for Oral Laser Applications

- Asia Pacific Laser Institute
- International Congress of Oral Laser
- Taiwan Academy of Laser in Dentistry
- Academy of Taiwan Cosmetic & Implant
 College of Oral Medicine TML
- College of Oral Medicine, TMU

Invited Speaker Main Lecture

講師介紹



Prof. Isao Ishikawa Japan

- Professor and Chair, Section of Periodontology, Department of Hard Tissue Engineering, Graduate School, Tokyo Medical and Dental University.
- 2. Professor Emeritus, Tokyo Medical and Dental University
- 3. Invited Professor, Institute of Advanced Biomedical Engineering and Science, Tokyo Women's Medical University



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Lecturer at Nihon University School of Dentistry, Oral Pathology
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 S. Professor at Kanagawa Dental College, Anatomy
 Kosei Dental Clinic, CEO 1972 – 2012

Recent Progress of Photodentistry

Photomedicine in dentistry is rapidly developing. Many new technologies have been introduced to the clinical applications. Erbium YAG laser is approved for insurance system in Japan and can be used for caries elimination and periodontal surgery. Erbium YAG laser together with fluorescent system can be applied for subgingival calculus elimination. Blue light LED irradiation is applied for cancer detection in oral cavity. Optical coherent tomography (OCT) is used for caries and subgingival calculus detection. Thus not only hard laser, but also light emitting diode (LED) can be applicable beneficially in oral and dental treatments. As a novel approach, I would like to present effect of blue and red LED irradiation on oral diseases.

By using blue LED irradiation, photocoagulation method was introduced. Treatment with warfarin impairs clotting and consequently patients have and increase risk of bleeding during surgical procedures and post-operatively. We previously reported that irradiation of blue-violet LED immediately controls socket bleeding after tooth extraction. We examined the effect of the LED irradiation for the prevention of post-operative bleeding after tooth extraction of warfarin taking patients.

Blue-Violet LED irradiation together with spongel application controlled socket bleeding following tooth extraction in most of warfarin taking patients(INR<3.0). The decision whether obliterative sutures were necessary or not could be made after 30 sec. of LED irradiation.

Effect of red LED on periodontopathic bacteria as antimictobial photodynamic therapy was also studied. Inactivation of microorganisms using photodynamic therapy (PDT) is defined as antimicrobial PDT, which involves following three non-toxic ingredients, visible harmless light, a non-toxic photosensitizer and produced singlet oxygen. In this study, a high power red LED was applied as a light source and measured its bactericidal activity against periodontopathic bacteria and mycoplasma. The red LED showed effective bactericide activity with MB and TBO. This system is adequate and safer against eyes than laser based one. It may be applicabable for clinical use.

| Saturday, May 18 丨 11:10 a.m. – 12:00 a.m. | United Medical Building, 16th Floor 丨 醫學綜合大樓16樓演講廳

The Role of Er:YAG laser in Maintenance System Using Cumulative Interceptive Supportive Therapy(CIST)

World-wide the average life span is increasing and equally, implant treatment is being conducted as an alternative apparatus for missing teeth. Implants have been reported to have a high survival rate or success rate. However, peri-implant lesions have also been found to be a common clinical entity 9-14 years after implant placement. If patients have a history of periodontal disease, they are at higher risk to develop peri-implantitis and to undergo additional treatment. Therefore, although at the present time, methods on how to place implants, how to build new bone, and how to show esthetics are main themes, maintenance systems to keep implants in good condition for at least 30 years must be discussed.

Recently, a maintenance system termed Cumulative Interceptive Supportive Therapy (CIST) has been proposed by Dr. Lang. CIST aims to prevent and arrest the peri-implant disease by discussing various evaluation parameters, such as pocket probing depth, bleeding on probing, gingival and plaque scores, radiographic and mobility which should be used to assess the clinical status of the peri-implant environment. CIST continues to state that the detection and treatment of early pathogenic changes during follow-up implant maintenance visits can prevent peri-implant soft tissue inflammation and progressive bone loss. The CIST protocol includes mechanical antiseptic and antibiotic treatment to control ongoing infections followed by regenerative or resective surgical techniques to correct peri-implant bony lesions. Other studies have reported that non-surgical periodontal treatment with Er:YAG laser led to significant improvements in all clinical parameters of periodontal disease and may be an alternative treatment for reduction and control of the proliferation of microorganisms in persistent periodontitis.

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There are several dental lasers on the market, but the benefits of Er:YAG laser includes its ability to; disinfect and sterilize surfaces, not alter titanium surfaces, not rise or only slightly rise in temperature, not induce carbonization, and eliminate waste products created by periodontitis causing microbes.

Among Er:YAG lasers, LiteTouchTM developed by Syneron (Israel) has many aspects which allows ease of use. The benefits of LiteTouchTM includes; the fact that it does not use a fiber to guide the laser beam, it is very sturdy and the maintenance cost is low, the laser chamber is placed within the headpiece, and the laser beam streams to the hand-piece while drilling creating no loss in energy.

In this lecture, the use of the LiteTouchTM laser to maintain implants through a non-surgical periodontal therapy technique according to CIST, will be presented as done at our clinic.

| Sunday, May 19 | 13:30 p.m. – 14:10 p.m. | United Medical Building, 16th Floor | 醫學綜合大樓16樓演講廳