題名:Nitric Oxide in the Cardiovascular and Pulmonary Circulation-A Brief Review of Literatures and Historical Landmarks

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摘要:Nitric oxide (NO) is an important gas molecule that plays a pivotal role in physiology and pathology in various systems. Our laboratory has been working on the hypertensive cardiovascular disorders and pulmonary edema for more than 30 years. In this brief review article, we have described the role of NO in hypertension, pulmonary disorders, sepsis, and to some extent, the endothelial factors on the arterial baroreceptors and cerebral blood flow. Our studies indicate that the vasodilatory effects of endogenous NO act primarily on the small resistance vessels. The large conduit vessels are less affected. In contrast to the earlier work suggesting that NO or endothelial function is impaired in hypertension, we have provided evidence to indicate that the NO release or function is enhanced in rats with hypertension. Chronic NO deprivation in rats with spontaneous hypertension facilitates the progression of hypertension to malignant phase with marked functional and structural changes in blood vessels of various organs. In most studies using isolated perfused lungs, our results show that NO exerts toxic effect on the lung injury following ischemia/reperfusion, air embolism, endotoxemia and hypoxia. Recent clinical investigations have revealed that the inducible NO synthase (iNOS) expression was increased in patients with enterovirus and other infections, suggesting a detrimental role of iNOS and NO in the acute lung injury. In this review article, we have also provided the experiences, results and stories in our laboratory during a relatively long period

investigating the good and bad sides of NO on the cardiopulmonary functions. The purposes are two-fold: first, to share the experience and stories for scientific and educational purposes; and second, to encourage young investigators to continue work on many questions yet unanswered.