An Ex Vivo study of Nitric Oxide efflux from Human Erythrocytes in Both Gender

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Introduction: Acetylcholinesterase (AChE) is located on the outer surface of the erythrocyte membrane. Sex-related differences in erythrocyte AChE enzyme activity had been verified in young adults. It is also known that the binding of circulating acetylcholine (ACh) with AChE in the erythrocyte membrane initiates a signal transduction mechanism that stimulates nitric oxide (NO) efflux.

Aims: This ex vivo study was intend to compare the NO efflux from erythrocytes between genders in healthy donors.

Methods: We included 66 gender age-matched healthy donors (40-60 years old). We performed quantification of erythrocyte NO efflux from erythrocytes and AChE enzyme activity.

Results: There are no significant differences in NO efflux from erythrocytes between man and women. Regarding AChE membrane enzyme activity values, in this range of age, no differences between genders were obtained.

Conclusions: The erythrocyte nitric oxide efflux from healthy humans do not change with the gender. The absence of difference is in accordance to the absence of acetylcholinesterase enzyme activity obtained between both genders.

Keywords: Gender; Erythrocyte; Nitric oxide; Acetylcholinesterase