

EVALUATION OF THE BIOLOGICAL EFFECTS OF COMBINED LIGHT/RADIO FREQUENCY ON INTACT HUMAN SKIN EX-VIVO

Igor Grinberg and Ronald S. Goldstein

Bar Ilan University, Ramat Gan, Israel

Background and Objectives: Combined light/radio frequency (RF) is used for multiple cosmetic applications with great success. We here use human skin grafted to the chorioallantoic membrane (CAM) of chick embryos to investigate effects of this combined treatment on human skin.

Study Design/Materials and Methods Skin from mastectomies (obtained within 2 hours of surgery) was exposed to combined RF/light or only RF or light and cut into multiple samples. Controls were untreated skin, and ungrafted skin that was immediately prepared for histology. Chick eggs of 9–11 days incubation were opened and pieces of skin were placed on the CAM and the eggs were then sealed and returned to the incubator for four days. The skin was then removed from the eggs and prepared for histology. Sections were stained with conventional pathological stains and antibodies for examining normal histology and the presence of collagen fibers, elastin fibers, myofibroblasts, blood vessels and proliferating cells.

Results: Histological evaluation shows that none of the treatments produced marked damage to the skin. We are now performing computerized morphometric analysis of sections for specific cellular and molecular characteristics.

Conclusion: Grafting of human skin on the chick CAM is a potentially an inexpensive and simple method to study the effect of combined electromagnetic radiation on multiple biological characteristics of human skin.