STUDENT CORNER-
LETTER TO THE EDITOR

The use of Intravenous Magnesium Sulfate as early therapy in paediatric asthma: A breakthrough in the making?

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Asthma is a major non-communicable chronic disease, affecting 262.41 million people worldwide in 2019.[1] South Asia, High-Income North America and Western Europe reported a high prevalence rate of 39.87 million, 35.61 million, and 27.04 million respectively.[1]

According to a study by Serebrisky et al, exposure to road traffic makes children more susceptible to asthma symptoms, complications, and hospitalizations.[2] This study also emphasized the role of indoor air pollution and exposure to environmental tobacco smoke as potential risk factors for childhood asthma. Intravenous magnesium sulfate (IV Mg) is being explored as the preferred second-line bronchodilator treatment for asthma exacerbations in children unresponsive to initial inhaled therapies. A recent study by DeLaroche et al. compared the management of asthma exacerbation in children who were given early vs delayed IV Mg.[3] Early administration of IV Mg was linked to a prompter delivery of bronchodilators and corticosteroids and was safe and effective without influencing the number of return paediatric emergency department visits or hospitalizations. Extensive research on Pubmed revealed multiple studies advocating for the effectiveness of IV Mg in improving lung function, decreasing the risk of hospitalizations, and minimizing the need for additional treatment in children with acute asthma.[4] Thus, this therapy should be explored as a less costly management option in reducing hospital burden, healthcare cost and hospital readmission. IV Mg should be administered at a 25-50 mg/kg dose, but therapeutic drug concentrations might also be attained by larger doses of 50-75 mg/kg.[5] Moreover, IV Mg is less costly but more effective compared to standard treatment for acute paediatric asthma, and could therefore be a revolutionary therapy in resource-deprived countries. Other potential second-line therapies for treating asthma exacerbations in children include parenteral beta-2 agonists, aminophylline, terbutaline, and intravenous salbutamol.[5] However, there is a paucity of well-designed clinical trials comparing the potency and safety profiles of IV Mg with other second-line therapies. This is worsened by inconsistencies in outcome parameters such as clinical rating scales. The side effects of second-line bronchodilator treatments also need to be researched further. Until IV Mg is proven to be safer and more effective than other second-line agents by substantial and consistent evidence, this drug should not be recommended as the most suitable treatment option after bronchodilators and corticosteroids have failed as first-line therapies.

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