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Comparative studies between amyl nitrite and butyl nitrite in nitrite induced hemoglobin oxidation of diabetics and non diabetics blood

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The effect of amyl nitrite on human Type 2 diabetics blood was undertaken using nondiabetics blood as the control group. It was revealed that diabetics erythrocytes were oxidized by amyl nitrite at a significantly greater rate than control erythrocytes ($P < 0.05$). The mean oxidation time of the diabetics blood was 1.5 ± 0.2 min (sample size is $n=20$) whereas the mean oxidation time of the non-diabetics blood was 3.1 ± 0.5 min (sample size is $n=20$). Next the effect of butyl nitrite on human Type 2 diabetic's blood was undertaken again using non diabetics blood as the control group. These studies revealed that diabetics erythrocytes were oxidized at a significantly greater rate than the control blood ($P < 0.05$). The butyl nitrite mean oxidation time of diabetics blood was 1.4 ± 0.2 min (sample size is $n=14$) and the mean oxidation time of the nondiabetics blood was 4.9 ± 0.6 min (sample size is $n=15$). Thus, these studies demonstrate that diabetics blood has an enhanced susceptibility of oxidation into methemoglobin by both amyl nitrite and butyl nitrite compared to their respective control groups. This similar finding could be attributed to the fact that both amyl nitrite and butyl nitrite are organic nitrites wherein the amyl nitrite contains a saturated five hydrocarbon chain and butyl nitrite contains a saturated four hydrocarbon chain. Thus the difference of one methylene molecule had no statistically significant effect on the rate of oxidation on either human diabetics blood or human nondiabetics blood ($P > 0.05$).

Biography

John Philip Tarburton has completed his Ph.D at the age of 25 years from the University of Nebraska and also did postdoctoral studies at the University of Nebraska. Dr. Tarburton is an Assistant Professor at National University, the second-largest private nonprofit institution of higher learning in California and the twelfth largest in the United States. Dr. Tarburton has published more than 25 papers and abstracts in reputed journals and a book chapter about his research findings.

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