

ABSTRACT FORM FOR 1978 MICROCIRCULATORY MEETING

to:
Dr. Norman C. Staub
151 Deer Hollow Rd.
San Anselmo, California 94960

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INTRAVASCULAR LEUCOCYTE ADHERENCE INDUCED BY REMOTE TISSUE INJURY.

H. N. Mayrovitz, Miami Heart Institute, Miami Beach Florida 33322 and
M. P. Wiedeman and R. F. Tuma, Temple University School of Medicine.

To study the effect of tissue injury on leucocyte adherence in arterial microvessels, small regions of tissue adjacent to vessels in the wing of the bat were exposed to single doses of laser irradiation. The experimental design provided data on the effect of 1) tissue injury of variable extent but at a fixed distance from the arterial vessel and 2) tissue injury of a constant extent but at varying distances from the arterial microvessels. Pre-irradiation controls showed that normally no leucocytes could be observed either adherent to, or rolling along the vessel wall. Following injury and after a quite variable latency time (15 to 400 seconds) there was a time dependent increase in the number of observed leucocytes. Using the latency time as an index an analysis was applied to test the hypothesis that the laser irradiation released some substance which subsequently diffused to the vessel wall. The results of this analysis has shown that all the experimental latency time data can be explained on the basis of a model in which a diffusable "leucotactic" substance is released from the laser site in an amount that is proportional to the surface area of induced injury. Though the precise nature of the released substance is speculative, analysis shows that the process is characterized by an effective diffusion coefficient of approximately 3.5×10^{-7} which is suggestive of high molecular weight substance. (Research supported by Grant HL-19427 from NHLBI)

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Each Abstract form submitted MUST BE SIGNED by a member of the Microcirculatory Society, Inc.


(Member's Signature)

Member's Telephone No.: Area Code 305 # 672,1111

MAILING ADDRESS OF FIRST AUTHOR

Miami Heart Institute

4701 North Meridian Avenue

Miami Beach, Fla. 33140

Zip

Telephone No.: Area Code 305 # 672,1111