Photograph



Title of the Abstract: Investigation on the effects of non-thermal helium plasma jet on scar formation

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Abstract:

Non-thermal plasma (NTP) is a promising biomedical tool in wound healing[1, 2]. However, there is no scientific evidence to prove whether it can inhibit scar formation, and the concrete mechanisms that underlie this effect are poorly understood. Thus, the study tested the role of non-thermal plasma jet in scar tissue formation. Photographs of skin wounds were taken during the healing process and scar samples were collected at day 21 after injury. Hematoxylin / eosin (H&E) staining was performed to observe the real scar width and immunofluorescence was used to detect the expression level of TGF-β, p-Smad2/3 and α-SMA. The level of type I and type III collagen were quantified by Sirius red staining under polarizing microscope. Non-thermal helium plasma jet treatment could accelerate the wound healing process from 5 days after surgery. The scars width in NTP group were narrower than those in control group ($p<0.05$). Lower level of TGF-β1, p-Smad2 and p-Smad3 were detected in NTP treated wounds ($p<0.01$). As expected, α-SMA was also significantly decreased in NTP treatment group ($p<0.01$). The expression of Type I collagen and the proportion of Type I to III collagen were lower in experiment group ($p<0.01$). Non-thermal helium plasma jet not only accelerated wound healing, but also inhibited the formation of scar tissue. Our findings provided a new research perspective for scar revision.

Biography:

Dr. Wang is the Ph.D in the Department of Plastic Surgery at Sir Run Run Shaw Hospital of Zhejiang University School of Medicine. During the past three years, under the strict guidance of her tutor, she has learned systematically the theory of profession and got the basic manipulative skills about plastic surgery. She has submitted the manuscript entitled "Clinical application of 3D continuous suturing technique for triangular wounds" in the Journal of "Annals of Plastic Surgery"[3]. During the period of graduate study, she has mainly studied on promoting the healing of diabetic wounds and the work is being submitted.

Research Interests: *wound healing, scar, biomaterials and tissue engineering.*

References:

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Suggestions of colleagues/Professors/scholars to send invitation (if any)
Suggestions of Sessions to the conference (if any)