

JOINT EVENT

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## Effect of sodium nitroprusside on renalase, catecholamines and nitric oxide changes in post-coronary bypass surgery complicated by hypertension

**Suna Aydin**

Elazig Education and Research Hospital, Turkey

**R**enalase is an enzyme that mediates lowering of blood pressure by destroying catecholamines. Hypertension is one of the most common complications after coronary artery bypass (CABG) surgery, and this complication is usually averted by administration of sodium nitroprusside (SNP), which lowers blood pressure by dilating blood vessels through nitric oxide (NO). Thus, the aim of the present study is to examine the changes in renalase, catecholamine and nitric oxide (NO) before and after administration of sodium nitroprusside to lower blood pressure in patients developing hypertension following coronary artery bypass (CABG) surgery using biological samples collected in the first 6 to 8 hours, and at 24<sup>th</sup>, 48<sup>th</sup> and 72<sup>nd</sup> hours and to find out its relations with certain hemodynamic parameters. The study registered 26 patients who developed hypertension in the first 6 to 8 hours after CABG, 12 patients who had normal blood pressure after CABG, and 22 healthy individuals. ELISA method was used to measure renalase concentrations and catecholamine levels, and nitric oxide levels were quantified by spectrophotometry. Renalase concentrations and NO levels of the patients who developed hypertension in the first 6 to 8 hours were found significantly lower and catecholamine levels were significantly higher than those in controls and cases who did not develop hypertension. After starting sodium nitroprusside (SNP) administration, these patients showed a statistically significant increase in renalase concentrations and NO levels and a noteworthy decrease in catecholamine levels at 6 to 8, 24, 48 and 72 hours. In addition, a slight increase was found in heart rate and decreases was recorded in the systolic arterial pressure (SAP), diastolic arterial pressure (DAP) and mean arterial pressure (MAP) following sodium nitroprusside administration. Consequently, the data obtained in this study suggest that administration of nitroprusside lowers the blood pressure by not only increasing NO production (vasodilation), but also elevating the quantities of the renalase enzyme, which destroys catecholamines. It is believed that addition of renalase to medications used to lower blood pressure in the future can help in preventing hypertension.

### Biography

Suna Aydin received her Doctor of Medicine degree (MD) from School of Medicine, University of Firat, and Elazig in 1998. In 2011 at the Dicle Medical School she received her specialization degree in Cardiovascular Surgery, and in 2015 she received her PhD diploma Anatomical Science from Firat University Institute of Health Sciences. She currently works as a Surgeon at Department of Cardiovascular Surgery of Elazig Education & Training Hospital of Elazig Campus of Health Sciences University. She is the author of numerous scientific articles within the field of Cardiac Surgery and Anatomical Sciences. She has served as an Editorial Board Member of several international journals and she is Reviewer for several international journals.

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