OMICS Group Conferences
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International Conference and Exhibition on
Surgery, Anesthesia & Trichology

November 26-28, 2012 Hilton San Antonio Airport, USA

Distribution of Cu, Mn, Se and Zn in occipital and frontal hair zones and hormonal profiles in women with androgenetic alopecia

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AGA is the complicated and combined result of androgen-dependent process based on genetic susceptibility of the androgen receptor to androgens (AR) and intrafollicular conversion of weak androgens to more potential strong via numerous steroid-converting enzymes. The main target of aromatase is to avoid potentially harmful androgen-mediated effects on androgen-dependent hair follicles. It's known that aromatase activity in occipital area is higher than in frontal hair follicles. 153 of 18-45 ages' women fulfilling the criteria for AGA were enrolled. All women had no other sings of systemic androgen excess. The presence of telogen hair and miniaturized hair over occipital area in patient with AGA allowed us to confer the existence of androgen-dependent hair loss in combination with diffuse alopecia in women. The percentage of DHT (dihydrotestosterone) and A(androstenedione) excess was 33,3 and 24% in AGA group respectively vs 18 and 15% in control. The level of Cu in occipital area was greater in comparison with frontal zone in women with AGA. The percentage of copper hair levels above the cutoff of 17 mg/kg was 30, 7% in comparison with 12, 0% in control group. The decreased levels of Mn and Zn were accompanied with the excess of A and DHT. In contrary, the content of Cu was higher in groups with excess of A and DHT than in control group. After treatment of local inhibitor of 5 alpha-reductase main morphological parameters of the hair were closed to normal range. Unfortunately, there was no difference the copper content between before and after treatment. We hypotetized that the difference of copper level in frontal and occipital areas reflected the ratio 5 alpha reductase activity to aromatase. Possibly, that is why using olny 5 alpha-reductase inhibitor was ineffective in women in practice.

Biography

Skalnaya M.G. has completed his Ph.D at the age of 26 years from Research Institute of Human Morphology of the Russian Academy of Medical Sciences and postdoctoral studies from Institute of Nutrition of the Russian Academy of Medical Sciences. She is the director of ANO "Centre for Biotic Medicine", an endocrinologist. She has published more than 57 papers in reputed journals in Russian and English and an editorial board member of Russian journal " Trace elements in Medicine " (Microelementy v Medicine), a coauthor of 9 books.

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