PIGMENTATION

SERUM MICRORNAS IN VITILIGO PATIENTS AND THEIR INFLUENCE ON MELANOCYTE APOPTOSIS

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Introduction: despite significant progress, the exact etiopathogenesis of vitiligo is still unclear. Based on available experimental data, current theories suggest involvement (and possible interplay) of autoimmune, cytotoxic, oxidant-antioxidant and neural mechanisms. Epigenetic factors, studied extensively only recently, have shown their ability to modulate and alter the vital processes of various tissues in specific microenvironments, particularly in tumors. Very few studies evaluated epigenetic factors in vitiligo.

Objective: to evaluate the expression of some specific microRNA clusters in sera from vitiligo patients and the ability of such microRNA molecules to modulate apoptosis in cell cultures of human melanocytes.

Materials and Methods: Serum samples were obtained from 20 vitiligo patients (10 females and 10 males), aged between 18 and 31 years, and 10 age- and sex-matched healthy controls. MicroRNAs were extracted and retro-transcribed individually, and their gene expression was evaluated using real time PCR, using RNU 6 as internal control. To study effects on apoptosis, normal human epidermal melanocytes were grown in Melanocyte Medium plus Bullet Kit, and microRNA mimics/inhibitors were transfected into melanocytes. Cells were transfected twice with 100 pmol of oligonucleotide per well (0.5 x 106 cells) at 24 h intervals. Transfected cells were assayed 48 h after the second transfection.

Results: an altered gene expression of the microRNA cluster studied was observed in patients vs. controls. These microRNAs are already predicted in the databases as modulators of the apoptotic pathway.

Conclusions: based on our preliminary data, and in agreement with the few reports in literature, some epigenetic factors might play an important role in the pathogenesis of vitiligo and represent promising biomarkers and therapeutic targets. Additional functional studies to validate data are warranted, and already ongoing on cell cultures.