



12. THE ROLE OF NO AND H₂S IN CIRCULATORY HOMEOSTASIS REGULATION AND DYSFUNCTION

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Introduction. Modern concept corroborates vascular endothelium as a crucial pillar regarding the control of a lot of vascular derived functions in circulatory homeostasis, such as: basal vascular tone and blood pressure, anti-platelet, anti-thrombotic, anti-apoptotic, anti-growing, anti-proliferative activity etc. Nitric oxide (NO) and hydrogen sulfide (H₂S) are considered as important factors in this range of events, because their deficiency is associated with tangible disorders of circulatory homeostasis.

Aim of study. Unraveling the role of NO and H₂S in circulatory homeostasis regulation and dysfunction.

Methods and materials. Was analyzed a material reflected in 20 recent articles found in Google.

Results. NO is a gas produced by endotheliocytes from L-arginine under the action of neuroendocrine factors and hemodynamic stress. One of its main functions is vascular dilation due to cGMP formation in the smooth vascular cells. Likewise, NO inhibits expression of proinflammatory cytokines, blunts oxidative stress, decreases platelet adhesion, and mitigates vascular remodeling. H₂S is also a gas produced by endotheliocytes from cysteine. It decreases vascular tone due to phosphodiesterase inhibition, upregulates antioxidant enzymes and decreases oxygen radical production, inhibits smooth vascular cell hypertrophy and proliferation, prevents platelet aggregation, has anti-atherogenic effect because decreases the level of homocysteine and LDL-cholesterol. Such serious diseases as arterial hypertension, stroke, and acute myocardial infarction are associated with reduced amounts of NO and H₂S. A common pathogenic factor of NO and H₂S lack is endothelium injury due to atherosclerosis, systemic inflammation, diabetes.

Conclusion. Both NO and H₂S, as endothelium derived factors, demonstrate a large palette of beneficial functions concerning the circulatory homeostasis regulation, and their penury due to endothelial damage is viewed as an important trigger and tool of serious cardiovascular maladies, such as arterial hypertension, stroke and acute myocardial infarction.