

# The determination of nitric oxide levels in treatment-naïve hypothyroid females - pilot study

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## BACKGROUND

Hypothyroidism is an atherosclerosis-promoted condition. On the other hand, nitric oxide (NO) has antiatherogenic cardioprotective properties. By some Doppler ultrasound parameters [intima-media complex thickness (IMCT) and systolic velocity (SV)], one can point out the level of atherosclerosis presence in cardiovascular system out of histopathology.

We primarily determine NO levels in studied population and then examine their influence on mentioned Doppler ultrasound parameters.

## METHODS AND DESIGN

In this pilot study, 28 females were divided into hypothyroid and euthyroid-control group (15 and 13 participants, respectively). The NO levels were determined by using of ELISA test. All subjects were referred to one experienced ultrasonographer for measurement of IMCT (mm) and SV (msec) on right femoral artery. Obtained data were analyzed by SPSS.

## RESULTS

Overall median NO levels at presentation were  $37.00 \pm 29.28$  mM and differed between groups ( $\chi^2=47.000$ ,  $p<0.05$ ). Registered median NO levels were 33.4 and 64.02 mM in hypothyroid and control group, respectively. An average overall IMCT and SV were  $0.80 \pm 0.18$  mm and  $0.52 \pm 0.14$  msec, respectively. Regarding to them, there were no statistical difference between groups ( $t_{\text{IMCT}}=1.821$ ;  $\chi^2_{\text{SV}}=77.500$ ,  $p>0.05$ ). NO levels neither correlated with TSH and fT4 levels ( $\rho_{\text{TSH}}=-0.256$ ;  $\rho_{\text{fT4}}=+0.283$ ;  $p>0.05$ ), nor influenced on IMCT and SV ( $\rho_{\text{IMCT}}=-0.291$ ;  $\rho_{\text{SV}}=-0.111$ ;  $p>0.05$ ).

## CONCLUSION

This pilot study reveals higher NO levels in euthyroid group in comparison with treatment-naïve hypothyroid females. Despite the fact that such difference is of statistical significance, small sample size and type of study are important limitations to generalize the conclusion. Additionally, there is registered no influence of NO levels on both Doppler ultrasound atherosclerosis markers. It is necessary to continue this study in regard to determine cut-off values of NO and to explain what in fact lower or higher NO levels mean in individual patient.