

The Level of Nitric Oxide Synthase and Nitric Oxide in Hypertensive Women

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Abstract

Hypertension is a cardiovascular problem with high rates of epidemiology and risks of morbidity and mortality in the global area. Nitric oxide (NO) is one of the reactive oxygen species (ROS) that produced from L-arginine by nitric oxide synthase (NOS) enzyme. NO involves in various vital processes in human health, one of which is the modulation of vasoconstriction and relaxation of the vascular system. We have aimed to investigate the link between NO and NOS with hypertension in women. The relationship between NO and NOS, as well as the usefulness of them as indicators of hypertension risks were subjects of study in this article. The results have revealed that hypertensive women had significant ($P < 0.05$) lower levels of NO (15.07 ± 3.41 IU/mL) and NOS (9.79 ± 2.08 ng/mL) in their serum compared to normotensive healthy women. The results have shown strong relationship between nitric oxide synthase/nitric oxide and hypertension in women. The reduction of NOS in the serum of hypertensive women leads to a reduction in the circulation levels of NO. Nevertheless, the NOS reduction may not be the only reason for the reduction of NO, which can be caused by elevated oxidative stress. Based on these results, we suggest the controlling of NOS and NO in hypertensive people to reduce the risks of cardiovascular problems.

Keywords: Hypertension, NO, NOS, oxidative stress.

1. INTRODUCTION

Essential hypertension is a long-term increase in the blood pressure caused by a variety of genetic as well as environmental factors. Its prevalence increases with age, regardless of the method of measurements or the diagnostic thresholds used. Essential hypertension affects 25–35 percent of the adult population in both developed and developing countries, as well as up to 60–70 percent of individuals in their seventh decade. Because of a shared underlying etiology, hypertension clusters with other cardiovascular risk factors as abdominal obesity, dyslipidemia, glucose intolerance, hyperinsulinemia, as well as hyperuricaemia [1].

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