IN VITRO NITRIC OXIDE PRODUCTION DURING CHRONIC HYPERGLICEMIA

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INTRODUCTION. Chronic hyperglycemia associated with infections promotes excessive inflammatory mediators production, which can lead to tissue damage. OBJECTIVE. Thus, this study aims to evaluate chronic hyperglycemia effect in nitric oxide (NO) in vitro production under normal conditions as well as in immune/inflammatory response. MATERIAL AND METHODS. RAW 264.7 monocytes were stimulated or not with different concentrations of D-glucose (8 mM, 12 mM and 24 mM), in the presence or absence of LPS (0.1 mg.mL-1) and IFN-γ (10 U.well-1) for 24 h and 72 h, in humidified atmosphere of 5% CO2 at 37°C. Cell viability (MTT colorimetric assay) and NO production (in cellular supernatant) were analyzed. Statistical analysis were made by ANOVA One Way (Post hoc of Bonferroni) and Student’s t-test, considering p<0.05. RESULTS AND DISCUSSION. Cell viability was higher than 60% in all groups tested. Otherwise cell viability was increased when compared to negative control group (cells in lysis solution). In 24 and 72 h, NO production in groups stimulated with D-glucose raised in comparison to normal conditions. In LPS and IFN-γ presence, after 72 h, production was even higher. The highest NO production was 3.78 mM and 3 mM, in groups stimulated with 8 mM and 12 mM of D-glucose, both with LPS, respectively. NO production was reduced only in 24 mM concentration of D-glucose. CONCLUSION. NO production, stimulated in D-glucose presence, apparently positively influences initial immune response. However, if continued for a long period of time, it might be related with sustained inflammatory process, causing tissue damage often observed in diabetic patients.

KEY-WORDS: Nitric oxide; chronic hyperglycemia; immune/inflammatory response.

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