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5th World Congress on

DENTISTRY AND MAXILLOFACIAL SURGERY

September 18-19, 2023 | Rome, Italy

Received Date: 07-19-2023 | Accepted Date: 07-21-2023 | Published Date: 10-20-2023

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The role of genetics and innovation on Dental implants

Genetics could be apllied in several different fields of Dentistry, namely Oral Rehabilitation, Periodontology, Orthodontics, Prenatal Diagnosis. But the main focus for the next years would be in Orofacial Rehabilitation, in Dental Implants, Biomaterials, Oral rehabilitation materials and Medical devices in general.

Implant-supported or implant-retained treatments provide predictable results with improved stability, retention, aesthetic and patient satisfaction. However, understanding the mechanisms of failure of osseointegrated oral implants is essential to treat or to prevent this occurrence. Peri-implantitis is an inflammatory response with a loss of bone support of the implant. Pathogenic bacteria and other factors like biomechanical overload, history of periodontitis, smoking habit, alcohol consumption, and genetic factors have been suggested in the pathogenesis of peri-implantitis. Some research studies analysed the role of some genes and their variants (polymorphisms) in host responses in peri-implantitis and its progression but few have evaluated the time of implant loss. The understanding of the osseointegrated implant failure as a multifactorial process and the clinical observation of repetitive unsuccessful dental implants in certain individuals raise interesting questions related to host susceptibility to failed dental implant. Moreover, the implant surface and design, abutment connection and also the material of the fixed restoration in dental implants and natural tooth may also be in the basis of the success or failure of the oral rehabilitation.

The Research and Industry should walk together in order to solve complications with dental implants Rehabilitations and promote innovation and development with targets to serve the community of Investigators, Industry and the patients.

The information of the clinical practice and science are the power of the SUCCESS!

Recent Publications

1. P Vaz , M M Gallas, A C Braga, J C Sampaio-Fernandes, A Felino, P Tavares. IL1 gene polymorphisms and unsuccessful dental implants. Clin Oral Implants Res. 2012 Dec;23(12):1404-13. doi: 10.1111/j.1600-0501.2011.02322.x. Epub 2011 Nov 10.
2. Suárez-López Del Amo F, Rudek I, Wagner VP, Martins MD, O'Valle F, Galindo-Moreno P, Giannobile WV, Wang HL, Castilho RM. Titanium Activates the DNA Damage Response Pathway in Oral Epithelial Cells: A Pilot Study. Int J Oral Maxillofac Implants. 2017 Nov/Dec;32(6):1413-1420. doi: 10.11607/jomi.6077. PMID: 29140388
3. Søren Jepsen, Jack G Caton, Jasim M Albandar, Nabil F Bissada, Philippe Bouchard, Pierpaolo Cortellini, Korkud Demirel, Massimo de Sanctis, Carlo Ercoli, Jingyuan Fan, Nicolaas C Geurs, Francis J Hughes, Lijian Jin, Alpdogan Kantarci, Evanthia Lalla, Phoebus N Madianos, Debora Matthews, Michael K McGuir, Michael P Mills, Philip M Preshaw, Mark A Reynolds, Anton Sculean, Cristiano Susin, Nicola X West, Kazuhisa Yamazaki. Periodontal manifestations of systemic diseases and developmental and acquired conditions: Consensus report of workgroup 3 of the 2017 World Workshop on the Classification of Periodontal and Peri-Implant Diseases and Conditions. J Periodontol 2018 Jun;89 Suppl 1:S237-S248. doi: 10.1002/JPER.17-0733.

Biography

Paula Vaz has expertise in evaluation and a passion for improving health and well-being, focused on Dental Implant Complications and Orofacial Rehabilitation. Her open and contextual evaluation model based on responsive constructivists creates new pathways for improving healthcare. She has built this model after years of experience in research, evaluation, teaching and Clinical Practice. Both Clinic Practice (Clinica Paula Vaz, Prevage by Paula Vaz) Industry, Research and education institutions (FMDUP, LAETA, Porto University) allow to solve complications with Oral Rehabilitation (Carevage) with Dental Implants based on Science and Innovation.

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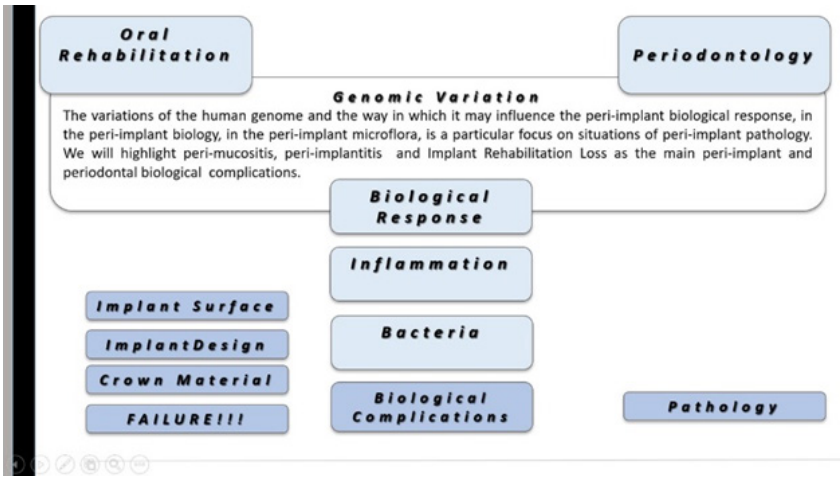

Figure 1: Genetics and Innovation on Dental Implants.