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Title: Role of MgSO₄ in PICU management of children with status asthmaticus

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Body: Background: This retrospective study was done to understand the use of MgSO₄ for treatment of children with status asthmaticus in a pediatric intensive care unit (PICU). Methods: Charts of all patients ≥ 5 years of age admitted to the PICU with status asthmaticus, at Nationwide Children's Hospital, Columbus, OH, between 2000-2007 were reviewed. Results: Among 222 encounters, 203 received continuous albuterol, 216 received IV steroids, 113 receive Terbutaline, 17 received mechanical ventilation, and 57 (25.7%) received MgSO₄. All patients survived. Children who received MgSO₄ vs. those who did, median PICU and hospital stay were one day longer and differences were significant. There were no significant differences between groups in any other features. Significant improvements in median pH (p=0.027) and PaCO₂ (p=0.017) were noted in both groups.

	MgSO ₄ (n=57) Median (Min-Max)	No MgSO ₄ (n=165) Median (Min-Max)	p
Age in years	11 (6-18)	10 (6-21)	NS
Duration of Symptoms (years)	10 (1-17)	9 (0-20)	NS
PICU Stay (days)	2 (1-17)	1 (1-12)	0.038
Hospital Stay (days)	4 (1-15)	3 (1-10)	0.002
Initial CBG (pH)	7.36 (7.06-7.65)	7.36 (6.85-7.58)	NS
Initial CBG (PaCO ₂)	38 (16-109)	38 (21-130)	NS
Last CBG (pH)	7.44 (7.38-7.51)	7.39 (7.28-7.51)	0.009

Last CBG (PaCO ₂)	35 (30-40)	38 (24-47)	NS
Air space disease on CXR	16 (32.8 %)	39 (35.6%)	NS
Required Mechanical Ventilation	6 (10.5 %)	11 (6.7%)	NS

Conclusion: Among children admitted to PICU for status asthmaticus, MgSO₄ recipients stayed longer in PICU and in the hospital though their acute illness was not significantly worse than those not receiving MgSO₄ as observed by their initial CBG, need for mechanical ventilation or presence of air space disease on chest radiographs.