

## Hemodynamic Effects of Magnesium Sulphate Therapy in Critically Ill Infants and Children with Wheezy Chest

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**Abstract :** Intravenous and inhaled magnesium sulfate ( $MgSO_4$ ) had been recently used as an adjuvant therapy in cases suffering from the wheezy chest. Objective: We aimed to determine the possible change in the hemodynamic state in cases received intravenous or inhaled  $MgSO_4$  in comparison to cases received standard treatment in critically ill infants and children with the wheezy chest. Methods: A randomized controlled trial comprised 81 patients suffering from wheezy chest divided into 3 groups. In addition to bronchodilators and systemic steroids,  $MgSO_4$  was given by inhalation in group A, intravenously in group B, and group C didn't receive  $MgSO_4$ . The hemodynamic state was determined by assessment of blood pressure, heart rate, capillary refill time and the need for shock therapy or inotropic support just before and 24 hours after receiving treatment in 3 groups. Results: There was no significant difference in the hemodynamic state of the studied groups before and after treatment. Means of blood pressure were 102.2/63.2, 105.1/64.8 before and after inhaled  $MgSO_4$ ; respectively. Means of blood pressure were 105.5/64.2, 104.1/64.9 before and after intravenous  $MgSO_4$ ; respectively. Means of blood pressure were 107.4/62.8, 104.4/62.1 before and after standard treatment, respectively. There was a statistically insignificant reduction of the means of the heart rate in group A and group B after treatment rather than group C. There was no associated prolongation in capillary refill time and/or the need for inotropic support or shock therapy after treatment in the studied groups. Conclusion:  $MgSO_4$  is a safe adjuvant therapy and not associated with significant alteration in the hemodynamic state in critically ill infants and children with the wheezy chest.

**Keywords :** critically ill infants and children, inhaled  $MgSO_4$ , intravenous  $MgSO_4$ , wheezy chest

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