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Platelet rich fibrin in regenerative dentistry: From biological background to clinical applications

Course Description: The use of platelet concentrates has had a long history of use in various fields of medicine as an autologous source of growth factors fabricated utilizing centrifugation of blood under various conditions. While platelet-rich plasma (PRP) was proposed as a first-generation platelet concentrate over 3 decades ago, over the past 10 years, platelet rich fibrin (PRF) has seen a steady increase in utilization for a variety of medical procedures due to its lack of anti-coagulation factors favoring fibrin clot formation and faster wound healing. More recently, further research has demonstrated that shorter and slower centrifugation spin cycles ('the low-speed concept' now termed advanced-PRF, A-PRF+) additionally favors wound healing by incorporating higher populations of white blood cells and progenitor cells within the PRF fibrin matrix leading to higher growth factor release within the local microenvironment. Parallel to these findings, the development of a liquid injectable PRF (i-PRF) provides a new formulation of liquid PRF without using anti-coagulation factors that may specifically be combined with currently available bone biomaterials favoring particle stability, angiogenesis and tissue integration. This course aims to highlight the recent advancements made with respect to the newest formulations of platelet concentrates and systematically presents when, where and why specific platelet concentrates may be utilized to further speed wound healing and tissue regeneration for various clinical indications faced in routine daily dental practice.

Objectives:

- Provide the biological background and scientific rationale for why platelet concentrates speed wound healing
- Introduce the low-speed centrifugation concept and the theory behind these advanced PRF formulations
- Provide clinical indications when, where and why to use A-PRF and i-PRF in regenerative dentistry
- Provide key areas for future uses of A-PRF and i-PRF for everyday dental practice

Biography

Richard Miron is currently an adjunct visiting faculty in the Department of Periodontology in Bern, Switzerland where he completed his PhD studies since 2009. He has currently published over 150 peer-reviewed articles and lectures internationally on many topics relating to growth factors, bone biomaterials, and guided bone regeneration. He has recently been awarded many recent international prizes in dentistry and is widely considered as one of the top contributors to implant dentistry having won the ITI Andre Schroeder Prize in 2016, the IADR Young Investigator of the Year in the field of Implant Dentistry in 2015, and the American Academy of Implant Dentistry (AAID) Young Investigator grant award in 2014. He and Dr. Joseph Choukroun have recently edited the first textbook on PRF titled: "Platelet Rich Fibrin in Regenerative Dentistry: From Biological Background to Clinical Indications"

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