

**Abstract N°: 892****Title: Hair structure and microelement content changes associated with the intense hair loss in patients after COVID-19**

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**Introduction.** Currently, an upward trend is observed in the number of patients with hair diseases, ranging from intense hair loss to various clinical forms of alopecia. The hypothesis of the influence of exogenous and endogenous factors on the functional status of hair, especially essential and toxic ME (microelements), has attracted the attention of numerous researchers.

In the view of recent events in the world, namely the pandemic, the problem of hair loss in people who have suffered a Coronavirus infection is becoming increasingly frequent in the practice of dermatologists. The connection between the hair loss and COVID-19 still needs to be investigated.

The aim of the study was to investigate the ME content in COVID-19 patients complaining of the intense hair loss and to track the hair structural changes.

**Materials and methods.** A total of 25 patients with the history of heavy hair loss and 15 healthy subjects were examined. The hair structure examination was done using scanning electron microscopy (SEM) technique. The ME content in hair was determined through quantitative and qualitative emission spectroscopic analysis.

**Results.** Among the subjects 17 female and 8 male patients with the intense hair loss following coronavirus infection were examined. Patients complained of excessive hair loss about 2 months after the disease. Abrupt hair loss was noted after washing the hairy part of the head and combing hair.

SEM has revealed several types of structural changes in the root structure, namely, with remnants of root sheaths in 12 (48%) patients; atrophic, without root sheaths in 8 (32%); with root sheaths in 5 (20%). Protrusions and depressions were found in the stem structure.

Characterizing quantitative parameters, we have established the difference between the hair ME content in COVID-19 patients suffering the intense hair loss and that of the norm. Statistically probable is a significant ( $p < 0.05$ ), in comparison with the values in the control group, increase in magnesium content (up to  $30.7 \pm 11.81$   $\mu\text{g/g}$ ), chromium (to  $1.54 \pm 0.48$   $\mu\text{g/g}$ ), manganese (to  $2.9 \pm 0.9$   $\mu\text{g/g}$ ), iron (to  $11.3 \pm 3.64$   $\mu\text{g/g}$ ), copper (to  $3.71 \pm 1.15$   $\mu\text{g/g}$ ), barium (to  $6.7 \pm 2.6$   $\mu\text{g/g}$ ) and lead (to  $3.11 \pm 0.9$   $\mu\text{g/g}$ ).

The content of the studied ME in hair statistically significantly differs from parameters found in the control group, which may testify to the combined toxic effect and provoke the increased hair loss.

**Discussion.** The intense hair loss in COVID-19 patients is associated with a significant imbalance of ME. Changes in the structural and spectral composition of hair indicate an atrophic nature of alopecia. The above changes justify the expediency of a detailed examination of such patients followed by the prescription of appropriate pathogenetic therapy.