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论著

强脉冲激光对小鼠皮肤老化的作用及其机制

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摘要
目的：探讨强脉冲激光(IPL)治疗皮肤老化的作用机制。方法：用IPL在一定能量密度照射小鼠老化皮肤，连续照射2次，间隔为2周，观察小鼠皮肤中SOD 活力，MDA和Hyp含量及凋亡相关基因蛋白Bax，Bcl-2表达水平的变化并与模型组和正常对照组比较。结果： IPL可使小鼠皮肤中SOD 活力、Hyp含量增加，MDA 含量降低，较模型组改变明显（P＜0.05）。IPL照射后小鼠皮肤Bcl-2蛋白表达增高，而对Bax 蛋白影响不明显。结论：IPL对改善皮肤老化有效，其作用机制可能与改善皮肤氧化和抗氧化之间的平衡，恢复氧化酶的活性及提高凋亡抑制基因蛋白Bcl-2的表达，调节皮肤凋亡有关。

关键词 老化 强脉冲激光 超氧化物歧化酶 丙二醛 羟脯氨酸 Bcl-2相关X蛋白 B细胞淋巴瘤/白血病-2蛋白

分类号

Effect and mechanism of intense pulsed laser on skin aging in rats

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Abstract
ObjectiveTo explore the effect of intense pulsed laser (IPL) on anti-aging and its mechanism.MethodsRat skin was continuously irradiated ex vivo by IPL at certain wavelengths with different energy densities. The rats were irradiated twice with an interval of 2 weeks. We measured superoxide dismutase (SOD) activity, malondialdehyde (MDA) content, hydroproline (Hyp) content, and the level of apoptosis-related gene B-cell lymphoma-2 (Bcl-2) and Bcl-2 associated X protein (Bax) in the IPL treatment groups, and then compared with those in the model groups and the control group.ResultsSOD activity and Hyp content in the IPL treatment groups were higher than those in the model groups, and MDA content in the IPL treatment group was lower than that in the model group (P＜0.05). IPL irradiation increased Bcl-2 protein content in rat skin cells, but had no effect on Bax protein expression.ConclusionIPL is effective to improve the appearance of aging skin. Its mechanism may relate to maintaining the balance of oxidation and anti-oxidation, restoring oxidase activity, and regulating the death of skin cells by increasing Bcl-2 expression.

Key words aging intense pulsed laser superoxide dismutase malondialdehyde hydroproline Bcl-2 associated X protein (Bax) B-cell lymphoma-2

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