Title (en)

METHOD FOR TREATMENT OF VASCULAR OCCLUSIONS WITH INHIBITION OF PLATELET AGGREGATION

Title (de)

VERFAHREN ZUR BEHANDLUNG VON GEFÄSSVERSCHLÜSSEN MIT HEMMUNG DER THROMBOZYTENAGGREGATION

Title (fr)

METHODE DE TRAITEMENT DES OCCLUSIONS VASCULAIRES PAR INHIBITION DE L'AGREGATION PLAQUETTAIRE

Publication

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Application

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Abstract (en)

[origin: WO03057060A1] This invention is primarily directed to a method for treating vascular occlusions with retardation reduction or prevention of platelet aggregation to deter the occurrence of thrombus. A catheter-based device generates energy, effective to destroy certain biologic tissue by reducing it to cellular size debris and retard or prevent the re-growth of certain platelet containing biological tissue by affecting its ability to aggregate. Pulsed laser light is guided through a catheter encased fiberoptic, the distal end of which is placed in substantial contact with an occlusion in the presence of a liquid medium which is substantially transparent to the laser light, to provide the energy for emulsifying the occlusion while treating platelets disposed upon the interior vascular wall to retard or prevent formation of thrombus. By pulsing the laser at an appropriate repetition rate, a pulsing radiation field can be established locally in the occlusion. The optical energy, impinging the occlusion, generates a rapid positive pressure spike through a liquid to vapor aqueous phase transition, and a subsequent rapid negative pressure spike is produced through a vapor to liquid aqueous phase transition to emulsify the biologic material to cellular size debris. By steady, slow movement of the distal end of the catheter encased fiber optic, so that it remains in substantial contact with the remaining biologic material to be removed a repetitive series of these laser energy produced spikes, emulsify and/or liquefy the biological matter forming the occlusion while treating the surrounding interior vascular tissue to retard or prevent subsequent thrombus growth. Preferably an excimer laser system is used. This method can be used in vivo for the treatment of, for example, thrombolytic vascular conditions to remove and retard recurrence of such conditions.

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