SHORT-TERM CARDIOVASCULAR EFFECTS OF ANTIOXIDANT N-ACETYLCYSTEINE IN A MECONIUM-INDUCED ACUTE LUNG INJURY

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Anti-inflammatory drugs are increasingly used for treatment of neonatal meconium aspiration syndrome (MAS), however, their potential adverse effects are poorly known. Therefore, aim of this study was to evaluate effects of antioxidant N-acetylcysteine on cardiovascular parameters in an animal model of MAS. Oxygen-ventilated rabbits were intratracheally instilled 4 mL/kg of meconium suspension (25 mg/mL) or saline. Thirty minutes later, meconium-instilled animals were intravenously given N-acetylcysteine (10 mg/kg), or were given the same volume of saline. Changes in cardiovascular parameters (blood pressure, heart rate, and heart rate variability) were evaluated within 5 min of administration and 5 min after finishing the administration, and within 5 hours following treatment administration. Oxidation markers [thiobarbituric acid-reactive substances (TBARS), and total antioxidant status] and aldosterone as a non-specific marker of cardiovascular injury were determined in the plasma. Meconium instillation did not evoked any significant cardiovascular changes, but induced oxidative stress and elevated plasma aldosterone. N-acetylcysteine significantly reduced the mentioned markers of injury, however, its administration was associated with short-term increase in blood pressure and elevation in several parameters of heart rate variability. Considering these changes observed in the meconium-instilled animals, intravenous administration of N-acetylcysteine in the newborns with MAS should be carefully monitored.

Supported by: Center of Excellence in Perinatology Research (CEPV II) No. 26220120036, Project APVV-0435-11, and Grant VEGA No. 1/0057/11