

Nebulized Magnesium Sulfate in Acute Moderate to Severe Asthma in Pediatric Patients

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Abstract : A prospective double-blind placebo controlled trial carried out on 60 children known to be asthmatic who presented to the emergency department at Alexandria University of Children's Hospital at El-Shatby with acute asthma exacerbations to assess the efficacy of adding inhaled magnesium sulfate to β_2 -agonist, compared with β_2 -agonist in saline, in the management of acute asthma exacerbations in children. The participants in the study were divided in two groups; Group A (study group) received inhaled salbutamol solution (0.15 ml/kg) plus isotonic magnesium sulfate 2 ml in a nebulizer chamber. Group B (control group): received nebulized salbutamol solution (0.15 ml/kg) diluted with placebo (2 ml normal saline). Both groups received inhaled solution every 20 minutes that was repeated for three doses. They were evaluated using the Pediatric Asthma Severity Score (PASS), oxygen saturation using portable pulse oximetry and peak expiratory flow rate using a portable peak expiratory flow meter at initially recorded as zero-minute assessment and every 20 minutes from the end of each nebulization (nebulization lasts 5-10 minutes) recorded as 20, 40 and 60-minute assessments. Regarding PASS, comparison showed non-significant difference with p-value 0.463, 0.472, 0.0766 at 20, 40 and 60 minutes. Regarding oxygen saturation, improvement was more significant towards group A starting from 40 min with significant p-value=0.000. At 60 min p-value=0.000. Although mean PEFr significantly improved from zero-min in both groups; however, improvement was more significant in group A with significant p-value = 0.015, 0.001, 0.001 at 20 min, 40 min and 60 min, respectively. The conclusion this study suggests is that inhaled magnesium sulfate is an efficient add on drug to standard β_2 - agonist inhalation used in the treatment of moderate to severe asthma exacerbations.

Keywords : nebulized, magnesium sulfate, acute asthma , pediatric

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