Histological Study on the Effect of nicotine on Adult Male Guinea Pig Thin Skin.

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Abstract:

Background: Tobacco smoking has been identified as an important factor in premature skin aging. Aim of the work: to detect the histological changes occurred in adult male guinea pig thin skin under the influence of low and high doses of nicotine; which constitutes approximately 0.6–3.0% of the dry weight of tobacco. Material & methods: Fifteen adult male pigmented guinea pigs were equally divided into three groups. Group I: control. Group IIA: (low dose nicotine treated; 3mg/kg subcutaneously for 4 weeks). Group IIB (high dose nicotine treated; 6mg/kg subcutaneously for 4 weeks). Specimens from the back thin skin were processed for light and electron microscopy. Results: Nicotine administration revealed flattened dermo-epidermal junction and reduced rete ridges formation. Collagen bundles were disorganized with increased spaces between them. A reduction in the amount of elastic fibers in the dermis were also observed compared to group I. Ultrastructurally, keratinocytes had hyperchromatic nuclei, intracytoplasmic vacuoles, disruption of desmosomal junctions, irregular tonofilaments distribution, increased inter-cellular spaces. These changes were more pronounced with high dose nicotine administration. The epidermal thickness was reduced in low dose nicotine administration. While, high dose nicotine administration revealed increased epidermal thickness compared to the control group. Conclusion: Nicotine induced structural changes of adult male guinea pig thin skin. These changes were more pronounced with high dose nicotine administration.

Keywords:

nicotine, thin skin, guinea pigs.

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