

Poster presentation

The influence of peroxynitrite on some blood indices

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Background

At present time scientists of many countries carry out experiments on research of different reactions with nitric oxide and its metabolites. Some works are devoted to the influence of NO on some physiological functions of human organism. Peroxynitrite (PN) is one of metabolites of nitric oxide; PN is synthesized in pathological conditions. This molecule is formed from NO molecule and free radical superoxyde, $O_2^{\bullet-}$ is synthesized from peroxide hydrogenous under the control of superoxyde dysmuthase. The physiological role and activity of PN and it's influence on cells function are remains not clear. We tried to study the influence of peroxynitrite on some stages of blood coagulation process *in vitro* experiments. Main aim of our work was to determine the influence of peroxynitrite on some blood haemostatic indices. Objects of our exams were sex-matched young healthy peoples (19 – 25 years old) who had no blood coagulation disorders and who had abstained from any medication in the preceding 10 days. We used whole blood culture as material for investigation. Haemostasis involves a cascade of events and two common pathways exist: an intrinsic pathway and an extrinsic pathway. To analyze these ways we used two methods: one of them activated partial tromboplastin time (Barcagan Z.S., Momot A.A., 1998) as indicator of extrinsic pathway and second was protrombin time (Barcagan Z.S., Momot A.A., 1998) as indicator of intrinsic pathway. We used reagents and fibrin timer of Behring Company (Germany). We synthesized by method of Beckman J.S. et al. (1990). We used culture of whole blood. For carrying experiment we added peroxynitrite into test tubes and cultivated them for 0.5 h at 37°C. Differences in study characteristics between groups were tested by ANOVA for continuous variables and Pearson's χ^2 -test for categorical variables.

Results

We established that adding of peroxynitrite in blood culture changed blood haemostatic indices: activated partial tromboplastin time (42.2 ± 0.7 s vs. 46.6 ± 1.1 s) and protrombin time (12.1 ± 0.5 s vs. 15.5 ± 1.0 s) are slowed down in all cases.

Conclusion

1) Peroxynitrite changes coagulant properties of whole blood; 2) Adding of this substance cause slowing down of protrombin time and activated partial tromboplastin time. Possibly peroxynitrite acts as destroyer of cell membrane to due this it changes blood coagulation properties or it acting similar nitric oxide through activation of GC and synthesis of cGMP in platelets and as result is slow down of coagulation time.